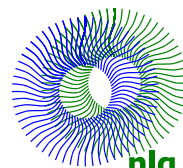


Appendix 7B

NLG Ecology Ltd (2021) Riparian Mammal Habitat Suitability and Survey Report

Headbolt Lane Station

Riparian Mammal Habitat Suitability and Survey Report



nlgecology ltd

Unit B1.1
Clarence Mill
Clarence Road
Bollington
Macclesfield
SK10 5JZ

Tel: 01625 560789
E-mail: sally@nlgecology.com

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Project No: 2593 – Headbolt Lane

Title: Headbolt Lane Station; Riparian Mammal Habitat Suitability and Survey Report

Client: Buckingham Group Ltd

Date: October 2020

Status	Date	Prepared by	Reviewed by	Approved by
V1	October 2020	Sally Conyers Ecologist	Kelly Lomas Senior Ecologist	Kelly Lomas Senior Ecologist
V2				
Final				

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Data supplied by the client or from other sources have been used, it has been assumed that the information is correct. No responsibility can be accepted by NLG for inaccuracies in the data supplied by any other party. The conclusions and recommendations in this report are based on the assumption that all relevant information has been supplied by those bodies from whom it was requested.

Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work. This work has been undertaken in accordance with the quality management system of NLG Ecology Ltd. No part of this report may be copied or duplicated without the express permission of NLG Ecology Ltd and the party for whom it was prepared.

SUMMARY

Buckingham Group Ltd commissioned NLG Ecology Ltd to undertake a habitat suitability and a riparian mammal survey of Simonswood Brook and an unlabelled tributary of the brook, located in Kirkby, Merseyside (see Appendix 1, Study Area and Survey Results). Simonswood Brook was surveyed from Ordnance Survey grid reference SJ 40893 99562 to SJ 40892 99301, approximately 250m upstream (north) and downstream (south) of the rail line crossing at Mill Lane. The unlabelled tributary was surveyed from OSGR SJ 40893 99562 downstream (west) to SJ 41498 99820 upstream (east). The survey was required in respect of the proposed new station development, including construction of associated utilities at Headbolt Lane, which is within close proximity to the unlabelled tributary. Additionally, as part of the new station development, improvement works to bridge 55 at Mill Lane are likely to be required; the bridge crosses Simonswood brook at OSGR SJ 40879 99554.

The habitat suitability and riparian mammal survey aimed to assess Simonswood Brook and the unlabelled tributary for riparian mammals, to include standard survey effort for determining potential presence / absence of water vole and otter. Where evidence is confirmed, recommendations will be made for appropriate mitigation and habitat enhancement. The riparian mammal survey was undertaken on the 29th September 2020 by Sally Conyers (ACIEEM) of NLG Ecology Ltd, ecologist with seven years consultancy experience.

No evidence of water vole or otter was noted during the survey. Simonswood Brook and the tributary are considered to offer suboptimal habitat for water vole, principally due to culverting and bank modifications removing opportunities for burrowing, extensive human disturbance and dominance of Himalayan balsam reducing the diversity of food plants. This assessment is further supported by an absence of small mammal burrows and presence of rat signs within the study area.

No holts were identified on Simonswood Brook and the unlabelled tributary, in general the area was heavily disturbed by humans, therefore any dense scrub was not suitable for laying up otter or couches. The watercourses are tributaries of the River Alt and therefore could be utilised by foraging and commuting otter, however no signs of otter were recorded during the survey.

The survey findings therefore conclude there to be no constraints in respect of the proposed works, it is however recommended a second survey is carried out within Spring 2021 to assess for presence / absence of riparian to adhere to good survey practice.

