Greater Manchester Passenger Transport Executive

Manchester Metrolink Phase 3B – Airport Line

Ecological Walkover Survey – Ringway Road Highways Improvement Work (RRHIW)

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4.1 Conclusions 20

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Executive Summary

As part of the Manchester Metrolink Phase 3B Airport Line works, AECOM was commissioned by MPT to carry out an ecological walkover survey at a site near Manchester Airport. More specifically the survey was required as part of the Option 1, Ringway Road Highway Improvement Works (RRHIW).

The walkover survey was undertaken on 20th May 2011 by two experienced ecologists. In addition to the walkover survey, a desk based study was undertaken to review existing ecological data available for the survey area.

This additional work forms part of the overall ecological survey works being undertaken in connection with the construction of the Manchester Metrolink 3B Airport Line. The desk based study and walkover survey were required to identity any potential ecological constraints within the survey area and to identify whether any further specific protected species surveys would be required, for example great crested newt, bat and badger surveys.

The desk based study identified gaps in the survey data and highlighted where further survey work would be required.

The main habitats recorded during the walkover survey were broadleaved woodland, scrub, grassland, watercourses and ponds. Due to the habitats present, the following protected species were considered during the survey: bats, water voles, otter, lesser silver water beetle, white clawed crayfish, great crested newt and badger.

The walkover survey concluded that further surveys to identify the presence of bat roosts would be required as five trees with medium potential to support a bat roost were identified within the survey area. These trees would need to be removed to facilitate the proposed works. It was considered unlikely that any of the other protected species listed above would be present on site as the habitats were not considered suitable.

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1.0 Introduction

1.1 Background

As part of the Manchester Metrolink Phase 3B Airport Line works, AECOM was commissioned by MPT to carry out a desk based study and ecological walkover survey at a site near Manchester Airport. More specifically the survey was required as part of Option 1, Ringway Road Highway Improvement Works (RRHIW).

The Airport Line is approximately 14.4 kilometres (km) in length and traverses through largely residential areas including Chorlton-cum-Hardy, Sale Moor, Northern Moor, Baguley and Wythenshawe and terminates at Manchester Airport.

The walkover survey was undertaken on 20th May 2011 by two experienced AECOM ecologists: Lyndsey Yates (Senior Ecologist) and Gareth Parkinson (Ecologist). Both are members of the Institute of Ecology and Environmental Management (IEEM) at the appropriate level and hold a Natural England great crested newt survey licence.

This ecological assessment aims to highlight any potential ecological constraints that may result from the proposed works and to identify any further survey/mitigation works that may be required.

Specifically the ecological walkover survey included:

- Recording the main habitats present within the ecological survey area (see section 1.2) in order to identify any rare/protected habitats, or habitats that could have the potential to support protected species;
- Bat habitat assessment of any culverts and mature trees within the site to identify potential for roosting bat;
- Habitat assessment on the brook to the north of Ringway Road West to determine suitability for supporting water vole, otter, lesser silver water beetle and white clawed crayfish;
- Habitat suitability Index (HSI) assessment on ponds located within the survey area; and
- Badger survey of woodland to the north of Ringway Road West.

In addition to the ecological walkover survey, a desk based study was undertaken to review existing reports, plans and aerial photographs of the site.

1.2 Survey Area

The extent of the proposed works is shown in Appendix A – Option 1 General Arrangement. The ecological survey area is to the north of Ringway Road West near Manchester Airport (Appendix B). This area was not included in the previous ecology surveys because originally no works were proposed within this

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area. The extent of the highway works planning application boundary is also shown on Appendix B.

1.3 Legal Framework

The following provides a summary of the legislation for the protected species that were considered during the ecological walkover survey.

Bats

All bat species and their roosts are protected in the UK under Schedules 5 and 6 of the Wildlife and Countryside Act 1981 (as amended), and the Conservation of Habitats and Species Regulations, 2010. The relevant sections of this legislation make it an offence to:

- Deliberately (intentionally) damage or destroy any breeding site or resting place (i.e. bat roosts);
- Deliberately or recklessly obstruct access to any bat roost;
- Deliberately, intentionally or recklessly disturb a bat (1) whilst it occupies a structure or place which it uses for that purpose or (2)in such a way as to be likely significantly to affect the ability of any significant group of animals of that species to survive, breed, or rear or nurture their young or (3) in such a way as to affect the local distribution or abundance or that species; or
- Deliberately (or intentionally) kill, injure or capture (or take) a bat.

