2.1 Utility Correspondence

Email from Atkins

1.1.1 Email from Atkins dated 19th February 2014, stating: “We received the application on 29-Nov-13. It is not in the region of any water industry members whom we are contracted to respond on behalf of, but it was forwarded to United Utilities who operate systems in the region on 03-Dec-13.”

Email from JRC

1.1.1 Email from JRC dated 20th January 2014, stating: “Cleared with respect to radio link infrastructure operated by MANWEB, National Grid Gas Networks & United Utilities (Water). Please note that JRC has no concerns with respect to this proposed development if within the co-ordinates given above. However, there are telemetry links in the vicinity of the site so we would appreciate further consultation if it is anticipated that there is likely to be any expansion in a south-westerly direction.”

Email from Vodafone

1.1.2 Email from Vodafone dated 18th February 2014, stating: “No objection”.

Email from Ofcom

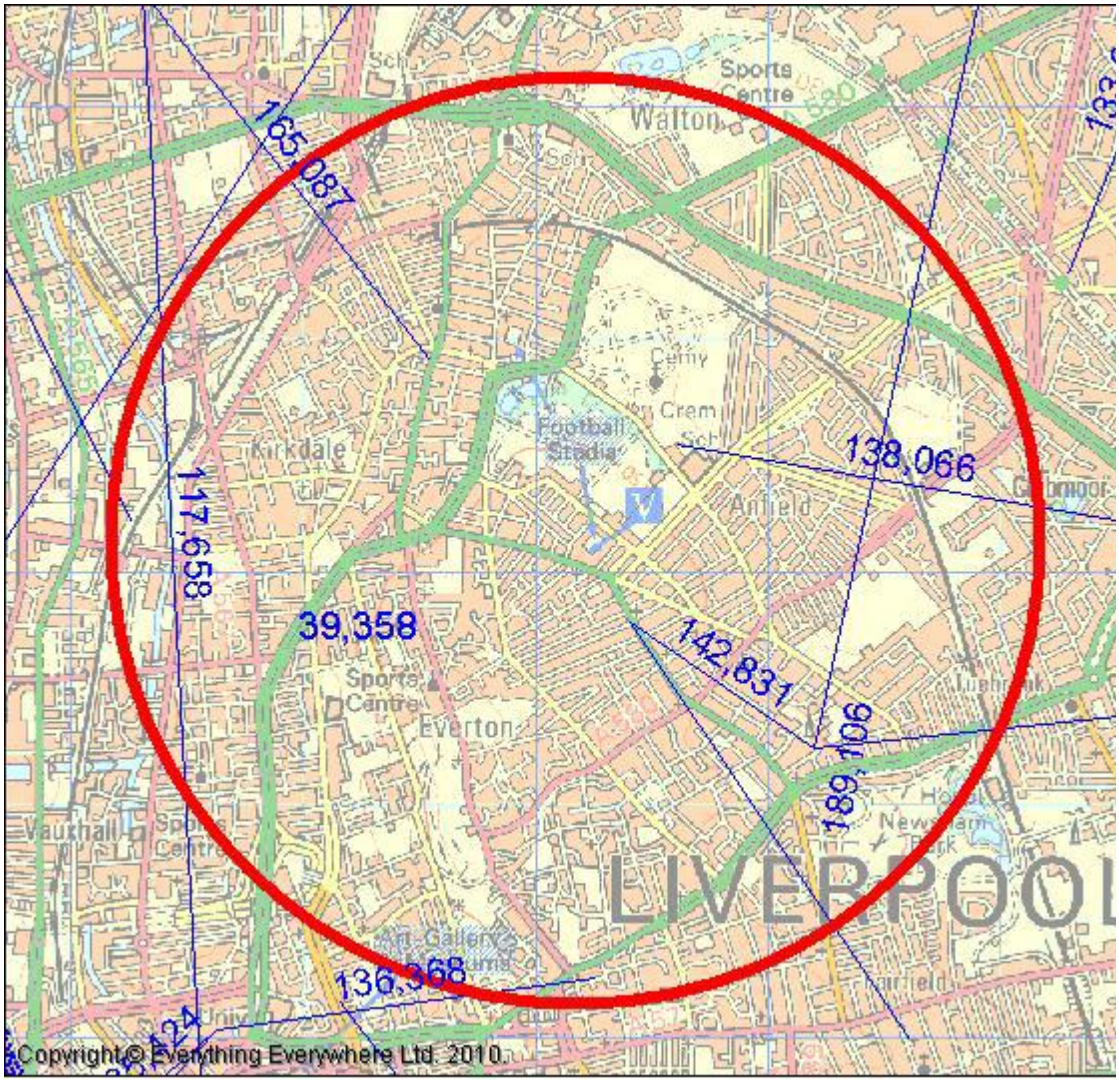
1.1.3 Email from Ofcom dated 29th November 2013, stating: Search Radius 0m at Centre NGR SJ3616993129. Search includes an additional 500m of requested radius. Links Company Contact Telephone Email 0507299/1 Vodafone Limited Joe Wilkinson radioplanning2@vodafone.com 0505320/1 Vodafone Limited Joe Wilkinson radioplanning2@vodafone.com 0567842/1 EE Limited Windfarm Enquiries 0 Windfarms.solihull@nsn.com 0512611/1 EE Limited Windfarm Enquiries 0 Windfarms.solihull@nsn.com

1.1.4 “Additional coordination is also necessary with the band managers for the water, electricity and utilities industries which operate in the frequency ranges 457-458 MHz paired with 463-464 MHz band. You should contact both the following: Atkins Ltd at windfarms@atkinsglobal.com; Joint Radio Company (JRC) at windfarms@jrc.co.uk”.

Email from Nokia Siemens Networks

1.1.5 Email from Nokia Siemens Networks dated 11th March 2014, stating: “Our Network Planning team have completed their assessment of the attached proposal. Please find attached evaluation form. There are 5 Orange M/W link(s) affected by this application based on a 2km radius, shown in Figure 11.1.

Figure **Error! No text of specified style in document.**.1: 2km radius from stadium



Source: Nokia Siemens Networks

3. Air Quality

3.1 Table 3.1: Determination of Dust Raising Magnitude

Source	Large	Medium	Small
Demolition	Total building volume > 50,000m^3, potentially dusty construction material (e.g. concrete), on site crushing and screening, demolition activities > 20m above ground	Total building volume 20,000m^3 - 50,000m^3, potentially dusty construction material, demolition activities 10-20m above ground level	Total building volume <20,000m^3, construction material with low potential for dust release (e.g .metal cladding or timber), demolition activities <10m above ground, demolition during wetter months
Earthworks	Total site area >10,000m^2, potentially dusty soil type (e.g. clay, which will be prone to suspension when dry to due small particle size), >10 heavy earth moving vehicles active at any one time, formation of bunds >8m in height, total material moved >100,000 tonnes	Total site area 2,500m^2 – 10,000m^2, moderately dusty soil type (e.g. silt), 5-10 heavy earth moving vehicles active at any one time, formation of bunds 4m – 8m in height, total material moved 20,000 tonne – 100,000 tonne	Total site area <2,500m^2, soil type with large grain size (e.g. sand), <5 heavy earth moving vehicles active at any one time, formation of bunds <4m in height, total material moved <10,000tonne, earthworks during wetter months
Construction	Total building volume >100,000m^3, piling, on site concrete batching; sandblasting	Total building volume 25,000m^3 – 100,000m^3, potentially dusty construction material (e.g. concrete), piling, on site concrete batching	Total building volume <25,000m^3, construction material with low potential for dust release (e.g. metal cladding or timber)
Track out	>100 HDV (>3.5t) trips in any one day, potentially dusty surface material (e.g. high clay content), unpaved road length >100m	25-100 HDV (>3.5t) trips in any one day, moderately dusty surface material (e.g. high clay content), unpaved road length 50m – 100m	<25 HDV (>3.5t) trips in any one day, surface material with low potential for dust release, unpaved road length <50m