CONTENTS

1	INTRODUCTION	1
1.1	Background.....	1
1.2	Legislation.....	1
2	METHODOLOGY.....	3
3	SURVEY FINDINGS.....	5
3.1	Habitat Assessment	5
3.2	Survey Results	6
4	CONCLUSIONS AND RECOMMENDATIONS.....	8
4.1	Conclusions.....	8
4.2	Recommendations.....	8
5	REFERENCES	9
	APPENDIX 1. HABITAT ASSESSMENT AND SURVEY RESULTS	1
	APPENDIX 2. PROPOSED WORKS.....	2

1 INTRODUCTION

1.1 Background

- 1.1.1 Buckingham Group Ltd commissioned NLG Ecology Ltd to undertake an assessment of the habitat suitability and a riparian mammal survey of Simonswood Brook and an unlabelled tributary of the brook, located in Kirkby, Merseyside (see Appendix 1, Study Area and Survey Results). Simonswood Brook was surveyed from Ordnance Survey grid reference (OSGR) SJ 40893 99562 to SJ 40892 99301, approximately 250m upstream (north) and downstream (south) of the rail line crossing at Mill Lane. The unlabelled tributary was surveyed from OSGR SJ 40893 99562 downstream (west) to SJ 41498 99820 upstream (east). The survey was required in respect of the proposed new station development, including construction of associated utilities such as a substation and bulk supply unit (see Appendix 2 – Proposed Works) at Headbolt Lane, which is within close proximity to the unlabelled tributary. Additionally, as part of the new station development, improvement works to bridge 55 at Mill Lane are likely to be required; the bridge crosses Simonswood brook at OSGR SJ 40879 99554.
- 1.1.2 The survey was required as part of the planning permission application for the development, requested by the Environment Agency.
- 1.1.3 The riparian mammal survey was undertaken on the 29th September 2020 by Sally Conyers (ACIEEM) of NLG Ecology Ltd, ecologist with seven years consultancy experience.

1.2 Legislation

Legislation that is applicable to the site survey is listed below, which covers the UK and Wales only. For a more definitive statement of law it is recommended that the full legislative acts are sighted.

Otter

- 1.2.1 Otters are protected under the Wildlife and Countryside Act (WCA) 1981, which has also been amended by various later legislation including the Countryside and Rights of Way (CROW) Act 2000 and the Conservation of Habitats and Species Regulations 2017 (as amended), and this legislation is applicable to England and Wales. Otters are listed on Schedule 5 of the WCA and, are therefore, subject to some of the provisions of Section 9 which, with the amendments, make it an offence to:

- Intentionally or recklessly disturb an otter while it is occupying a structure or place which it uses for shelter or protection;
- Intentionally or recklessly obstruct access to any structure or place used for shelter or protection by an otter; and
- There are additional offences in relation to buying and selling any live or dead animal of this species or anything derived from them.

Otters are also listed on The Conservation of Habitats and Species Regulations (2017), where it is an offence to:

- deliberately capture, injure or kill any wild animal of a European protected species;

- deliberately disturb wild animals of any such species, in such a way as to impair their ability to survive, to breed or reproduce, or to rear their young, or in the case of animals of a hibernating or migratory species, to hibernate or migrate;
 - to affect significantly the local distribution or abundance of the species to which they belong; and
 - damage or destroy a breeding site or resting place of such an animal.
- 1.2.2 Under these Regulations it is an offence to damage or destroy a breeding site or resting place, whether the animal is in occupation or not, and protection extends to all life stages of the animal in question. There are additional offences relating to possession, control and sale of a live or dead otter or part of such an animal.
- 1.2.3 In addition, otters are listed as a 'Priority Species' under the UK Post-2010 Biodiversity Framework. Such species are also referred to as 'species of principal importance' for the conservation of biodiversity in England and Wales within Section 74 of the CRow Act 2000, and Sections 41 (England) and 42 (Wales) of the Natural Environment and Rural Communities (NERC) Act 2006.

Water Vole

- 1.2.4 Water voles are protected under the Wildlife and Countryside Act 1981, as amended, and this legislation is applicable to England and Wales. Water voles are listed on Schedule 5 of the Act and are, therefore, subject to some the provisions of Section 9 which, with the amendments, make it (in brief) an offence to:
- Intentionally kill, injure or take a water vole;
 - Intentionally or recklessly damage or destroy a structure or place used for shelter or protection by a water vole;
 - Intentionally or recklessly disturb a water vole while it is occupying such a place; and
 - Intentionally or recklessly obstruct access to any structure or place a water vole uses for shelter or protection.
- 1.2.5 There are additional offences in relation to possessing, controlling, and buying and selling any live or dead animal of this species or anything derived from them.
- 1.2.6 Water voles are also listed as a 'Priority Species' under the UK Post-2010 Biodiversity Framework. Such species are also referred to as 'species of principal importance' for the conservation of biodiversity in England and Wales within Section 74 of the CRow Act 2000, and Sections 41 (England) and 42 (Wales) of the Natural Environment and Rural Communities (NERC) Act 2006.
- 1.2.7 Water vole are a Local Biodiversity Action Plan (LBAP) species for Merseyside.