Water Voles

The water vole (*Arvicola amphibious*) is afforded protection under Schedule 5 of the Wildlife and Countryside Act, 1981, (as amended), due to a catastrophic decline in its population and distribution. Water voles receive protection against: killing, injuring or taking; possession or control; sale, possession or transport for the purpose of sale, and advertising the buying or selling of such animals.

It is also an offence under this Act to: intentionally or recklessly damage or destroy a place of shelter or protection; and intentionally or recklessly disturb occupying specimens.

This legal protection requires that due attention is paid to the presence of water voles and appropriate actions are taken to avoid committing offences.

Otter

The otter (*Lutra lutra*) is protected under European law through Annexes II and IV of the EC Habitats Directive (Council Directive 92/43/EEC). This is implemented into UK law under section 41 of the Conservation of Habitats and Species Regulations, 2010 where it is listed as an European protected species under Schedule 2, which in summary makes it an offence to:

- Deliberately take (capture), injure or kill an otter. (In a court, 'deliberately' would probably be interpreted as someone who, although not intending to take /injure or kill an otter, performed the relevant action, being sufficiently informed and aware of the consequence his/her action will most likely have.);

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- Deliberately disturb an otter in a way that would affect its ability to survive, breed or rear young, hibernate or migrate or significantly affect the local distribution or abundance of the species;
- Damage or destroy a breeding site or resting place of an otter;
- Possess or control any live or dead specimen or anything derived from an otter.

The otter is given protection under section 9 of the Wildlife and Countryside Act 1981 (as amended) through its inclusion on Schedule 5. In summary, the legislation makes it an offence to;

- Obstruct access to any structure or place which an otter uses for shelter or protection or disturb an otter while using such a place; or
- Possess or advertise/sell/exchange (dead or alive) an otter, or any part of a otter.

The inclusion of the otter on Annex II of the Habitats Directive also means a Special Area of Conservation (SAC) can be designated as a protected area due to a significant presence of this species.

Lesser Silver Water Beetle

The lesser silver water beetle *(Hydrochara caraboides)* is protected under Schedule 5 of the Wildlife and Countryside Act, 1981 (as amended). Protection under Section 9 means that it is an offence to:

- intentionally kill, injure, take a lesser silver water beetle;
- possess or control (live or dead animal, part or derivative);
- damage, destruct, obstruct access to any structure or place used for shelter or protection;
- disturb an animal occupying such a structure or place;
- sell, offer for sale, possess or transport for the purpose of sale (live or dead animal, part or derivative); or
- advertise for buying or selling live or dead animal, part or derivative.

White Clawed Crayfish

The white-clawed crayfish (*Austropotamobius pallipes*) is listed in Appendix III of the Bern Convention and Annexes II and IV of the Habitats Directive. This makes its presence a criterion for the designation of Special Areas of Conservation according to Section 11 of the Conservation of Habitats and Species Regulations, 2010.

The white-clawed crayfish is also given protection under Section 9 of the Wildlife and Countryside Act 1981 (as amended). This applies to all life stages of the species. In summary, the legislation makes it an offence to:

- Intentionally or recklessly take (capture) a white-clawed crayfish ; or
- Possess or advertise/sell/exchange (dead or alive) a white-clawed crayfish, or any part of a white-clawed crayfish.

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It is classed as globally endangered on the International Union for the Conservation of Nature (IUCN) Red List. It is one of the key species supported by the Life in UK Rivers Project administered by conservation agencies, including the Environment Agency and Natural England. The Life project is primarily aimed at developing methods of monitoring and conserving the wildlife and habitats of rivers that form part of the Natura 2000 network of protected European sites.

Amphibians

Under European legislation great crested newt (*Triturus cristatus*) is protected under the Conservation of Habitats and Species Regulations, 2010. This legislation prohibits:

- the intentional killing of newts;
- the deliberate taking or destruction of eggs;
- damage or destruction of a breeding site or resting place;
- intentional/reckless damage to or obstruction of a place used for shelter or protection;
- possession of a great crested newt; or
- any form of trade of great crested newts.

Under British legislation, great crested newt is also given full protection under section 9 of the Wildlife and Countryside Act, 1981 (as amended). The commoner species of amphibian; smooth newt (*Lissotriton vulgaris*), palmate newt (*Lissotriton helveticus*), common frog (*Rana temporaria*) and common toad (*Bufo bufo*) are protected under schedule 5, Part 1 of the Wildlife and Countryside Act (1981 as amended) only from sale and possession or transport for the purposes of sale.

Badgers

Badgers are protected under The Protection of Badgers Act 1992. This means that works adjacent to badger setts which are in 'current use' (as defined by Natural England) are subject to restrictions and may require a licence.