Source: IAQM

3.2 Table 3.2: Receptor Sensitivity

Source	High	Medium	Low
Sensitivities of people to dust soiling effects	• users can reasonably expect an enjoyment of a high level of amenity; or • the appearance, aesthetics or value of their property would be diminished by soiling; and the people or property would reasonably be expected to be present continuously, or at least regularly for extended periods, as part of the normal pattern of use of the land. • indicative examples include dwellings, museums and other culturally important collections, medium and long term car parks [b] and car showrooms.	• users would expect [a] to enjoy a reasonable level of amenity, but would not reasonably expect to enjoy the same level of amenity as in their home; or • the appearance, aesthetics or value of their property could be diminished by soiling; or • the people or property wouldn't reasonably be expected to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land. • indicative examples include parks and places of work.	• the enjoyment of amenity would not reasonably be expected [a]; or • property would not reasonably be expected to be diminished in appearance, aesthetics or value by soiling; or • there is transient exposure, where the people or • property would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land. • indicative examples include playing fields, farmland (unless commercially-sensitive horticultural), footpaths, short term car parks [b] and roads.
Sensitivities of people to the health effects of PM_{10}	• locations where members of the public are exposed over a time period relevant to the air quality objective for PM_{10} (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day).[c] • indicative examples include residential properties. Hospitals, schools and residential care homes should also be considered as having equal sensitivity to residential areas for the purposes of this assessment.	• locations where the people exposed are workers [d], and exposure is over a time period relevant to the air quality objective for PM_{10} (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day). • indicative examples include office and shop workers, but will generally not include workers occupationally exposed to PM_{10}, as protection is covered by Health and Safety at Work legislation.	• locations where human exposure is transient [e] • indicative examples include public footpaths, playing fields, parks and shopping streets.
Sensitivities of receptors to ecological effects [f]	• locations with an international or national designation and the designated features may be affected by dust soiling; or • locations where there is a community of a particularly dust sensitive	• locations where there is a particularly important plant species, where its dust sensitivity is uncertain or unknown; or • • locations with a national designation where the features may be affected by dust deposition.	• locations with a local designation where the features may be affected by dust deposition. • indicative example is a local Nature Reserve with dust sensitive features.

Source	High	Medium	Low
	species such as vascular species included in the Red Data List For Great Britain [9]. • indicative examples include a Special Area of Conservation (SAC) designated for acid heathlands or a local site designated for lichens adjacent to the demolition of a large site containing concrete (alkali) buildings.	• • indicative example is a Site of Special Scientific Interest (SSSI) with dust sensitive features.	

a People's expectations will vary depending on the existing dust deposition in the area
b Car parks can have a range of sensitivities depending on the duration and frequency that people would be expected to park their cars there, and the level of amenity they could reasonably expect whilst doing so. Car parks associated with work place or residential parking might have a high level of sensitivity compared to car parks used less frequently and for shorter durations, such as those associated with shopping. Cases should be examined on their own merits.
c This follows Defra guidance as set out in LAQM.TG(09).
d Notwithstanding the fact that the air quality objectives and limit values do not apply to people in the workplace, such people can be affected to exposure of PM10. However, they are considered to be less sensitive than the general public as a whole because those most sensitive to the effects of air pollution, such as young children are not normally workers. For this reason workers have been included in the medium sensitivity category.
e There are no standards that apply to short-term exposure, e.g. one or two hours, but there is still a risk of health impacts, albeit less certain.
f A Habitat Regulation Assessment of the site may be required as part of the planning process, if the site lies close to an internationally designated site i.e. Special Conservation Areas (SACs), Special Protection Areas (SPAs) designated under the Habitats Directive (92/43/EEC) and RAMSAR sites.
g Cheffing C. M. & Farrell L. (Editors) (2005), The Vascular Plant. Red Data List for Great Britain, Joint Nature Conservation Committee.

3.3 Table 3.3 Sensitivity of the Area to Dust Soiling Effects on People and Property

Receptor Sensitivity	Number of Receptors	Distance from the source (m)			
		<20	<50	<100	<350
High	>100	High	High	Medium	Low
	10-100	High	Medium	Low	Low
	1-10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

Source: IAQM

3.4 Table 3.4: Sensitivity of the Area to Human Health Impacts

Receptor Sensitivity	Annual Mean PM_{10} Concentration	Number of Receptors	Distance from the source (m)				
			<20	<50	<100	<200	<350
High	>32 µg/m^3	>100	High	High	High	Medium	Low
		10-100	High	High	Medium	Low	Low
		1-10	High	Medium	Low	Low	Low
	28-32 µg/m^3	>100	High	High	Medium	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	High	Medium	Low	Low	Low
	24-28 µg/m^3	>100	High	Medium	Low	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	<24µg/m^3	>100	Medium	Low	Low	Low	Low
		10-100	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Medium	-	>10	High	Medium	Low	Low	Low
	-	1-10	Medium	Low	Low	Low	Low
Low	-	>1	Low	Low	Low	Low	Low

Source: IAQM

3.5 Table 3.5: Sensitivity of the Area to Ecological Impacts

Receptor Sensitivity	Distance from the source (m)	
	<20	<50
High	High	Medium
Medium	Medium	Low
Low	Low	Low

Source: IAQM

3.6 Table 3.6: Risk of Dust Impacts - Demolition

Sensitivity of Area	Dust Emissions Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Medium Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Low Risk

Source: IAQM

3.7 Table 3.7: Risk of Dust Impacts - Earthworks

Sensitivity of Area	Dust Emissions Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Medium Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

Source: IAQM

3.8 Table 3.8: Risk of Dust Impacts - Construction

Sensitivity of Area	Dust Emissions Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Medium Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

Source: IAQM

3.9 Table 3.9: Risk of Dust Impacts – Trackout

Sensitivity of Area	Dust Emissions Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Low Risk	Negligible
Low	Low Risk	Low Risk	Negligible

Source: IAQM

4. Ecology

4.1 LFC Preliminary Ecological Appraisal

Liverpool FC Stadium Expansion

Preliminary Ecological Appraisal

March 2014

Liverpool Football Club and Athletic Grounds

Mott MacDonald

Liverpool FC Stadium Expansion

Initial Bat Assessment

January 2014

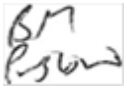
Liverpool Football Club and Athletic Grounds

Anfield Road
Liverpool
L4 0TH

Mott MacDonald, 9th Floor, Royal Liver Building, Pier Head, Liverpool L3 1JH, United Kingdom
T +44 (0)151 482 9910 **F** +44 (0)151 236 2985 **W** www.mottmac.com

Issue and revision record

Revision	Date	Originator	Checker	Approver	StandardStandardStandardSecureStandardStandardSecurStandard
Draft	27-03-2014	T Oliver	R Purslow	A Lawrance	


Contents

Executive Summary

This report presents the findings of a preliminary ecological appraisal at Liverpool FC Stadium (Anfield) and the immediately surrounding area. This review was commissioned by Liverpool Football Club (LFC), and has been carried out by Mott MacDonald to support a planning application for expansion of the stadium.

The purpose of this report is to provide an initial assessment of the ecological importance of the site's habitats and the potential for it to support protected ecological features and species. The study has been carried out as an extended Phase 1 habitat survey following the methods laid out by Joint Nature Conservation Committee (JNCC, 2010). The report comprises two phases: a desk study consultation exercise and a walkover field survey which was undertaken on 30 October 2013.