2 METHODOLOGY

2.1.1 The riparian mammal survey adhered to standard methodology as outlined in the 'New Rivers and Wildlife Handbook' (RSPB et al, 1994), the water vole survey methodology as set out in the 'Water Vole Conservation Handbook' (Strachan, 2006) and survey design as set out in 'The Water Vole Mitigation Handbook' (Dean et al, 2016). This comprised of surveying the extent of the unlabelled tributary from the confluence with Simonswood Brook to the rail line, which extends for an approximate distance of 740m, and Simonswood Brook 250m upstream and downstream of Mill Lane bridge crossing. The specific approach for otter and water vole is summarised further below.

2.1.2 The riparian survey took place during a spell of dry, mild weather and perhaps most importantly, the surveys took place during a time of low water levels, meaning that water vole field signs such as droppings are unlikely to have been washed away. The vegetation levels meant that accessing the channel edges and being able to clearly walk along them was essential. The majority of the survey was carried out by wading within channel, which increases the likelihood of finding signs of riparian mammals.

Water Vole

2.1.3 Prime water vole sites are generally found along densely vegetated banks of slow flowing watercourses and wetlands where water is present throughout the year. The survey entailed a thorough search of a strip approximately 4m wide on each side of the watercourses.

2.1.4 The survey consisted of a search for signs indicative of the presence of water vole, including:

- latrines/droppings;
- burrows, footprints;
- pathways;
- feeding remains and 'lawns' around burrow entrances; and
- water vole sighting.

Otter

2.1.5 Otter field signs can be found at any time of the year. Otters will utilise a wide variety of riparian habitats and will often forage for food quite a considerable distance from their place of rest. This remains exclusively along watercourses, as otters are entirely dependent on aquatic habitats for food.

2.1.6 The survey consisted of a search for signs indicative of the presence of otters, including:

- otter spraint (faeces);
- footprints within soft sediment;
- feeding remains e.g. fish carcasses;
- actual or potential resting sites such as underground 'holts' e.g. beneath the roots of bankside trees; or above ground 'couches' e.g. in riparian vegetation; and
- slides or other well-used access points to watercourses.

- 2.1.7 In general, the surveys encompassed suitable riparian habitat to a distance of 10m from the brook.

3 SURVEY FINDINGS

3.1 Habitat Assessment

- 3.1.1 Mapping and photographs of the study area can be found in Appendix 1, which provide further insight to the habitat suitability assessment. The surrounding habitat for both watercourses was publically accessible 'green area' which was occasionally managed grassland with tarmac and gravel paths providing safe connectivity between urban areas.

Simonswood Brook

- 3.1.2 Within the survey area, Simonswood Brook had a channel width of 1-2m, water depth ranged from 0.1 – 0.5m, flow was slow to moderate throughout, and in general, the flow was smooth in a southerly direction with only occasional riffles and pools. The channel was generally culverted with stone slabs, of which some had become dislodged through age and wear. Banks were steep (approximately 60°), under-cutting and signs of erosion were present in sections, and bank height was between 0.3m – 1m. The high water line was visible approximately 0.3m above the water level during the survey, which indicates the brook is prone to fluctuating water levels.
- 3.1.3 The bankside vegetation of Simonswood Brook was dominated by herbs such as common nettle (*Urtica dioica*), ruderal such as willowherb (*Epilobium* sp.) and bramble (*Rubus fruticosus* agg.) scrub, with large swathes of the banks being dominated by Himalayan balsam (*Impatiens glandulifera*). The bankside vegetation extended approximately 4 – 8m from the water's edge. There were limited aquatic plants present, with occasional marginal species such as reed canary grass (*Phalaris arundinacea*) and rare amounts of branched bur reed (*Sparganium erectum*). Trees were locally abundant in parts; willow (*Salix* sp.) was abundant, with occasional silver birch (*Betula pendula*) and ash (*Fraxinus excelsior*).
- 3.1.4 Within the study area, Simonswood Brook is culverted under Mill Lane; this was an arched stone culvert with no mammal passageway - an additional pedestrian walkway was also present at Mill Lane. The rail line bridge crossing is a stone structure, which was 5m in height above the brook; the bridge has two arches, one for the brook passage and the other which is used for pedestrian access to the south. Additionally within the study area, three smaller pedestrian crossing bridges were present; these were generally metal structures.

