ALMONDBANK FLOOD PROTECTION SCHEME

BAT HABITAT AND ROOST ASSESSMENT

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1. INTRODUCTION

1.1 Background

1.1.1 Young Associates conducted a bat habitat and roost assessment survey in the vicinity of the River Almond and East Pow Burn, near Almondbank, Perthshire on the 26th October 2007. This survey was commissioned by Mouchel to inform an Environmental Impact Assessment of the proposed Flood Protection Scheme for Almondbank. The scheme will involve the installation of measures such as sluice gates, flood walls, pumping station, flood embankment, abutments and construction of a footbridge, sheet piling, gabion baskets and a new road bridge to Lochty Park.

1.2 Legislative Context

1.2.1 All bat species are listed within Annex IV of the EC Habitats Directive (Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (92/43/EEC)) and are designated as European protected species (EPS) under Regulation 39 (1) of the Conservation (Natural Habitats & c.) Regulations 1994 ('Habitat Regulations') and The Conservation (Natural Habitats & c.) Amendment (Scotland) Regulations 2007. This means that it is an offence to:

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

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

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

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

1.2.3 Common pipistrelle *Pipistrellus pipistrellus* is listed on Appendix III (protected fauna) of the Bern Convention, while other bat species within the Microchiroptera are listed on Appendix II (strictly protected fauna) of this Convention.

2. ASSESSMENT METHODOLOGY

2.1 Methodology

2.1.1 A daytime visit was made on the 26th October 2007 to evaluate the potential bat interest of the site and to search for potential bat roosts in stone-built structures and mature trees. The habitat-based assessment concentrated on identifying location(s) where potential roosts and foraging areas co-exist, and are linked to the wider countryside by "flight lines". Trees with bat potential have cracks, crevices, loose bark flakes or dead limbs, while structures with bat potential have cracks and crevices, particularly in the mortar between bricks. Evidence of bat presence includes staining, scratch marks, bat droppings, insect remains, dead bats beneath or around access points and the presence of live bats.

2.1.2 In addition to the above surveying, a search of the National Biodiversity Network (NBN) Gateway website was undertaken to gather existing information regarding bat species previously recorded in the local area.

2.1.3 Bat surveying followed current guidance including 'Bat Surveys – Good Practice Guidelines' (BTO, 2007) and 'Bat Workers' Manual' (Mitchell-Jones & McLeish, 2004).

2.2 Survey Constraints

2.2.1 The survey was completed in late October, a sub-optimal survey period for bats as they should have gone into hibernation at this time of year. Habitat and potential roost assessment is still possible at this time of year, however evidence of bat activity is limited. Weather conditions were sunny and dry on the day of survey.

3. SURVEY RESULTS

3.1 Desk Study

3.1.1 The NBN Gateway website returned records of Daubenton's Bat *Myotis daubentonii*, Natterer's Bat *Myotis nattereri*, Common pipistrelle *Pipistrellus pipistrellus*, Soprano pipistrelle *Pipistrellus pygmaeus* and Brown Long-eared bat *Plecotus auritus* within the 10 km grid square within which the survey area falls.

3.2 Daytime Bat Habitat Assessment

(Target Notes (TN) refer to Figure 1 at the end of this report)

3.2.1 TN1. A large stone built road bridge crossing the River Almond at the northern extent of the scheme. The bridge is in a good state of repair and well pointed throughout resulting in limited features with the potential to support roosting bats. Due to the height of the bridge and cables attached to the side of the bridge obscuring areas, not all of the bridge could be viewed in detail. The bridge should not be affected by the development so no further survey is required.

3.2.2 TN2. An area of woodland is present on a steep slope on the right bank of the River Almond, opposite the trout farm. The woodland is dominated by sycamore *Acer pseudoplatanus* and ash *Fraxinus excelsior* but few trees display features with potential to support roosting bats. Some of the larger trees are covered with ivy *Hedra helix* and so could have hidden roost sites and have been assessed as having moderate potential. As this area of woodland should be unaffected no further survey is required. The woodland provides good foraging habitat and flight lines.