Beyond the potential for roosting bats, which is assessed in a separate report, all habitats within the site boundary, including amenity grassland, introduced shrubs and areas of hardstanding and bare ground, have been assessed as having little or no ecological value and no further surveys have been recommended. However, as a precaution it is recommended that any vegetation clearance works or building demolition is undertaken outside of the bird breeding season (i.e. clearance/demolition activities are best carried out between September and February).

Additionally, any trees immediately adjacent to the site or overhanging it, which are not to be removed as a part of any proposed works, should be protected in accordance with British Standard "*Trees in relation to construction - Recommendations*" BS5837:2012. Protection should be installed prior to the commencement of any works.

1 Introduction

1.1 Project Background

Mott MacDonald Limited (MML) was instructed by Liverpool Football Club (LFC), in October 2013, to undertake a Preliminary Ecological Appraisal (PEA) of Anfield Football Stadium and the surrounding area. For the purposes of this report, the site is considered to be land within the boundary shown on the drawing in Appendix A.

The PEA was commissioned to support an Environmental Impact Assessment (EIA) and planning application for the future expansion of the stadium.

1.2 Scope of the Report

The purpose of this report is to provide an initial assessment of the ecological importance of the site's habitats and the potential for it to support protected ecological features and species. The scope of this study is to:

- Undertake a desk-top study to identify any existing information regarding protected or notable species and sites with a nature conservation designation within a 2 km radius of the site, extended to 5 km for bat species and 10 km for Natura 2000 and Ramsar sites;
- Carry out an extended Phase 1 habitat survey to provide a description of the existing broad habitat types on the site, and to establish the presence or potential presence of any protected or notable species;
- Produce a report detailing the findings of the desk-top study, the preliminary ecological appraisal and any key ecological constraints to the proposed development;
- Provide recommendations for further ecological survey work necessary to produce an ecological baseline for the site;
- Identify any mitigation measures that may be required to offset potential development impacts; and,
- Identify any measures that may be available to enhance biodiversity within the proposed development in line with national and local planning policy.

1.3 Site Description

Anfield Stadium is located between Walton Breck Road and Anfield Road in the Anfield area of Liverpool (central Ordnance Survey (OS) Grid Reference: SJ 3624 9308).

Anfield Stadium is located approximately 3 km north east of Liverpool city centre in a mainly residential area, with terraced housing positioned on three sides of the stadium. To the north-east, along Anfield Road, is an area of hardstanding and bare ground beyond which lies Stanley Park. Stanley Park is a large area of public open space which includes amenity sports pitches as well as a large lake and mature trees and lies immediately adjacent to Anfield Cemetery. In total the park and cemetery create an area of approximately 80 ha of green space.

The north-west boundary of the site abuts houses located on Alroy Road and Gilman Street, with the south-west boundary running along the northern side of Walton Breck Road. The south-east boundary follows the rear boundary walls of properties situated on Skerries Road before cutting across Anfield Road to the boundary with Stanley Park. Finally, the north-east boundary of the site directly abuts Stanley Park. A site location plan is provided in Appendix A.

1.4 Proposed Development

The proposed development comprises the expansion and redevelopment of the existing Anfield Stadium at Anfield and will include:

i. An application for full planning permission to erect a new Main Stand with associated player, media, conferencing and banqueting facilities and the provision of its surrounds to provide high quality public realm, improved circulation space and an improved public connection between Walton Park Road and Stanley Park, along with additional car parking spaces on the former Anfield Comprehensive School.
ii. An application for outline planning permission to redevelop the Anfield Road Stand, principally to create additional spectator facilities to increase the capacity of the stadium.

Overall the development will increase the capacity of the stadium from c.45,000 to c.60,000.

2 Methodology

2.1 Desk Study

A desk study was undertaken, as recommended in the Chartered Institute of Ecology and Environmental Management (CIEEM) 'Guidelines for Preliminary Ecological Appraisal' (2013), to determine the presence of any designated nature conservation sites and protected or notable species that have been recorded within a 2 km radius of the site. This radius was extended to 5 km for bats, as recommended by English Nature's Bat Mitigation Guidelines (Mitchell-Jones, 2004), and 10 km for International and European conservation sites including: Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar Sites. This involved consulting the following organisations and ecological databases:

- Merseyside BioBank (MBB); and,
- Multi Agency Geographical Information for the Countryside (MAGIC) website for statutory conservation sites.

2.2 Field Survey

An extended Phase 1 habitat survey was undertaken on the 30 October 2013 which involved a combination of mapping the habitat types present on Site following the Joint Nature Conservation Committee Phase 1 survey methodology (JNCC, 2010); and an assessment of those habitats for their potential to support protected or notable species following CIEEM guidance (CIEEM, 2013). During the mapping procedure all dominant species of flora were identified along with sub-dominant species where possible. Any protected or notable species present were recorded either by direct observation or indirectly from the presence of their field signs. At all times general habitat assessments were made for the possibility of the site to support protected or notable species.

This survey provides information relating to the habitats found within the site perimeter as well as the potential presence of legally protected or notable species. A plant species list was recorded for each broad habitat type identified, with nomenclature based on Stace (2010). This survey cannot, therefore, be considered to provide a wholly comprehensive account of the ecological interest of the Site and it should be noted that this report does not constitute an Ecological Impact Assessment. The survey does, however, provide a "snapshot" of the ecological interest present on the day of the survey visit.

A summary of legislation relevant to the ecology of the site is included in Appendices B and C.

2.3 Badger

The survey area was searched for evidence of badger (*Meles meles*), following the methodology as outlined by Harris, Creswell and Jefferies (1991). The search covered all land within the site, and up to and including a 30 m potential impact zone beyond the boundaries. Evidence of badger presence includes:

- Setts;
- Latrines;

- Prints and paths or trackways;
- Hairs caught on rough wood or fencing; and
- Other evidence including snuffle holes, feeding remains and scratching posts.

Where setts were present, their status and level of activity was noted. Sett status is broadly categorised as follows:

- **Main**: generally the largest sett within a badger clan's territory, with a relatively large number of sett entrances with well-worn pathways between them, and conspicuous spoil mounds. This type of sett will be occupied throughout the year and used for breeding;
- **Annexe**: normally found within 150m of the main sett comprising many entrances, this type of sett may not be occupied throughout the year, and can be used for breeding if there is more than one breeding sow within the clan;
- **Subsidiary**: similar to an annexe sett, but typically located further from the main sett. This type of sett will not be occupied throughout the year and lacks the well-worn paths associated with main and annexe setts; and
- **Outlier**: consisting of one or two entrances, this type of sett will be found furthest from the main sett and will only be used sporadically throughout the year.

The suitability of the existing habitats, as badger breeding and foraging habitat, was assessed during the preliminary ecological survey.

2.4 Limitations

Ecological surveys are limited to factors which affect the presence of plants and animals, such as time of year, migration patterns and behaviour. With a single visit it is possible that certain species may have been overlooked or under-recorded during the assessment as optimal survey periods vary from species to species. The Phase 1 report as presented is therefore unlikely to present a full and complete assessment of the biodiversity of the site.

The Phase 1 habitat survey was undertaken outside the recognised optimal period for baseline ecological surveys (April to September) and as a result additional surveys may be required, during optimal conditions, to fully assess the ecological status.

In addition the biological records obtained from third parties do not represent a full and complete species list for the area. They are mostly given by individuals on an ad hoc basis, often meaning there are areas of deficiency in the data.