Under the legislation it is a criminal offence to:

- wilfully kill, injure, take or attempt to take a badger from the wild;
- cruelly ill treat any badger; or
- intentionally or recklessly interfere with a sett; including to disturb a badger whilst it is occupying a sett.

Offences against these protected species are punishable by fines of up to **£5000**, and may include **prison** sentences of up to six months ***per offence (i.e. per animal).***

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1.4 Report Ownership

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2.0 Methodology

2.1 Desk Based Study

Existing reports, plans and aerial photographs were reviewed to gain an understanding of the ecological survey area and the immediate surrounding area.

Reports produced by Scott Wilson (2011a and 2011b) for the Ringway Road Interface Feasibility Study included a review of all the existing ecological data available. Although the Scott Wilson reports looked at a larger study area, much of the baseline ecological information was relevant for this ecological assessment and where appropriate is summarised in the results section.

The review of the existing data determined what further survey work would be required. It was concluded that an ecological walkover survey with the objectives summarised in section 2.2 would identify any ecological constraints to the proposed works and whether additional survey work would be required.

2.2 Walkover Survey Summary

The ecological walkover survey conducted on the 20th May 2011 took the form of a standard ground level site survey, the survey aimed to:

- Record the main habitats present within the ecological survey area;
- Identify the presence of any protected species through the identification of field signs;
- Identify habitat with the potential to support a protected species e.g. pond habitat has the potential to support great crested newt;
- Highlight any ecological constraints to the proposed highway improvement works; and
- Provide recommendations for further survey and/or mitigation work.

2.3 Habitat Assessment

The habitat assessment involved walking over the ecological survey area (as shown on Appendix B) and recording on a map all the habitats present at the site. Habitat classifications follow those defined according to the Handbook for Phase 1 Habitat Survey (JNCC, 2010) which is the standard system of habitat classification and mapping in the UK.

The main objectives of the habitat assessment at the site were as follows:

- Record the main habitats present within the survey area;
- Identify any rare/protected habitats within the site;
- Identify whether the habitats present have the potential to support protected species.

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2.4 Bat Habitat Assessment

The culverts and mature trees within the site were examined to identify any potential for roosting bats. This will determine whether further bat activity and or endoscope surveys are required on bat roost potential features.

The methodology used to assess their potential was derived from the Bat Conservation Trust (BCT) "Bat Surveys – Good Practice Guidelines" (2007), in particular Chapter 6: Surveying buildings and built structures and Chapter 8: Surveying trees. The assessment also takes into account other published guidance relating to the suitability of trees and built features for bat roosts and the habitat requirements for bat species likely to be present at the site based upon its geographical location and the professional knowledge of the ecology of bats held by the AECOM ecologists.

Mature trees present within and adjacent to the site boundary were assessed for their roost potential. Features of trees used by bats include natural holes, loose bark, hollows/cavities, and cracks/splits in major limbs; the presence of any of these features was recorded. Trees with dense, thick stemmed ivy were also noted as features of interest may be obscured.

The culverts were examined for their suitability for supporting a bat roost and any potential entry points for bats were recorded such as missing mortar in brickwork and cracks in stone.

Notes were taken on the position of mature trees, culverts and surrounding habitat types e.g. presence of good foraging or commuting habitats and linkages for bats.

The surveyed features were categorised according to their potential to support roosting/hibernating bats. Definitions of each of these categorisations are given below (derived from BCT Survey Guidelines (2007):

- Confirmed Roost - Bats or signs of bats were clearly observed during the survey.
- High Potential - The culvert/tree had a variety of features which could be used by roosting/hibernating bats and is within an area with good foraging and/or commuting features, but no bats or signs of bats were observed. Structures may also fall under this category if a significant proportion of the features were inaccessible at the time of the survey.
- Medium Potential - The culvert/tree had some features which could support roosting/hibernating bats but not as many as a high potential structure. Buildings/structures/trees within unsuitable habitat or in heavily lit areas, which would otherwise be categorised as high potential may also fall under this category.
- Low Potential - The culvert/tree had very few features which could support roosting/hibernating bats. Buildings/structures/trees within less favourable habitat or in heavily lit or urbanised areas, which would otherwise be categorised as medium potential may also fall under this category.
- Negligible Potential - The culvert/tree had no identifiable features which could support roosting/hibernating bats and/or was within an area of unsuitable habitats with few or no connecting features (railways/rivers etc.).