3.2.3 TN3. Mature broad-leaved semi-natural woodland dominated by beech *Fagus sylvatica* and sycamore, with frequent ash and horse chestnut *Aesculus hippocastaneum* and occasional oak *Quercus robur*. The woodland is located to the north of the scheme along the left bank of the River Almond just below the road bridge and above the trout farm, on the rivers flood plane and up the slope. Most trees display few features with the potential to support roosting bats, particularly those trees close to the river channel. However some of the more mature trees have developed small rot holes and some have a limited number of dead limbs. One large oak at the top of the slope by the bridge was assessed as having high potential and one large ash down nearer the river with dead limbs, covered with dense ivy was also assessed as having high potential. No development is planned within this area of woodland and as such no trees are likely to be affected, although access may be an issue. Once it has been decided which trees, if any, will be affected by the development then a further assessment can be made. The area of woodland provides good foraging habitat and flight lines.

3.2.4 TN4. There is an area of semi-mature to mature alder *Alnus glutinosa*, hazel *Corylus avellana* and sycamore on the left bank of the River Almond surrounding the trout farm where flood walls are planned. The trees are generally not mature enough to have developed features with potential to support roosting bats and have been assessed as low potential. No further survey for bats will be required.

3.2.5 TN5. NO 06729 25798. The footbridge (Black Bridge) across the River Almond near the centre of the scheme is metal in construction, with cement foundations sitting flush with each bank. The structure lacks features with the potential to support roosting bats but is

surrounded by high quality foraging habitat and other potential roost sites. No further survey is required.

3.2.6 TN6. NO 06729 25798. The River Almond passes beneath the footbridge (Black Bridge) near the centre of the scheme, adjacent to the playing fields. The watercourse is wide and slow flowing in this section with a calm glide, providing good foraging habitat for Daubenton's bats, as well as other species. The river banks are vegetated with a mixture of young, semi-mature and mature trees including alder, sycamore, ash, silver birch *Betula pendula* and horse chestnut. Most trees bordering the river have relatively low potential to support roosting bats, however several mature ash and sycamore are present and are covered with dense ivy which can hide potential roost sites. The mature ivy covered trees along the banks of the River Almond have been assessed as having moderate potential to support roosting bats, particularly the ash which are known to commonly develop features of use to roosting bats. An ash by the foot bridge on the left bank was assessed as having high bat potential. Any mature trees covered with ivy along the main watercourse will require further survey if affected by the development, although it appears that works will only be carried out on limited sections of the left hand bank. Once the trees to be affected have been identified a more detailed survey can be completed.

3.2.7 TN7. Small road bridge which passes over the East Pow Burn just before it joins the River Almond. The bridge is constructed from stone, is in good condition and well pointed throughout. Features with the potential to support roosting bats were not recorded and due to the low level of the bridge and liability for flood waters to rise to the level of the bridge, any features would be unsuitable for use by roosting bats. No further survey required.

3.2.8 TN8. A large mature oak, set back from the river in the front garden of a residential property where the East Pow burn enters the River Almond. A new bridge and a flood wall are planned in close vicinity. The oak appears in good health and few features with potential to support roosting bats are evident lower down. However the upper reaches are hard to assess and a tree of this size and age is likely to have developed features in places. A small number of mature ivy covered ash and sycamore are also present on the banks of the East Pow Burn near the bridge and may be affected. Again, no features were recorded but the dense ivy may hide potential roosts. If the oak or mature trees around the small bridge are to be affected by the development a closer inspection will be required.

3.2.9 TN9. Five large mature ash and one alder, all covered with dense ivy and with dead limbs visible, assessed as having moderate to high potential to support roosting bats are present on the left bank of the River Almond near the Low's Work weir. The trees are in close proximity to high quality foraging habitat with the river, further trees and an area of amenity grassland. Flood embankments are planned in the vicinity of the trees which are likely to be affected. If the trees are to be affected further survey will be essential. If at all possible these trees should be avoided.

3.2.10 TN10. Mature broad-leaved woodland is present either side of the River Almond downstream of the planned works, with several large mature oak, as well as mature ash and alder. The trees are along a public path and have been well cared for. As such features were not immediately apparent, although loose bark and rare dead limbs were visible on some of the oak trees. Dense ivy covered many of the smaller trees. The trees in this section were assessed as having moderate potential to support roosting bats, although flood mitigation is not planned in this area.