A large number of buildings fall inside the site; however the residential properties located on Anfield Road, Lothair Road, Alroy Road, Rockfield Road and Back Rockfield Road were not assessed in detail as part of the survey. Additionally, the buildings on the site have been separately assessed for potential to support bats, the results of which can be found in the Mott MacDonald Initial Bat Assessment.

3 Desk Study Results

3.1 Introduction

All relevant ecological data received from the consultation exercise has been reviewed, the results of which are summarised below in Sections 3.2 and 3.3. Data older than 10 years is considered to be less important than more recent data due to the length of time that has elapsed since being collected (and the chance that they are no longer valid) and have therefore been excluded from the protected species table.

Legislation covering the various statutory and non-statutory sites is covered in Appendix D.

3.2 Designated Nature Conservation Sites

3.2.1 Statutory Sites

3.2.1.1 International and European Designated Sites

Reference to the MAGIC website (http://magic.defra.gov.uk/) and MBB indicates that there are six European nature conservation designated sites, three of which are Special Protection Areas (SPA) as well as being additionally internationally designated as Ramsar sites, with an additional three Special Areas of Conservation (SAC). Further details on the sites is provided in Table 3.1.

Table 3.1: Summarised details on the International and European designated sites within 10 km of the site

Site Name	Designation	Proximity to the Centre of Site	Description
Mersey Narrows and North Wirral Foreshore	Ramsar / SPA	4.5 km west	Mersey Narrows and North Wirral Foreshore is located on the north west coast of England at the mouths of the Mersey and Dee estuaries. The site comprises intertidal habitats at Egremont foreshore, man-made lagoons at Seaforth and the extensive intertidal flats at North Wirral Foreshore. Egremont is most important as a feeding habitat for waders at low tide whilst Seaforth is primarily a high tide roost, as well as a nesting site for terns. The most notable feature of the site is the exceptionally high density of turnstones.
Liverpool Bay / Bae Lerpwl	Marine SPA	6.3 km north-west	Liverpool Bay is one of the most important sea areas around the UK for populations of wintering seabirds, particularly common scoter and red throated diver, which arrive in large numbers in the autumn from their breeding sites in Northern Europe and sub-Arctic areas.
Dee Estuary	SAC	6 km west	The Dee Estuary is of special interest for its total populations of internationally important wintering waterfowl; its populations of individual waterfowl and tern species, whose numbers reach national and in some cases, internationally important levels; its intertidal mud and sandflats, saltmarsh and transitional habitats; the hard rocky sandstone cliffs of Hilbre Island and Middle Eye with their cliff vegetation and maritime heathland and grassland; its assemblage of nationally scarce plants; and its populations of Sandhill Rustic Moth, a Red Data Book species.

Site Name	Designation	Proximity to the Centre of Site	Description
Sefton Coast	SAC	7 km north-west	The Sefton Coast lies between the estuaries of the Mersey and Ribble in north-west England. The sand dunes, beaches and marshes of the Sefton Coast are one of the most important areas for nature conservation in Europe.
Mersey Estuary	Ramsar / SPA	7 km south	The Mersey is a large, sheltered estuary which comprises large areas of saltmarsh and extensive intertidal sand and mudflats, with limited areas of brackish marsh, rocky shoreline and boulder clay cliffs, within a rural and industrial environment. The intertidal flats and saltmarshes provide feeding and roosting sites for large and internationally important populations of waterfowl. During the winter, the site is of major importance for duck and waders. The site is also important during spring and autumn migration periods, particularly for wader populations moving along the west coast of Britain.
Ribble and Alt Estuaries	Ramsar / SPA	7 km north-west	A large area including two estuaries which form part of the chain of west coast sites which fringe the Irish Sea. The site is formed by extensive sand and mudflats backed, in the north, by the saltmarsh of the Ribble Estuary and, to the south, the sand dunes of the Sefton Coast. The tidal flats and saltmarsh support internationally important populations of waterfowl in winter and the sand dunes support vegetation communities and amphibian populations of international importance.

Source: http://magic.defra.gov.uk/

3.2.1.2 National and Local Designated Sites

A search for statutory designated nature conservation sites within 2 km of the site failed to identify any sites within the search radius. The closest statutorily designated site is Mersey Narrows Site of Special Scientific Interest (SSSI) located 4.5 km west of the site, on the west side of the River Mersey.

3.2.2 Non-statutory Sites

There are two non-statutory nature conservation sites within 2 km of the site, detailed in Table 3.2.

Table 3.2: Summarised details on the local (non-statutory) nature conservation sites within 2 km of the site

Site Name	Designation	Proximity to the Centre of Site	Description
Melrose Cutting	Local Wildlife Site (LWS)	1.6 km north west	A disused railway cutting approximately 750 metres in length and 80 metres wide which supports a range of habitats and plant species typical of ex-industrial land. Narrow strips of silver birch (*Betula pendula*) and grey willow (*Salix cinerea*) scrub-woodland with a bracken (*Pteridium aquilinum*) and bramble (*Rubus fruticosus* agg.) understorey are found on both sides of the site for its entire length and these two species are encroaching into other areas. The site's main value is as a habitat mosaic.

Site Name	Designation	Proximity to the Centre of Site	Description
Leeds and Liverpool Canal	LWS	1.7 km west	It currently supports a very limited range of aquatic plants with only yellow water-lily (*Nuphar lutea*) and common duckweed (*Lemna minor*), together with the invasive species parrot's feather (*Myriophyllum aquaticum*) and water fern (*Azolla* sp.), recorded in recent years. Its marginal vegetation also lacks diversity, being composed almost entirely of lesser reedmace (*Typha angustifolia*), reed canary-grass (*Phalaris arundinacea*) and reed sweet-grass (*Glyceria maxima*), which together form several significant blocks of swamp habitat.

Source: Merseyside BioBank

3.3 Protected/notable Species

3.3.1 Birds

There are fourteen protected or notable bird species recorded within a 2 km radius of the site. Table 3.3 provides a selected summary of those species appropriate to the site which are listed on red or amber lists (Eaton *et al*., 2009) or Schedule 1 of the Wildlife and Countryside Act 1981.

The United Kingdom's (UK) birds can be split in to three categories of conservation importance – red, amber and green. Red is the highest conservation priority, with species needing urgent action. Amber is the next most critical group, followed by green. Schedule 1 birds are afforded the highest level of protection.

Table 3.3: Summary of bird species and their protection within a 2 km radius of the site.

Species	No. of Records	Most Recent Record	Schedule 1 of WCA	NERC Section 41	Bird of Conservation Concern		UK BAP	Local BAP
					Red	Amber		
Sky Lark (*Alauda arvensis*)	3	1998	×	✓	✓	×	✓	✓
Swift (*Apus apus*)	5	1998	×	×	×	✓	×	✓
Linnet (*Carduelis cannabina*)	2	1997	×	✓	✓	×	✓	×
House Martin (*Delichon urbicum*)	3	2001	×	×	×	✓	×	✓
Black Redstart (*Phoenicurus ochruros*)	2	1999	✓	×	×	✓	×	×
Peregrine (*Falco peregrinus*)	2	2002	✓	×	×	×	×	×
Herring Gull (*Larus argentatus*)	1	1997	×	✓	✓	×	✓	×

Species	No. of Records	Most Recent Record	Schedule 1 of WCA	NERC Section 41	Bird of Conservation Concern		UK BAP	Local BAP
House Sparrow (*Passer domesticus*)	37	2001	×	✓	✓	×	✓	✓
Hedge Accentor (*Prunella modularis*)	10	1999	×	✓	×	✓	✓	×
Bullfinch (*Pyrrhula pyrrhula*)	1	1997	×	✓	×	✓	✓	×
Starling (*Sturnus vulgaris*)	10	1999	×	✓	✓	×	✓	✓
Song Thrush (*Turdus philomelos*)	11	1999	×	✓	✓	×	✓	✓
Lapwing (*Vanellus vanellus*)	2	1999	×	✓	✓	×	✓	✓

Source: Merseyside BioBank

3.3.2 Bats

There are seven recorded bat species, recorded to the species level, within a 5 km radius of the site as summarised in Table 3.4. Additionally, there are another 43 unidentified bat records within the 5 km radius.