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The main objectives of the bat habitat assessment at the site were as follows:

- Investigate the potential of trees and culverts to support roosting bats;
- Determine whether further bat activity and or endoscope surveys are required on bat roost potential features.

2.5 Habitat Assessment on Brook

A habitat assessment was undertaken on the brook north of Ringway Road West to determine its suitability for supporting water vole, otter, lesser silver water beetle and white clawed crayfish.

Characteristics which were observed included; bank height, width, depth, water quality, flow speed, aquatic vegetation, substrate; all of which could determine the likelihood of the species being present.

The main objectives of the brook habitat assessment at the site were as follows:

- Record the brook characteristics to determine the potential presence for water vole, otter, lesser silver water beetle and white clawed crayfish in the brook;
- Identify field signs that could indicate the presence of these species;
- Determine whether further surveys for these species would be required.

2.6 Habitat Suitability Index (HSI) Assessment

A HSI assessment was undertaken on ponds located within the survey area. The HSI assessment helps to determine whether a pond has the potential to support great crested newt and whether further survey work is required.

The HSI looks at different criteria that can influence the presence of great crested newt such as size, vegetation cover, presence of fish and shading and gives a pond a score between 0 (representing unsuitable habitat) and 1 (optimal habitat) (Oldham *et al,* 2000).

The objectives of the HSI assessment at the site were as follows:

- Confirm presence of ponds during the site walkover;
- Assess the aquatic and terrestrial habitat in terms of quality and connectivity to produce a probability of great crested newt presence;
- Identify field signs that could indicate the presence of great crested newts (folded leaves, eggs);
- Identify areas which require further survey work (i.e. full great crested newt surveys).

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2.7 Badger Survey

A walkover of the site was undertaken to identify any signs of badger or potential habitat that may offer habitat for sett building and foraging such as woodland/scrub habitat. Field signs that were looked for included setts, latrines, footprints, claw marks, badger hair and snuffle holes.

If setts or potential setts are identified they would be classified using nationally recognised sett classification criteria (Harris *et al*. 1994; Cresswell *et al*. 1990). They would be classified as main, annexe, subsidiary or outlier. Summary definitions for this categorisation are presented in Table 1.

Table 1: Summary definition of badger sett categories

Sett Category	Description
Main Sett	Have several entrance holes with high levels of activity, including large spoil mounds, freshly excavated earth, well marked paths and usually a large fresh latrine present. There is often evidence of discarded bedding, which may indicate breeding.
Annexe Sett	Close to a main sett and usually clearly linked to the nearby main sett by well worn paths. Normally active with several holes, although some display less obvious signs of badger activity.
Subsidiary Sett	Generally less than 5 entrance holes and some distance from a main sett and without obvious linking paths. The holes can be very variable in signs of usage and are often much less consistently in use than those of main or annexe setts.
Outlier Sett	Usually consist of a single or double hole with varying levels of activity.

Badger setts and individual entrance holes can be further classified as A, B or C, where possible, to indicate their status and levels of usage as shown in Table 2 below.

Table 2: Definition of badger sett usage

Level of Usage	Description
Well used hole (A)	Entrance holes generally clear of all vegetation, litter or debris, except where bedding has been left in the entrance. They are likely to show signs of wear at the entrance, consistent with regular badger use.
Partially used hole (B)	Leaves or twigs in badger entrance holes which have not been cleared by regular use, although may be brought into regular use with relatively little clearance or new digging.
Disused hole (C)	Entrance holes show no signs of recent usage, often partly or wholly blocked and may require considerable digging to re-open.

The main objectives of the badger survey at the site were as follows:

- Identify any evidence of badger presence within the survey area;
- Assess the impact of the proposed works if badgers were present;

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- Assess the need for any further survey/mitigation work.

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3.0 Survey Results

3.1 Desk Based Study

The Scott Wilson reports (2011a and 2011b) reviewed existing ecological data in connection with the Ringway Road Interface Feasibility Study; some of this information was relevant for this ecological assessment.

The review of existing data confirmed that there are no European or Nationally designated nature sites within 2 km of the ecological survey area.

The closest local designated site is Big Wood Site of Biological Interest (SBI) which is located approximately 1 km from the ecological survey area with no direct habitat connections. An unnamed Site of Nature Conservation Interest (SNCI) is referred to in the Scott Wilson reports which is located adjacent Woodhouse Park (approximately 0.5 km) from the survey site, however no information could be found on this particular SNCI during an internet search.

The Scott Wilson report (2011b) highlighted potential gaps in the ecological data and recommended the need for further survey work. Further details that were relevant to this study are provided below in the relevant sections.