3.2.11 TN11. A thin strip of broad-leaved semi-natural woodland along the right bank of the East Pow Burn, to the east of the MOD site. The woodland is dominated by semi-mature willow *Salix* spp. and occasional sycamore and ash. Flood mitigation is planned along the burn in this area, but mainly set back from the riparian tree corridor. A short stretch of the watercourse will, however, be widened on the right bank. Most trees have low potential to support roosting bats, however a couple of the willow have splits which have moderate potential as roost sites. If any trees are to be affected, particularly one of the mature ash or larger willow, further inspection would be advised. The strip of woodland represents good foraging habitat for bats and an excellent flightline connecting the areas of mature woodland described in TN's 12 & 13 and further high quality roosting and foraging habitat along the River Almond.

3.2.12 TN12. Broad-leaved plantation to the south of the scheme and the MOD site, directly adjacent to the East Pow Burn. The woodland is dominated by beech, with frequent semi-mature birch, ash, hawthorn *Crataegus monogyna* and hazel. Flood mitigation is planned along the East Pow Burn in the vicinity of this woodland, surrounding the MOD site, however few or no trees are present on the side of the burn on which works are planned. Most trees within the woodland were assessed as having low potential to support roosting bats, few having developed features of interest. No further survey will be required unless access is required through the woodland and trees are to be felled, particularly any of the mature beech trees. The woodland provides good foraging habitat and flight lines.

3.2.13 TN13. An area of mature broad-leaved semi-natural woodland to the south of the scheme and the MOD site, dominated by oak, ash and sycamore. Several mature oak are present within the woodland which are assessed as having moderate potential to support roosting bats displaying features such as rot holes, dead limbs, cracks and loose bark. The woodland also provides good foraging habitat and flight lines. This area of woodland should not be affected by the development, but if that changes further survey will be required.

3.2.14 TN14. Semi-natural broad-leaved woodland dominated by birch and sycamore with a few mature willow is present along the banks of the East Pow Burn, to the south of the MOD site. Most trees have been assessed as having low potential to support roosting bats as they have not yet developed features of use, however the woodland provides good foraging habitat and flight lines. One mature willow displaying cracks and splits is present nearer where the burn passes under the road and was assessed as having low to moderate potential. Flood mitigation is planned in this area and further assessment will be required if this tree is to be affected. The Burn does not represent good potential foraging habitat for Daubenton's bats as it is narrow and has broken water. The burn provides good foraging habitat for other bats though.

3.2.15 TN15. Area of mixed mature plantation on the slopes behind Almondbank, to the south west of the scheme. The woodland is dominated by sycamore and ash with occasional hawthorn and Scots pine *Pinus sylvestris*. The woodland provides good foraging habitat and flight lines for bats and several trees have moderate potential to support roosting bats. This area will not, however, be affected by the proposals.

4. SURVEY CONCLUSIONS & RECOMMENDATIONS

4.1.1 Due to the extensive high quality foraging and potential roosting habitat present within the survey area in was not practical to attempt to identify all trees with the potential to support roosting bats. As such a general habitat assessment of each area was made in relation to bats and a recommendation made as to whether further survey work would be required in light of the proposed works.

4.1.2 Trees with the potential to support roosting bats occur in close proximity to planned works at TN's 6, 8, 9, 11, 12 and 14. Once more detailed plans are available regarding the extent of the development and whether or not trees in these areas will be affected by the measures implemented, further survey work required can be identified.

4.1.3 In some cases where trees are easily accessible, features with potential to support roosting bats can be examined with the use of an endoscope. Where close inspection is not possible, or where trees are covered with dense ivy, dusk and dawn emergence surveys may be required.

5. REFERENCES

Bat Conservation Trust, 2007. Bat Surveys – Good Practice Guidelines.

Mitchell-Jones & McLeish, 2004. Bat Workers Manual.