Table 3.4: Summary of bat species within 5 km of the site.

Species	No. of records	Most recent record	Proximity of most recent record to the site	Proximity of nearest roost to site	UK BAP	Local BAP
Savi's Pipistrelle (*Hypsugo savii*)	1	1996	4.5 km west	N/A	×	×
Daubenton's bat (*Myotis daubentonii*)	3	1990	4.6 km north east	N/A	×	✓
Noctule (*Nyctalus noctula*)	13	2007	4.6 km north east	N/A	✓	✓
Common Pipistrelle (*Pipistrellus pipistrellus*)	31	2013	3.6 km north east	4.8 km north east	×	✓
Soprano Pipistrelle (*Pipistrellus pygmaeus*)	1	2007	4.6 km north east	N/A	✓	✓
Pipistrelle (*Pipistrellus* sp.)	58	2012	200m south	4.6 km north east	×	×
Brown Long-eared bat (*Plecotus auritus*)	21	1996	4.6 km north east	4.6 km north east	✓	✓

Source: Merseyside BioBank

3.3.3 Herptiles

No protected or notable records of any amphibians or reptiles were returned from the desk study within the 2 km radius of the site.

3.3.4 Other protected/notable species

In addition to the seven bat species outlined above, four other species of mammal, either classified as UK or Local Biodiversity Action Plan (BAP) species, were identified within 2 km of the site.

Table 3.4: Summary of other protected or notable species within a 2 km radius of the Site.

Species	No. of records	Most recent record	Proximity of most recent record to site boundary	UK BAP	Local BAP
European Water Vole (*Arvicola amphibius*)	2	1999	1.8 km west	✓	✓
European Hedgehog (*Erinaceus europaeus*)	6	2012	1.4 km west	✓	×
Brown Hare (*Lepus europaeus*)	1	2010	Within 2 km	✓	✓
Red Squirrel (*Sciurus vulgaris*)	3	2007	2 km north-east	✓	✓

Source: Merseyside BioBank

4 Field Survey Results

4.1 Introduction

The ecological features within the site were surveyed by undertaking an extended Phase 1 habitat survey walkover carried out by Tom Oliver, a suitably experienced ecologist, on 30 October 2013. All habitats were mapped according to the Phase 1 Habitat survey methodology (JNCC, 2010). Particular attention was paid to the Site's potential to support protected species. The presence of any invasive plant species was also noted. The Phase 1 Habitat map is provided in Appendix E with associated Target Notes and photographs in Appendices F and G respectively. Target Notes are referred to as TN1, TN2 etc. in the following section. Table 4.1 details the weather conditions at the time of survey.

Table 4.1: Survey weather conditions

Date	Temperature (°C)	Cloud Cover (%)	Wind (Beaufort Scale)	Precipitation
30-10-2013	14	70	F2	Small amount of rain in afternoon

4.2 Habitat Descriptions

The following broad habitat types, along with their associated JNCC habitat codes, were recorded within site during the field survey:

- Amenity grassland (J1.2);
- Bare ground (J4);
- Buildings (J3.6);
- Hardstanding (J5);
- Introduced shrub (J1.4); and,
- Parkland scattered trees – broad-leaved (A3.3).

These habitats are described below. They are ordered alphabetically, not in order of ecological importance. An accompanying extended Phase 1 habitat plan is provide in Appendix E.

4.2.1 Amenity grassland (J1.2)

There are two main areas of amenity grassland within the site, the current football pitch inside the stadium (Photo G.1) and the newly created area of public open space (POS) in the west corner of the site (Photo G.2; TN1). The football pitch is subject to an intensive growth and cutting regime and as such the grass species present within the sward were unidentifiable. However, the amenity grassland located in the area of POS consisted mainly of annual meadow-grass (*Poa annua*) with red fescue (*Festuca rubra*) and perennial ryegrass (*Lolium perenne*) also present. A few common forb species were identified within the swards including white clover (*Trifolium repens*), daisy (*Bellis perennis*), creeping buttercup (*Ranunculus repens*), greater plantain (*Plantago major*) and dandelion (*Taraxacum officinale* agg.).

4.2.2 Bare ground (J4)

The area north of Anfield Road was previously occupied by a number of large detached houses which have been demolished leaving two large areas of bare ground consisting of mixed hard-core rubble and earth.

4.2.3 Buildings (J3.6)

Three buildings located within the site were assessed for their potential to support protected or notable species (other than bats) as part of the field survey: the football stadium, the Conference and Events Department building and the Albert public house.

The football stadium (Photos G.3 – G.5) is constructed from a steel support structure with concrete and brickwork supporting walls. Much of the external structure is clad in corrugated metal sheeting with large glass window sections letting light into conference rooms or suites at various points. From the outside of the stadium numerous gaps are present into the overhanging sections of the seating. Inside the ground the gaps between the walls and metalwork are also present at the top of each stand along with the exposed metal framework.

The Conference and Events Department building (Photo G.6; TN2) is a three-storey brick office building with a gently pitched tiled roof and is located adjacent to the Shankly Gates on Anfield Road, inside the stadium complex. A single level garage is also attached to the main office building. The building is in a very good structural condition, with no holes in the brick work or missing roof tiles.

The Albert public house (Photo G.7; TN3) is a detached Victorian redbrick building with a tiled pitched roof fronting on to Walton Breck Road. The building is generally in a good state of repair with some minor damage visible around the pub name sign. The gable ends both have overhanging wooden soffits.

4.2.4 Hardstanding (J5)

The bulk of the ground cover around the stadium is comprised from hardstanding including blacktop car parks and access routes and concrete paving slabs (Photo G.8).

4.2.5 Introduced shrub (J1.4)

Some small areas of introduced shrub are present in the west corner of the Site in the area of POS (Photos G.9 – G.10). An ornamental shrub border along Gilman Road (TN4) includes lavender (*Lavandula latifolia*), rosemary (*Rosmarinus officinalis*), hydrangea (*Hydrangea* sp.), magnolia (*Magnolia* sp.) and ornamental rose (*Rosa* sp.) and is fenced off from the adjacent amenity grassland. Two other areas of introduced shrub bisect the amenity grassland creating a screen between Walton Breck Road and the grassland behind it. Cherry laurel (*Prunus laurocerasus*) and an ornamental bamboo (*Bambusa* sp.) are the main species present in these areas.

4.2.6 Parkland scattered trees – broad-leaved (A3.1)

Planted within the amenity grassland in the area of POS are some silver birch (*Betula pendula*) saplings along with more individual stands of bamboo. Additionally, a number of mature trees including ash (*Fraxinus excelsior*), cherry (*Prunus* sp.) and horse-chestnut (*Aesculus hippocastanum*) are present immediately adjacent to the site within Stanley Park.

4.3 Protected/Notable Species

4.3.1 Amphibians

Based on available aerial photography and OS mapping there are no ponds within 500m of the site. The nearest piece of standing water is the large boating lake located in Stanley Park, approximately 550m north-west of the site. No evidence of any amphibians was observed during the survey and the site offers negligible potential for amphibians.