3.2 Habitat Assessment

The main habitats recorded within the ecological survey area were semi-natural broadleaved woodland, dense scrub, semi-improved neutral grassland, watercourses and two ponds. The habitats are shown on the map provided as Appendix B.

Lowland mixed deciduous woodland and pond habitats feature on the UK Biodiversity Action Plan (BAP). Native woodland, grasslands and ponds also feature on the Manchester Local Biodiversity Action Plan (LBAP) which means they are priority habitats in need of protection.

3.3 Bat Habitat Assessment

The Scott Wilson report (2011b) highlighted the need for further assessment for bats of mature trees and culverts. The report recommended that where potential for a bat roost exists, bat activity surveys should be undertaken.

During the ecological walkover, five mature trees were identified as having medium potential to support a bat roost within the ecological survey area. Features were observed that could be utilised by roosting bats including knot holes, branch scars and dead wood. Two of these trees had ivy covering their trunks which made it difficult to observe whether any features were present underneath (Photographs 1 & 2). Three trees/groups of trees were identified as having low potential to support a bat roost.

The culverts were considered to have no potential for supporting roosting bats as they were small, smooth concrete culverts within no obvious cracks/crevices observed (Photographs 3 & 4).

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Table 3 details the trees that were recorded during the bat habitat assessment; these are marked on Appendix B.

Table 3: Bat Target Notes

Bat Target (BT) Note No.	Species	Features Observed	Roost Potential Category
BT1	Ash (*Fraxinus excelsior*)	Ivy covered trunk Dead branches	Medium
BT2	Willow (*Salix sp.*)	Narrow ivy covered stem	Low
BT3	Willow	Narrow ivy covered stem	Low
BT4	Oak	Knot holes Broken branches	Medium
BT5	Oak (*Quercus sp.*)	Knot holes Branch scars	Medium
BT6	Oak	Knot holes Broken branches	Medium
BT7	Oak	Knot holes Ivy covered trunk	Medium
BT8	Group of semi-mature trees - various species	Narrow ivy covered stems	Low

3.4 Habitat Assessment on Brook

The Scott Wilson report (2011b) highlighted the need for an assessment for water vole, otter, lesser silver water beetle and white clawed crayfish due to the presence of a watercourse.

The watercourse present on site is narrow (<0.5 – 1 metre) with very shallow water, less than 10 centimetres in most places. It was very shaded with no signs of aquatic vegetation. The bank height was very shallow with very limited potential for burrowing. The substrate was mostly silt with the occasional stone/rock.

The watercourse was considered too shallow to support the protected species considered during the survey. The shading, shallow banks and lack of aquatic vegetation for food and shelter were also considered to limit the potential for these species to be present (Photographs 5 & 6).

3.5 HSI Assessment

Mouchel Ltd conducted a HSI assessment on 15 ponds within 500m of the survey area for the Ringway Road Interface Feasibility Study. A brief summary of the results of these surveys was included in the Ecological Review document produced by Scott Wilson (2011b). Two of these ponds had potential to support great crested newt and were included in a full great crested newt survey. One of the ponds was found to support great crested newt however it is located over 500 m from the proposed scheme and therefore does not pose a constraint.

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It is not known whether the two ponds located within this ecological survey area were included in the Mouchel Ltd surveys as we have not seen a copy of the full report. Therefore, for completeness, Pond 1 (Photograph 7) located within the ecological survey area was subjected to a HSI assessment during the ecological walkover to ensure that the most up to date survey data was available. The data collected during the site visit was used to calculate a HSI score using the methodology detailed by Oldham *et al* (2000). The results of the HSI on Pond 1 are shown in Table 4.

Pond 2 was not included in the HSI assessment as it was not a standalone pond but was more of an inundation of the watercourse. The water was very shallow and there was no aquatic vegetation; it was not considered to have any potential for supporting great crested newts.

Table 4: HSI results for Pond 1.

HSI Pond Results	Power station pond	
	Pond 1	
1 Location	Zone A	1
2 Pond Area	72m^2	0.15
3 Pond Permanence	2-3 yrs	0.5
4 Water Quality	Poor	0.1
5 Pond Shading	50%	1
6 No of Waterfowl	Absent	1
7 Fish Presence	Absent	1
8 Pond Density	0.32km^2	0.4
9 Newt Friendly Habitat	Good	1
10 Macrophyte	0%	0.3
HSI Score	0.50	
Pond Suitability	Below Average	

The HSI results give an indication of the possibility of great crested newt being present in the pond. In general, ponds with a high HSI score (closer to 1) are more likely to support great crested newts than ponds with a low score (closer to 0). Pond 1 has a below average potential of great crested newts being present.