Unlabelled Tributary

- 3.1.5 Within the survey area, the unlabelled tributary had a channel width of 0.7 – 1.2m wide, water depth ranged from 0.05-0.4m, flow was slow to moderate throughout and in general, the flow was smooth in a westerly direction; a number of smaller pools were present on meanders. The channel had some signs of modification and culverting in sections; at the confluence with Simonswood Brook and at the crossing of County Road (A506). Banks were steep with signs of bank erosion in sections, with occasional terraced ledges; banks were between 0.2 – 0.7m in height.
- 3.1.6 Bankside vegetation of the unlabelled tributary was dominated by coarse grasses such as false oat (*Arrhenatherum elatius*), herbs such as common nettle, ruderal such as willowherb and bramble scrub, with large swathes of the banks being dominated by Himalayan balsam. The bankside vegetation extended approximately 5 – 10m from the water's edge. Occasional marginal vegetation of reed canary grass was present within areas to the east of the study area.

- 3.1.7 The unlabelled tributary is culverted at the confluence with Simonswood Brook – this was a flat slab culvert with no mammal underpass. The stream is culverted under the A506, which was a concrete flat slab design with no mammal underpass. Additionally, two small pedestrian bridges were present to the east of the study area.

3.2 Survey Results

Simonswood Brook

- 3.2.1 No signs of water vole or otter were recorded during the survey.
- 3.2.2 Plentiful vegetation was available for water vole in isolated sections of the brook, however Himalayan balsam dominance and tree shading reduces the suitability for water vole to small isolated sections of the watercourse. Therefore, in general, the watercourse was sub-optimal for water vole.
- 3.2.3 Small fish are likely to be present within Simonswood Brook, although none were observed. Due to the extensive disturbance within the area (multiple dog walkers encountered during the survey) it is unlikely any suitable laying up sites for otter are present, despite there being dense vegetation. No suitable holt sites were recorded. In general, the watercourse was of low suitability for otter.

Unlabelled Tributary

- 3.2.4 No signs of water vole or otter were recorded during the survey, although numerous rat droppings were recorded along the reach of the stream.
- 3.2.5 Plentiful vegetation was available for water vole in parts; however Himalayan balsam and bramble scrub dominance reduces the suitability for water vole to small isolated sections of the watercourse. Therefore, in general, the watercourse was sub-optimal for water vole.
- 3.2.6 Small fish are likely to be present within the tributary, although none were observed. Due to the extensive disturbance within the area (multiple dog walkers encountered during the survey) it is unlikely any suitable laying up sites for otter are present despite there being dense vegetation. No presence of trees or structures for suitable holt sites are present within the area. In general, the watercourse was of low suitability for otter.

4 CONCLUSIONS AND RECOMMENDATIONS

4.1 Conclusions

- 4.1.1 The survey has confirmed that no field evidence was found to indicate the presence of water vole or otter within the study area in September 2020.
- 4.1.2 Simonswood Brook and the unlabelled tributary are considered to offer sub-optimal habitat for water vole due to: extensive sections of culverting which prevent burrowing within the embankment, reduced diversity of feeding plants due to the dominance of Himalayan balsam, and extensive disturbance by humans and dogs.
- 4.1.3 The presence of numerous rat droppings on the unlabeled tributary also reduces the suitability for water vole as rat will predate water vole young.
- 4.1.4 Simonswood Brook and the unlabelled tributary, due to high levels of disturbance and the generally urban surroundings, had no suitable sites for otter lay-ups or couches within the study area. No suitable holt sites were recorded. Prey availability within the watercourses is likely to be limited to small fish species, however the fishing pond to the north west may be utilised by otter. As no signs of otter, such as spraints or slides, were recorded it is unlikely that otter regularly use the area, however watercourses may potentially be used by commuting or foraging otter infrequently.
- 4.1.5 The survey findings conclude there to be no constraints in respect of riparian mammals and the proposed works at present, However it is considered good practice to carry out a minimum of two presence / absence surveys for riparian mammals.