4.3.2 Badgers

No direct or indirect evidence (including setts, latrines, footprints or hairs) of badgers using the site was found either within the site or in any of the accessible areas immediately adjacent to the site.

4.3.3 Bats

The site is being assessed for its potential to support roosting bats separately, the results of which can be found in the Mott MacDonald Initial Bat Assessment.

4.3.4 Birds

The football stadium and introduced shrub has the potential to support nesting birds. However, birds, particularly feral pigeons (*Columba livia*) are actively discouraged from the stadium through the use of netting and bird scaring techniques.

4.3.5 Invasive Species

No evidence of invasive species was observed anywhere across the site.

4.3.6 Invertebrates

The site is unremarkable in terms of habitat suitable for invertebrates, with the majority of it being comprised of buildings, hardstanding and amenity grassland which are common across the wider landscape.

4.3.7 Reptiles

No evidence of reptiles was observed during the survey and the site contains negligible habitat for this species group.

5 Interpretation and Recommendations

5.1 Designated Nature Conservation Sites

There are six European nature conservation sites within 10 km of the site, three of which are additionally internationally designated as Ramsar sites, the closest of which Mersey Narrows and North Wirral Foreshore SPA/Ramsar is located 4.5 km west of the site. There are no national or local statutory nature conservation sites within 2 km of the site, although there are two non-statutory sites: Melrose Cutting LWS (1.6 km north west) and Leeds and Liverpool Canal LWS (1.7 km west).

The zone of influence of the likely impacts during construction and operation of the development is likely to be limited to the curtilage of the site or very close to it. It is therefore considered that the proposed works will not directly impact upon any of the statutory or non-statutory sites nature conservation sites.

Therefore no recommendations are made with respect to any of the statutory or non-statutory nature conservation designations.

5.2 Habitats

The ecological importance of the habitats present on the site has been assessed against their presence in the United Kingdom (UK) and Local Biodiversity Action Plans (BAPs), on Section 41 of the Natural Environment and Rural Communities Act (NERC, 2006) and their ability to support protected or notable species.

There are no UK BAP habitats present on the site, although there is one habitat present within the site found on the North Merseyside BAP: Urban Trees. This particular priority habitat focuses on the retention of existing native trees in the urban environment and the increase in overall numbers of native trees of local provenance. Additionally they have aesthetic value and form part of the visual screening of the existing stadium. Due to some of the size and maturity of the trees they are not easily replaceable without extensive cost. Therefore the following recommendation is made with regard to the scattered trees within the site:

- Any trees on the site, immediately adjacent to it or overhanging the site, which are not to be removed as a part of any proposed works, should be protected in accordance with British Standard "*Trees in relation to construction - Recommendations*" BS5837:2012. Protection should be installed prior to the commencement of any works.

5.3 Protected/Notable Species

5.3.1 Amphibians

The desk study failed to identify any records of great crested newts within 2 km of the site and based on aerial photography and OS mapping there are no ponds within 500m of the site. The site mainly contains buildings and hardstanding habitats which are completely unsuitable for great crested newts and other amphibians. Even though the areas of introduced shrub could be utilised by great crested newts and other

amphibians as terrestrial habitat these habitats are completely isolated from breeding ponds and are recently created habitats so will not have historic populations.

It is therefore considered that great crested newts and any other amphibians will be absent from the site and therefore there are no recommendations relating to this species group.

5.3.2 Badgers

No direct or indirect evidence of badgers using the site was found on site or in any of the accessible areas immediately adjacent to the site (up to 50m), including setts, latrines, footprints or hairs indicating that badgers are absent from the site.

The site and the vast majority of the immediately surrounding habitats are completely unsuitable for badgers and therefore there are no recommendations relating to badgers.

5.3.3 Bats

The site is being assessed for its potential to support roosting bats separately and the interpretation and recommendations relating to bats can be found in the Mott MacDonald Initial Bat Assessment.

5.3.4 Birds

The desk study identifies a number of different urban bird species, although only feral pigeon was noted during the survey. The buildings, introduced shrub and remaining mature trees within the site have some low potential to support nesting birds but there is better quality nesting habitat located immediately adjacent to the site in Stanley Park.

Despite the site providing limited bird breeding habitat, birds could still be adversely impacted by vegetation clearance and building demolition activities. All nesting birds are protected under the Wildlife and Countryside Act (1981) which makes it illegal to kill, injure or take any wild bird or take, damage or destroy the nest or eggs of any wild bird. It is therefore recommended that:

- Any vegetation clearance work or building demolition is undertaken outside of the bird breeding season (i.e. clearance activities are best carried out between September and February). If vegetation clearance work or building demolition is planned between March and August it is recommended that the vegetation and buildings are checked immediately prior to removal by a suitably qualified ecologist. Any active nests identified must be retained with a 5m buffer until such time as the nest is deemed to be no longer supporting young by a suitably qualified ecologist.

5.3.5 Invasive Species

No direct or indirect evidence of invasive plant species was found on site or in any of the accessible areas immediately adjacent to the site and any invasive species appear to be absent at this time. However, due

to the amount of fly-tipping, which often includes invasive species, that occurs in urban areas it is recommended that:

- All open areas of the site, particularly the areas of bare ground, are secured and routinely checked for fly-tipped waste to ensure that invasive species do not get transported on to the site and establish themselves.

5.3.6 Invertebrates

The habitats found on site are generally of poor quality and low ecological interest, frequently occurring across the wider landscape, with the vast majority of the site unsuitable for anything other than common invertebrate species.

Therefore no further recommendations have been made with regard to invertebrates.

5.3.7 Reptiles

The desk study failed to highlight any reptile species within 2 km of the site and there is negligible suitable habitat within the site to support reptiles. Additionally the site is isolated from other suitable areas of reptile habitat and as such reptiles are not anticipated to be present on the site.

Therefore no further recommendations have been made with regard to reptiles.

6 Conclusions

A PEA was undertaken to assess the potential presence of protected and notable habitats and species (excluding bats) within the site. Survey work and desk top studies have identified that there are limited habitats on Site that have ecological value, with the only real ecological constraint being the low potential for nesting birds to be present within the buildings and introduced shrubs.

No further ecological surveys have been recommended at this time, although as a good practice precautionary measure it would be advisable to demolish the buildings and remove the vegetation on site outside of the breeding bird season (i.e. demolition and vegetation removal should take place between September and February) to preclude the very low possibility of contravening the protection given to nesting birds by the Wildlife and Countryside Act (1981).

The baseline data should be used to inform and develop any masterplan for the site and due to the current lack of ecological features on the site there is potential to create a net gain for biodiversity within any development.

Table 6.1 below provides a summary of the findings, implications and recommendations going forward with this scheme. Only protected and/or notable habitats and species considered as presenting a potential constraint to the development of the site have been outlined.

Table 6.1: Summary of Conclusions

Habitat/Species	Location	Relevant Legislation	Recommendation
Mature trees	Open ground north of Anfield Road	North Merseyside BAP Habitat	Any trees on the site, immediately adjacent to it or overhanging the site, which are not to be removed as a part of any proposed works, should be protected in accordance with British Standard "*Trees in relation to construction - Recommendations*" BS5837:2012. Protection should be installed prior to the commencement of any works.
Birds	Buildings and introduced shrub	Wildlife and Countryside Act. 1981	Any vegetation clearance work or building demolition is undertaken outside of the bird breeding season (i.e. clearance activities are best carried out between September and February). If vegetation clearance work or building demolition is planned between March and August it is recommended that the vegetation and buildings are checked immediately prior to removal by a suitably qualified ecologist. Any active nests identified must be retained with a 5m buffer until such time as the nest is deemed to be no longer supporting young by a suitably qualified ecologist
Invasive Plants	Not currently found on the site	Schedule 9 of the Wildlife and Countryside Act. 1981	All open areas of the site, particularly the areas of bare ground, are secured and routinely checked for fly-tipped waste to ensure that invasive species do not get transported on to the site and establish.