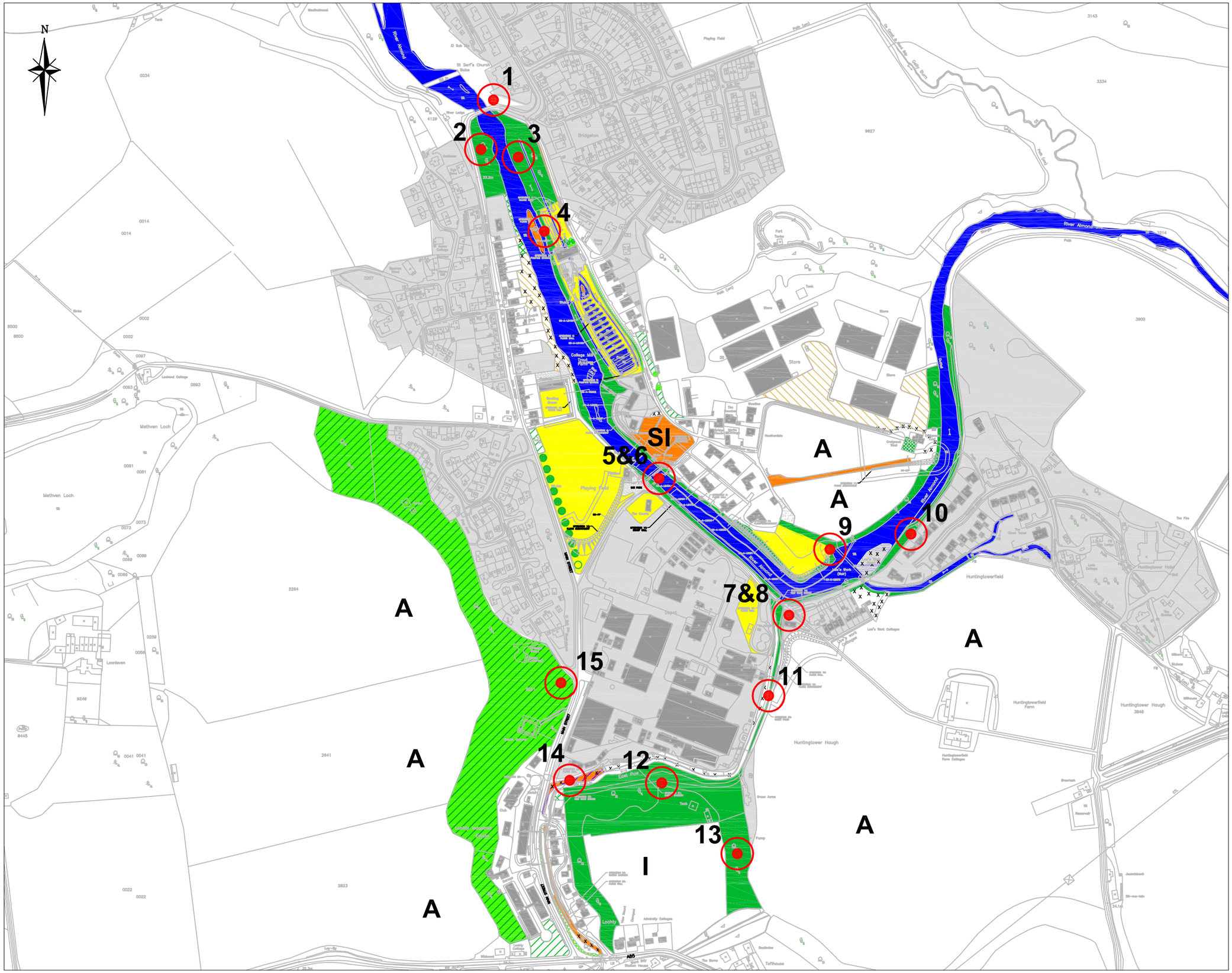

Figure 1

Figure Title:
Bat Habitat Assessment Target Notes

Project:
Almondbank

Key:

- 1 — Target Note
- Waterbody/Watercourse
- Semi-natural Broad-leaved Woodland
- Plantation Broad-leaved Woodland
- Mixed Plantation
- Dense Scrub
- Scattered Scrub
- Unimproved Neutral Grassland
- SI — Semi-improved Neutral Grassland
- I — Improved Grassland
- Tall Ruderal
- A — Arable
- Marshy Grassland
- Amenity Grassland
- Bare Ground/Built up Areas
- Mixed Scattered Trees
- or — Lone Trees
- Native Species-rich Intact Hedgerow

Scale:	1:5 000
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