4.2 Recommendations

- 4.2.1 A second presence / absence survey is recommended in Spring 2021 to adhere to good practice, especially as the survey was carried out in late September when water vole activity is lower than within late spring. Otter have large territories and utilise different areas seasonally may move within the study area.
- 4.2.2 It is recommended that good practice procedures are followed relating to working within or near a watercourse, including:
- Pollution prevention measures and measures to prevent the spread of Himalayan balsam;
 - Where possible, night works should be avoided to allow for normal behaviours of nocturnal species that utilise the riparian channel; and
 - Blocking of the channel should be avoided. If there is a requirement to block or change the course of the channel, a safe pathway should be put in place for species such as otter that may infrequently use the watercourse for commuting.

5 REFERENCES

- Conroy, J.W.H. and French, D.D., 1991. Seasonal patterns in sprainting behaviour of otters (*Lutra lutra*) in Shetland. *Habitat*, 6, 159-166.
- Dean, M., Strachan, R., Gow, D. and Andrews, R. (2016). *The Water Vole Mitigation Handbook (The Mammal Society Mitigation Series)*. Eds Fiona Mathews and Paul Chanin. The Mammal Society, London.
- Royal Society for the Protection of Birds, National Rivers Authority and Royal Society for Nature Conservation (1994, reprinted 2001). *The new rivers and wildlife handbook*. RSPB.
- Strachan, R., and Moorhouse, T. (2006). *Water vole conservation handbook*, Second edition. Environment Agency.

APPENDIX 1. HABITAT ASSESSMENT AND SURVEY RESULTS

Simonswood Brook, north of Mill Lane
(SJ 40692 99743 to SJ 40874 99564)



A man-made fishing lake is present to the west of Simonswood Brook; the banks are wooden and concrete, however a central island has more naturalised earth banks. Heavy disturbance from people due to tarmac paths around the lake perimeter, however a heron, moorhen and mallards were noted utilising the lake. A small area of bulrush planting is present within the northern corner of the lake.



The northern section of Simonswood Brook; embankments were dominated by ruderal and herb species including Himalayan balsam (d), common nettle (a), bramble (f), willowherb (f) and reed canary grass (o). Occasional in-channel vegetation included reed canary grass and bur reed.

Bankside gradient ranged from 60° to undercut and banks were culverted with large stone slabs. The flow was slow to moderate with a rock, pebble and silt sediment - water depth 0.1 – 0.3m and channel 1.5m wide.

Surrounding land use is a publicly accessible 'green area' and parkland - the scrub, ruderal and herb vegetation is approximately 5m wide on either side of the brook. Human disturbance is high within the area.