7 References

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Nature on the Map website: http://www.naturalengland.org.uk/

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UK Biodiversity Action Plan (UKBAP) website: http://jncc.defra.gov.uk/default.aspx?page=5155

Where's the path website: http://wtp2.appspot.com/wheresthepath.htm

Appendices

Appendix A. Site Location Plan

336000 336100 336200 336300 336400 336500 336600

393300 393200 393100 393000

Legend

Site Boundary

Mott MacDonald
Royal Liver Building
Pier Head
Liverpool
L3 1JH
Tel +44 (0)1512 364 343
Web www.mottmac.com

0 25 50 100
Metres

Rev	Date	Drawn	Description	Ch'k'd	App'd
P1	21/01/2014	JW	Drawing created	TIO	AL

Title: LFC Expansion Project - Site Boundary

Drawn	JW
Checked	TIO
Approved	AL
Scale at A3	1:1,500

Drawing Number
MMD-317415-EN-DR-00-XX-3001

Rev	Status
P1	INF

Appendix B. General Legislation and Policy Overview

B.1 The Conservation of Habitats and Species Regulations 2010 (as amended)

The Conservation of Habitats and Species Regulations 2010 (as amended) consolidate all the various amendments made to the Conservation (Natural Habitats, &c.) Regulations 1994 in respect of England and Wales. The 1994 Regulations transposed Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive) into national law.

The Regulations place duty upon the relevant authority of the UK government to identify sites which are of importance to the habitats and species listed in Annexes I and II of the Habitats Directive. Those sites which meet the criteria are, in conjunction with the European Commission, designated as Sites of Community Importance, which are subsequently identified as Special Areas of Conservation (SAC) by the European Union member states. The regulations also place a duty upon the UK government to maintain a register of European protected sites designated as a result of EC Directive 79/409/EEC on the Conservation of Wild Birds (The Birds Directive). These sites are termed Special Protection Areas (SPA) and, in conjunction with SACs, form a network of sites known as Natura 2000.

The Regulations make it an offence (subject to exceptions) to deliberately capture, kill, disturb, or trade in the animals listed in Schedule 2, or pick, collect, cut, uproot, destroy, or trade in the plants listed in Schedule 4. However, these actions can be made lawful through the granting of licenses by the appropriate authorities. Licenses may be granted for a number of purposes (such as science and education, conservation, preserving public health and safety), but only after the appropriate authority is satisfied that there are no satisfactory alternatives and that such actions will have no detrimental effect on wild populations of the species concerned.

B.2 The Wildlife and Countryside Act (WCA) 1981 (as amended)

The WCA, as amended, consolidates and amends pre-existing national wildlife legislation in order to implement the Bern Convention and the Birds Directive. It complements the Conservation of Habitats and Species Regulations 2010 (as amended) offering protection to a wider range of species. The Act also provides for the designation and protection of national conservation sites of value for their floral, faunal or geological features, termed Sites of Special Scientific Interest (SSSIs). Schedules of the Act provide lists of protected species, both flora and fauna, and detail the possible offences that apply to these species. All relevant species specific legislation is detailed later in this Appendix.

B.3 The Countryside and Rights of Way (CRoW) Act 2000

The CROW Act, introduced in England and Wales in 2000, amends and strengthens existing wildlife legislation detailed in the WCA. It places a duty on government departments and the National Assembly for Wales to have regard for biodiversity, and provides increased powers for the protection and maintenance of SSSIs. The Act also contains lists of habitats and species (Section 74) for which conservation measures should be promoted, in accordance with the recommendations of the Convention on Biological Diversity (Rio Earth Summit) 1992.

B.4 Natural Environment and Rural Communities Act (NERC) 2006

The Natural Environment and Rural Communities Act 2006 requires public bodies, including local authorities, 'to have regard to the conservation of biodiversity in England' when carrying out their normal functions. Also under this Act a list of species of 'principal importance ton biodiversity within England' was drawn up which acts as an aid to guide public bodies in implementing their duty. The Local Authority therefore must consider the impact on protected species of the proposed development. The enhancements recommended within the recommendations section of this report illustrate ways in which this Biodiversity Duty can be met.

B.5 National Planning Policy Framework

At national level, Section 11 of the National Planning Policy Framework (NPPF), which relates to conserving and enhancing the natural environment, requires Local Authorities in England to take measures to:

- Protect the habitats of these species from further decline;
- Protect the species from the adverse effect of development; and,
- Refuse planning permission for development that harms these species unless the need for, or benefit of, the development clearly outweighs that harm.

Planners must ensure that they comply with wildlife legislation by fully assessing the potential impacts on protected species and habitats from the proposed development. This assessment must be finalised prior to planning permission and must be submitted with the planning application. The Planning Authority can then ensure that the necessary protected species and habitats surveys have been completed.

B.6 UK Biodiversity Framework

The UK Post-2010 Biodiversity Framework covers the period 2011 - 2020 and replaces the UK Biodiversity Action Plan (UKBAP) 1994 – 2010. Its aim is to address the underlying causes of biodiversity loss and improve and enhance biodiversity and ecosystem services. The UKBAP contains a list of priority habitats and species of conservation concern in the UK, and outlines biodiversity initiatives designed to enhance their conservation status. The UKBAP priority habitats and species background information is still widely used at country level and as a material consideration in the planning process. Local BAPs (LBAPs) are also still widely used which complement the UKBAP targeted towards species of conservation concern characteristic of each county.

Appendix C. Species Specific Legislation

C.1 Breeding Birds

All breeding birds are protected under the Wildlife and Countryside Act 1981 (as amended), which prohibits the intentional killing, injuring or taking of any wild bird (and) the taking, damaging or destroying eggs or of the nest (whilst being built or in use). Schedule 1 bird species are afforded greater protection under the Wildlife and Countryside Act 1981 (as amended). It is an offence to disturb Schedule 1 birds or the dependant young of Schedule 1 birds in the vicinity of their nest site.

Appendix D. Designated Sites Legislation

D.1 Ramsar Sites

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. Originally intended to protect sites of importance especially as waterfowl habitat, the Convention has broadened its scope over the years to cover all aspects of wetland conservation and wise use, recognizing wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well-being of human communities. The Convention adopts a broad definition of wetland, namely "areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres". Wetlands "may incorporate riparian and coastal zones adjacent to the wetlands, and islands or bodies of marine water deeper than six metres at low tide lying within the wetlands". Ramsar sites will be one of six designations contributing to our ecologically coherent network of Marine Protected Areas.

The UK's ratification of the Convention extends to its Overseas Territories and Crown Dependencies.

D.2 Natura 2000

Natura 2000 is the name of the European Union-wide network of nature conservation sites established under the EC Habitats and Birds Directives. This network will comprise Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). Marine Natura 2000 sites contribute to our ecologically coherent network of Marine Protected Areas.

D.2.1 Special Areas of Conservation (SAC)

SACs are designated under the EC Habitats Directive. The Directive applies to the UK and the overseas territory of Gibraltar. SACs are areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs in terrestrial areas and territorial marine waters out to 12 nautical miles are designated under the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) and beyond 12 nautical miles are designated under the Offshore Marine Conservation (Natural Habitats &c.) Regulations 2007 (as amended). SACs will be one of six designations contributing to our ecologically coherent network of Marine Protected Areas.