Based on the conditions of the pond (very shallow, poor water quality, shaded and no aquatic vegetation), the below average HSI score and the fact that the pond is relatively isolated by adjacent roads and housing, it is concluded that no further surveys for great crested newt would be required on this pond. In addition no ponds within 500 m were found to support great crested newts during the 2010 surveys undertaken in this area by Mouchel Ltd.

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3.6 Badger Survey

The review of data by Scott Wilson (2011b) confirmed that no evidence of badger had been found in this area during surveys conducted in 2004 and 2010.

The ecological walkover survey identified that suitable habitat that could be used for badger to create setts and forage was present within the ecological survey area, this comprised broadleaved woodland and dense scrub.

No evidence of active badger setts or badger field signs were identified within the survey area at the time of the survey.

3.7 Invasive Species

During the walkover survey it was noted that Himalayan balsam (*Impatiens gladulifera*) was present on the site (Appendix B). This is a non-native, invasive species which is covered by the Wildlife and Countryside Act, 1981 (as amended); it is an offence under section 14(2) of this Act to "plant or otherwise cause to grow in the wild" any plant listed in Schedule nine, Part II to the Act (see section 4.2 for further information).

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4.0 Conclusions and Recommendations

4.1 Conclusions

The desk based study reviewed the existing ecological data available for the site and highlighted any gaps in the data where further survey work would be required.

The site was assessed by two suitably qualified ecologists using their professional judgement and the guidance provided in section 2.0 Methodology.

None of the habitats recorded within the ecological survey area were considered to be rare or legally protected. The woodland, grassland and pond habitats feature in UK BAPs and the Manchester LBAPs meaning that they are habitats in need of protection and retention.

Five mature trees were identified within the ecological survey area that were considered to offer medium potential for supporting roosting bats. Three trees/groups of trees were identified as having low potential for supporting roosting bats. The culverts were considered to have no potential for roosting bats.

No potential habitat for water vole, otter, white clawed crayfish and lesser silver water beetle was identified within the survey area.

Pond 1 was not considered suitable aquatic habitat for supporting great crested newts at the time of the survey. The desk based review confirmed that no ponds have been identified within 500 m of the site that support this species.

Potential habitat for supporting badger was identified within the survey area however no evidence of the presence of badger was identified during the survey.

4.2 Recommendations

Habitats

Removal and replacement of the habitats covered by the UK BAP and Manchester LBAP (woodland, grassland and pond) should be covered by the Transport for Greater Manchester (TfGM) Wildlife Habitat and Tree Replacement Policy.

Bats

No further survey work is proposed on the three trees/groups of trees identified as having low potential for supporting a bat roost or the culverts identified as having no potential.

However it should be considered that although these features have been assessed for potential, no survey can prove an absence of a species from a site.

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A site assessed to have no or low potential for supporting bats may still have a roosting site. For this reason any work on any structure or tree must be carried out with due care and attention that bats may be present.

Particular care should be taken with trees that are ivy covered. Ivy should be carefully removed before felling and the tree inspected for suitable crevices for bat roosting. If any such crevices are present, an Ecologist should be contacted to provide advice before felling; further survey work may be required. The law requires that, in the event of a bat being discovered during work, works should stop immediately and an Ecologist or Natural England should be contacted for advice.

It is recommended that dusk and dawn activity surveys should be conducted upon the five medium potential trees before felling works or potentially disturbing works commence to determine whether a roost is present. These surveys must be conducted between May and September when activity is at its highest. Further survey work may be required if conclusive results cannot be obtained from one dusk and dawn visit.

If a bat roost is identified in any of these trees within the ecological survey area, a licence will be required from Natural England to allow disturbance of the roost. A detailed method statement will be required for the application and Natural England will require 30 working days to make their licence determination.

Following the initial dusk and dawn surveys, trees needing to be felled during construction could potentially be felled under a method statement without extensive further survey if a negative result is obtained during the surveys. Trees to be felled under method statement should ideally be felled during March/April, or late August to early October (weather depending) to avoid the main hibernation and summer roosting periods. Felling outside these periods must be agreed with an Ecologist beforehand. The felling of trees must always be undertaken under extreme caution that bats may be present.

The method statement may recommend that prior to the felling of the trees with medium potential to support bats an Ecologist will conduct a pre-felling survey using an endoscope to allow internal inspection of any cracks and crevices within the tree. Signs of roosting bats would include tiny scratches and staining around entry point to roost, bat droppings in/around/below entrance and the smoothing of surfaces around the roost entrance.