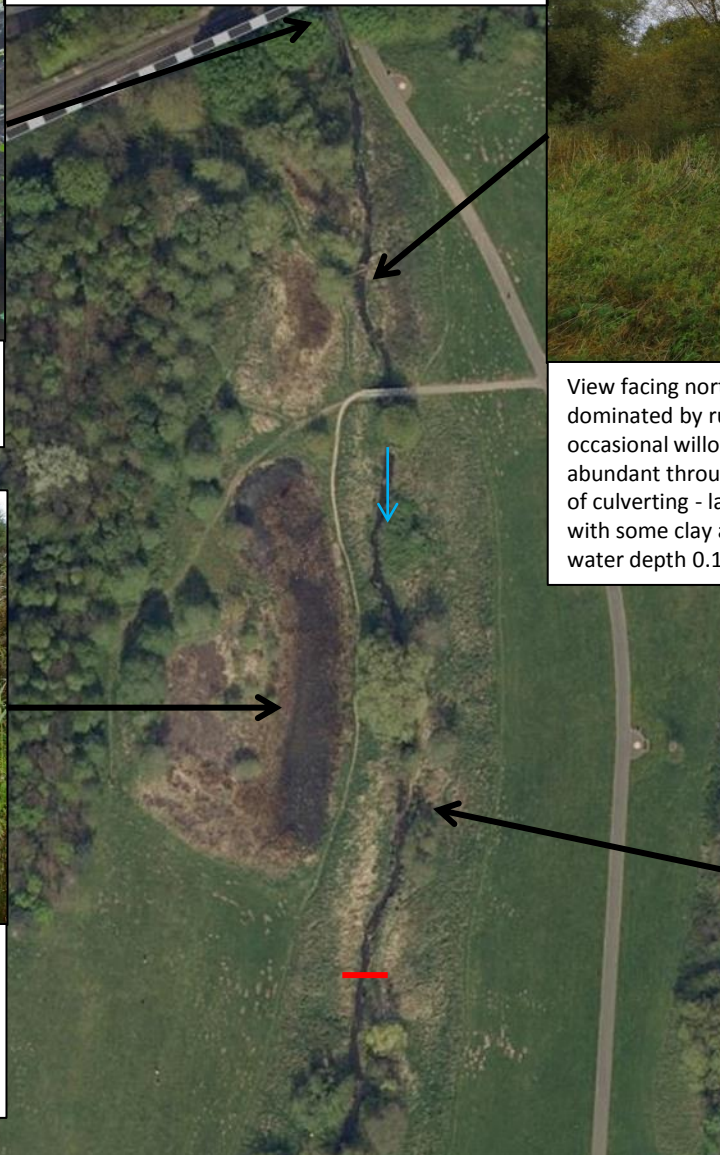
Trees become more dominant on the bankside to the south of the section of Simonswood Brook, The bank profile remains similar, however notable sections of the channel are fairly flat rock (see photograph). Channel is relatively shaded and bankside vegetation is sparse in wooded areas. Himalayan balsam, common nettle and bramble dominate the vegetation on the banks in locations where trees are not present.





View under road and pedestrian bridge at confluence of Simonswood Brook and unnamed tributary – no suitable ledges for riparian mammal use.

Simonswood Brook South (SJ 40879 99554 to SJ 40892 99301)



View facing north of the brook profile; banksides dominated by ruderal vegetation and scrub with occasional willow trees. Himalayan balsam dominant / abundant throughout. Banks are steep 60 - 90° with signs of culverting - large slabs in place. Sediment is sandy silt with some clay and pebble. Flow is slow to moderate, water depth 0.1 – 0.3m and channel 1.5m wide.



Common reed-dominated swamp area with soft rush, willow scrub and bulrush present. The area of swamp was very dense and inaccessible, and embankments were not suitable for burrows, however water vole nests could be present within dense common reed vegetation.





Stream is approximately 0.75 – 1.25m wide throughout and relatively shallow; 0.05 – 0.15m depth with a slow current. Sediment was rock and pebble with steep earth banks ($\sim 75^\circ$). Banks were between 0.5 – 1.5m in height and densely vegetated with rank grasses, Himalayan balsam, common nettle and bramble. Rat droppings were observed in multiple locations along the length of the watercourse.



Unnamed tributary of Simonswood Brook (SJ 40893 99562 to SJ 41498 99820)



North east of the section of the stream; bank height is maximum of 0.5m, sediment is pebble and stone, with more visible undercutting of banks. Himalayan balsam less prevalent, with coarse grasses dominating the bankside including reed canary grass, cock's-foot and false oat-grass.

Habitat surrounding the stream is an urban greenway of semi-improved grassland which is managed through mowing. A margin of vegetation approximately 5-10m in width has been set aside along the stream embankments.



APPENDIX 2. PROPOSED WORKS

Signalling

- Signal Sighting Committee Visit
- Condition Survey at Sandhills IECC
- Signaller Workload Survey at Sandhills IECC
- Survey of lineside signalling equipment (Fazakerley to Knowsley Freight Terminal)

Telecoms

- Existing equipment survey at Sandhills IECC
- Existing equipment survey at Rainford Junction Signal Box
- Survey of FTN nodes at Kirkby Station and Rainford Station
- Cable Route Survey (Ch 0m - Ch 3000m)
- SISS survey at existing Kirkby Station
- Existing equipment survey at Fazakerley Substation