Following the pre-felling survey, the tree will be felled under supervision and in stages, with branches lopped off individually rather than felling at the trunk. The trunk will then be felled in sections. The felled branches and sections of trunk will then be carefully laid on the ground making sure that any holes or crevices are not blocked and are facing downwards towards the ground so rain water cannot enter. Branches and trunk sections will be left in place for 24 hours to allow any bats to vacate prior to their removal.

Badger

No evidence of badger activity was identified during the ecological survey area therefore there are no known impacts upon this species as a result of the proposed works.

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However suitable badger habitat was recorded within the ecological survey area and therefore caution should always be taken when undertaking vegetation clearance or construction activities. Badgers are a highly mobile species and can easily move into an area where they have not been previously recorded, especially if their current locations are subject to disturbance.

If, during the proposed works, an active badger sett or evidence of badger is identified, works must cease immediately and an Ecologist contacted for advice.

Invasive Species

Himalayan balsam is listed under schedule 9 of the Wildlife and Countryside Act, 1981 (as amended) meaning it is an offence to "plant it or otherwise cause it to grow in the wild."

There is not an obligation to remove or treat invasive plants, but you **must not**:

- Allow invasive plants to spread onto adjacent land - the owner of that land could take legal action against you for causing a nuisance.
- Plant or encourage the spread of invasive plants outside your land - this can include moving contaminated soil from one place to another or incorrectly handling and transporting contaminated material and plant cuttings.

Measures must be put in place to ensure that Himalayan balsam is not spread as a result of the proposed works.

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Appendix A – Option 1 General Arrangement

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CH 19560

EXTENT OF FEASIBILITY STUDY

LENGTH AVAILABLE FOR FUTURE METROLINK STOP

PROPOSED PRECAST RETAINING WALL AT TOE OF SLOPE - REFER TO DRAWING D131804/300/401

PROPOSED CONTIGUOUS PILED WALL - REFER TO DRAWING D131804/100/202

Chainage 19560 to 20400
Scale 1:1000

PROPOSED RETAINING STRUCTURE OPTION THROUGH EXISTING EXPANSION CAR PARK - REFER TO DRAWING D131804/200/103 AND 104

BATTERED OPTION THROUGH EXISTING EXPANSION CAR PARK

EXTENT OF FEASIBILITY STUDY

METROLINK CONTINUES TO STATION

CH 20910

PROPOSED OVERBRIDGE FOR CAR PARK ACCESS - REFER TO DRAWING D131804/100/201

PROPOSED UNDERPASS - REFER TO DRAWING D131804/200/101 TO 104

PROPOSED PRECAST RETAINING WALL AT TOE ODF SLOPE - REFER TO DRAWING D131804/200/301

LENGTH AVAILABLE FOR FUTURE METROLINK STOP

Chainage 20400 to 20910
Scale 1:1000

NOTES

1. DRAWING TO BE USED FOR COSTING PURPOSES ONLY.
2. FOR CROSS-SECTIONS, PLEASE REFER TO DRAWINGS D135804/100/21 - 27 FOR 2.0% TOCS AND D135804/100/31 - 37 FOR 1.2% TOCS

KEY

- LIMITS OF DEVIATION
- PROPOSED TRAM LINE
- PROPOSED HIGHWAY

Revision Details	By / Check	Date	Suffix

Drawing Status: FOR REVIEW

Job Title: METROLINK PHASE 3B/ RINGWAY ROAD INTERFACE

Drawing Title: OPTION 1 GENERAL ARRANGEMENT

Scale at A1: AS SHOWN

Drawn		Approved	
MG		VB	
Stage 1 check	Stage 2 check	Originated	Date
NB		MANCH	JAN'11

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Drawing Number: D135804/100/02 Rev: R1