Trackbed Survey

- Automatic Ballast Sampling at 100m intervals (Ch 1000m - Ch 2500m) = 15No.
- To include ballast contamination testing.
- Windowless sampling alongside existing track at 100m intervals to 5m (Ch 1300m - Ch 2250m) = 9No.
- In-situ testing (SPT)
- Geotechnical lab testing (full depth): index/classification testing (PSD/PI/mc) & strength testing (undrained triaxial)
- Geo-env testing: on samples from upper 1m only

Bridge 56

1. Scour survey of foundations adjacent to Simonswood Brook to verify foundations.
2. Core through pier to verify it is solid
3. Cores to confirm thickness of abutments, that they are solid, and material behind.
4. Trial pits from above to determine depth of backing to the arches (4No.)
5. Trial pits to determine depth of pier and abutment foundations, or alternatively cores (6No.)
6. Testing of cores to determine material strength of arches.
7. Dimensional survey of spandrel walls / parapets - 2No. trial pits required.

Bridge 55

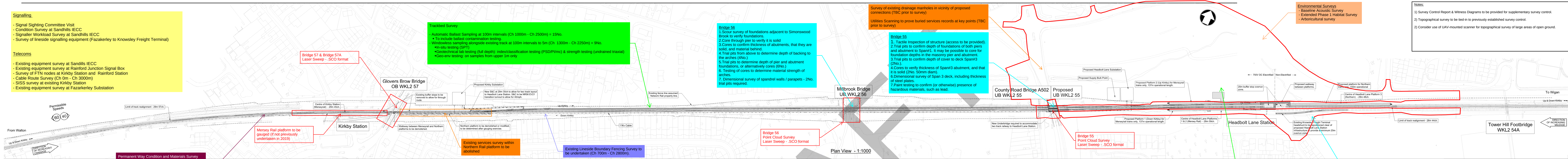
1. Tactile Inspection of structure (access to be provided).
2. Trial pits to confirm depth of foundations of both piers and abutment to Span#1. It may be possible to core for foundation depths in the masonry pier and abutment.
3. Trial pits to confirm depth of cover to deck Span#3 (2No.).
4. Cores to verify thickness of Span#3 abutment, and that it is solid (2No. 50mm diam).
6. Dimensional survey of Span 3 deck, including thickness of steel plates.
7. Paint testing to confirm (or otherwise) presence of hazardous materials, such as lead.

Environmental Surveys

- Baseline Acoustic Survey
- Extended Phase 1 Habitat Survey
- Arboricultural survey

Notes:

- 1) Survey Control Report & Witness Diagrams to be provided for supplementary survey control.
- 2) Topographical survey to be tied-in to previously established survey control.
- 2) Consider use of UAV-mounted scanner for topographical survey of large areas of open ground.



Permanent Way Condition and Materials Survey (Ch 700m - Ch 2800m, including Knowsley Freight Terminal). To include existing conductor rail and associated traction equipment.

Track Drainage Survey (where present). To include condition, connectivity, invert levels and outfall details (Ch 700m - Ch 2800m).

Traffic Surveys



Manual Classified Traffic Counts (2No. Junctions)
To be undertaken between 07:00 – 10:00 and 16:00 – 19:00 on a Tues/Weds/Thurs outside of school holidays

Geotechnical Surveys (station area)

- Machine dug trial pits with in-situ plate load testing
- 20No. within car park area
- Boreholes (shallow rock – assume boreholes CP + RC follow-on)
- In former quarry area - with monitoring (1No.)
- In vicinity of culvert crossing (3No.)
- Within footprint of station building – to allow ground gas monitoring (1No.)
- Future footbridge (2 No)
- Windowless Samples
- New platform area (9No)
- In vicinity of possible culvert crossing (1No)
- Geotechnical Testing
- Index/classification + strength in Boreholes, BRE SD1 testing
- Gas & groundwater monitoring in boreholes/WLS
- Contamination testing to allow controlled waters/human health risk assessments to be undertaken
- Water samples of Brook on-site/upstream/downstream

Arch Culvert (4' 2")
- CCTV survey
- Hand-dug trial pits to confirm depth to crown (3No.)

Key

- Extents of supplementary topographical/gauging surveys
- Bridges-related surveys
- Geotechnical surveys
- Signalling and Telecoms
- Environmental
- Utilities
- Traffic
- Lineside Fencing
- Track / Track Drainage