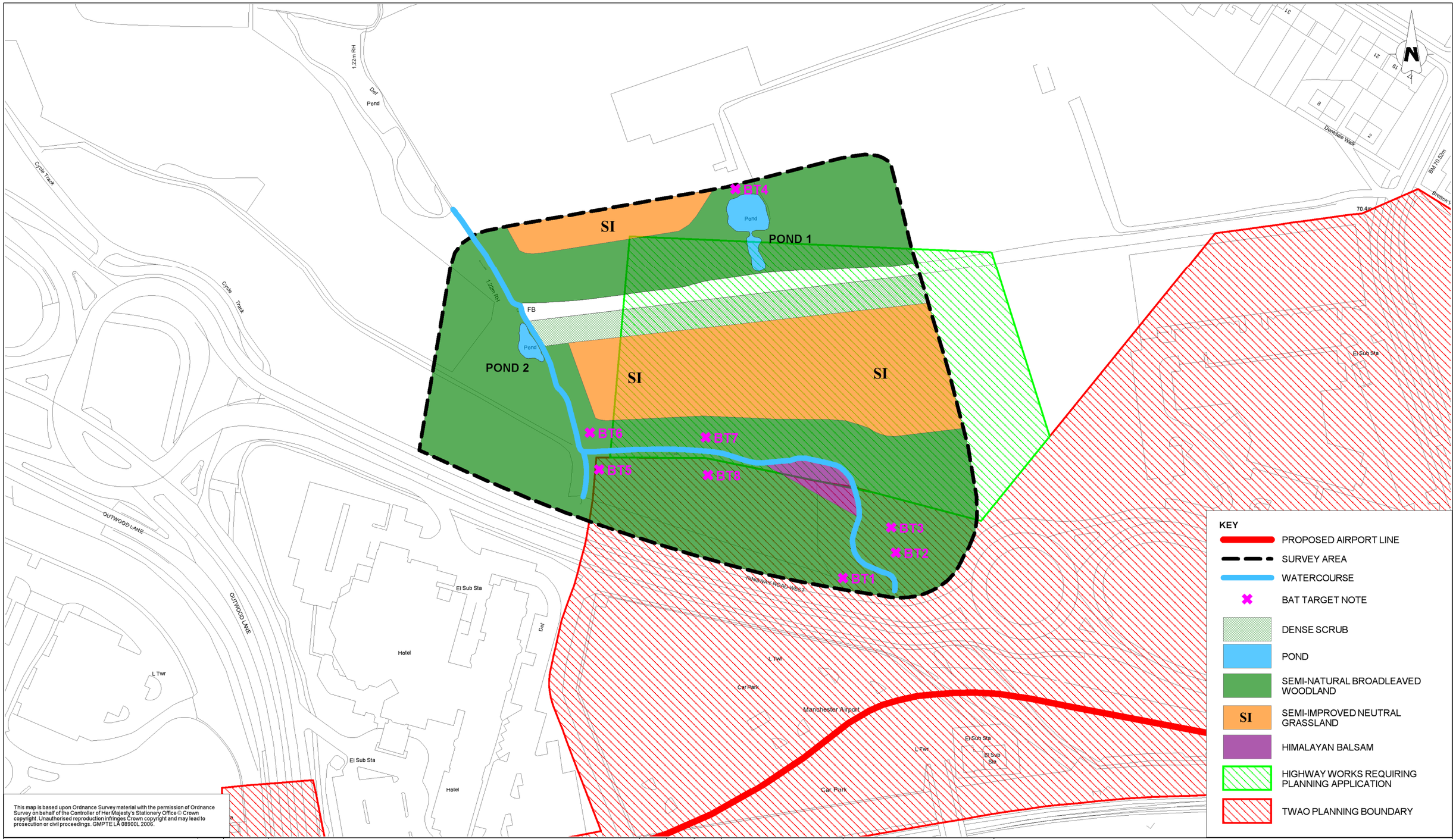
Plot Date :
File Name :

DB1V

Appendix B – Ecological Walkover Survey Map

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Rev	Date	Detail	Made	Chk'd	App'd
D01	24-05-11	FIRST ISSUE	DAM	LY	LMK

Client: GMPTE

MPT Laing O'Rourke VolkerRail | Thales

Design:	DAM
CAD:	DAM
Chk'd:	LY
App'd:	LMK
Scale:	1:1,500 @ A3
Date:	JULY '11

MANCHESTER METROLINK PHASE 3B
AIRPORT LINE

Title:
ECOLOGICAL WALKOVER SURVEY
RINGWAY ROAD WEST

Drg No'
APPENDIX B

Rev:
D03

cm | A3

DRG Path: F:\Projects\Other Offices\Enviro - 60147037 - Manchester Metrolink Phs 3b - ManchesterGIS\Airport\App B. Eco Walkover Survey.WOR User: mcinnesda Plot time: 24-05-2011 @ 3:00pm

Appendix C – Photographs

Photograph 1. Bat Tree No 6 - Oak



Photograph 2. Bat Tree No 7 - Oak with ivy.



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Photograph 3. Culvert with smooth concrete sides.



Photograph 4. Small culvert under road.



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Photograph 5. Shallow, shaded watercourse.



Photograph 6. Shallow water and limited bank height of watercourse.



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Photograph 7. Pond 1, very shallow, overgrown and shaded.



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