Sites which have been submitted to the European Commission by Government, but not yet formally adopted by the Commission, are referred to as candidate Special Areas of Conservation (cSACs). Sites which have been adopted by the EC, but not yet formally designated by governments of Member States are known as Sites of Community Importance (SCIs). In the UK, designation of SACs is devolved to the relevant administration within each country. In UK offshore waters JNCC is responsible for identification and recommendation to Government of SACs.

D.2.2 Special Protection Areas (SPAs)

SPAs are classified by the UK Government under the EC Birds Directive. The Directive applies to the UK and the overseas territory of Gibraltar. SPAs are areas of the most important habitat for rare (listed on Annex I to the Directive) and migratory birds within the European Union. SPAs in terrestrial areas and territorial marine waters out to 12 nautical miles are classified under the Wildlife and Countryside Act 1981 and beyond 12 nautical miles are designated under the Offshore Marine Conservation (Natural Habitats &c.) Regulations 2007 (as amended). SPAs will be one of six designations contributing to our ecologically coherent network of Marine Protected Areas.

D.3 Sites of Special Scientific Interest

Sites of Special Scientific Interest (SSSI) (England, Scotland and Wales) have developed since 1949 as the national suite of sites providing statutory protection for the best examples of the UK's flora, fauna, or geological or physiographical features. These sites are also used to underpin other national and international nature conservation designations. Most SSSIs are privately-owned or managed; others are owned or managed by public bodies or non-government organisations. The SSSIs designation may extend into intertidal areas out to the jurisdictional limit of local authorities, generally Mean Low Water in England and Northern Ireland; Mean Low Water of Spring tides in Scotland. In Wales, the limit is Mean Low Water for SSSIs notified before 2002, and, for more recent notifications, the limit of Lowest Astronomical Tides, where the features of interest extend down to LAT. There is no provision for marine SSSIs beyond low water mark, although boundaries sometimes extend more widely within estuaries and other enclosed waters. Under the Marine and Coastal Access Act 2009 there is the ability to de-designate an area of a SSSI in England or Wales that is below the low water mark if it would be more appropriately managed as a Marine Conservation Zone. SSSIs will be one of six designations contributing to our ecologically coherent network of Marine Protected Areas.

Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs have been renotified under the Wildlife and Countryside Act 1981. Improved provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000 (in England and Wales) and the Nature Conservation (Scotland) Act 2004.

D.4 National Nature Reserves (NNRs)

NNRs contain examples of some of the most important natural and semi-natural terrestrial and coastal ecosystems in Great Britain. They are managed to conserve their habitats or to provide special opportunities for scientific study of the habitats communities and species represented within them. NNRs are declared by the statutory country conservation agencies under the National Parks and Access to the Countryside Act 1949 and the Wildlife and Countryside Act 1981.

D.5 Local Nature Reserves (LNRs)

Local Nature Reserves (LNRs) (in England, Scotland and Wales) may be declared by local authorities under the National Parks and Access to the Countryside Act 1949 after consultation with the relevant statutory nature conservation agency. LNRs are declared and managed for nature conservation, and provide opportunities for research and education, or simply enjoying and having contact with nature.

D.6 Wildlife Sites

Local authorities for any given area may designate certain areas as being of local conservation interest. The criteria for inclusion, and the level of protection provided, if any, may vary between areas. Most individual counties have a similar scheme, although they do vary.

These sites, which may be given various titles such as 'Listed Wildlife Sites' (LWS), 'Local Nature Conservation Sites' (LNCS), 'Sites of Importance for Nature Conservation' (SINCs), or Sites of Nature Conservation Importance' (SNCIs), together with statutory designations, are defined in local and structure plans under the Town and Country Planning system and are a material consideration when planning applications are being determined.

Appendix E. Phase 1 Habitat Plan

336000 336100 336200 336300 336400 336500 336600

393300 393200 393100 393000

N

1 2 3 4

Legend

- Target Note
- Scattered Broadleaved Tree
- Fence
- Hardstanding
- Amenity Grassland
- Introduced Shrub
- Building
- Bare Ground
- Site Boundary
- Area Excluded From Survey

Mott MacDonald
Royal Liver Building
Pier Head
Liverpool
L3 1JH
Tel +44 (0)1512 364 343
Web www.mottmac.com

0 25 50 100
Metres

Rev	Date	Drawn	Description	Ch'k'd	App'd
P1	21/01/2014	JW	Drawing created	TIO	AL

Title: LFC Expansion Project - Phase 1 Map

Drawn	JW
Checked	TIO
Approved	AL
Scale at A3	1:1,500

Drawing Number
MMD-317415-EN-DR-00-XX-3002

Rev	Status
P1	INF

Appendix F. Target Notes

Table F.1: Phase 1 Habitat Survey Target Notes

Target Note (TN)	Details	Photo Reference
1	Amenity grassland which replaces the houses previously located here	G.2
2	The Conference and Events Department building	G.6
3	The Albert public house	G.7
4	Introduced scrub habitat which mainly contains shrubby ornamentals	G.9 – G.10

Appendix G. Photographs

Photo G.1: The football pitch is subject to an intensive growth and cutting regime.

Photo G.2: The amenity grassland located in the area of POS.

Photo G.3: View of the Centenary Stand.

Photo G.4: View down Anfield Road including the Anfield Road Stand and the Shankly Gates.

Photo G.5: The Kop Stand

Photo G.6: The Conference and Events Department building

Photo G.7: The Albert public house.

Photo G.8: Parking area behind the Centenary Stand.

Photo G.9: Introduced shrub border along Gilman Road.

Photo G.10: More ornamental planting is also present in the POS dividing the grass into separate areas.

4.2 LFC Initial Bat Assessment

Liverpool FC Stadium Expansion

Initial Bat Assessment

January 2014

Liverpool Football Club and Athletic Grounds

Mott MacDonald

Liverpool FC Stadium Expansion

Initial Bat Assessment

January 2014

Liverpool Football Club and Athletic Grounds

Anfield Road
Liverpool
L4 0TH

Mott MacDonald, 9th Floor, Royal Liver Building, Pier Head, Liverpool L3 1JH, United Kingdom
T +44 (0)151 482 9910 **F** +44 (0)151 236 2985 **W** www.mottmac.com

Issue and revision record

Revision	Date	Originator	Checker	Approver	Description	Standard
A	24-01-2014				First Issue	
		T. Oliver	R. Purslow	A Lawrance		

Contents

Executive Summary

This report presents the findings of an initial daytime bat survey at Liverpool FC Stadium (Anfield) and the immediately surrounding area. This review was commissioned by Liverpool Football Club (LFC), and has been carried out by Mott MacDonald to support a future planning application for the expansion of the football ground.

The purpose of this report is to provide an initial assessment of whether any of the buildings on the site currently, or ever have, supported roosting bats. The study has been undertaken following the methods laid out by the *Bat Conservation Trust - Good Practice Guidelines 2nd Edition* (Hundt, 2012) and the *Bat Mitigation Guidelines* (Mitchell-Jones, 2004).

The study comprised two phases: a desk study consultation exercise and a daytime inspection of the buildings. By combining the two phases it is possible to identify and evaluate the potential value of the Site for bats in order to determine the potential impacts of the proposed development and the need for any additional surveys.

The initial bat survey identified that the stadium and Conference and Events Department building generally have low potential to support roosting bats, with The Albert public house showing medium potential. Despite the lack of potential within the site, a single pipistrelle bat was found roosting in The Kop stand.

All trees within or immediately adjacent to the site have been classified as Category 3 trees (no potential to support roosting bats (Hundt, 2012)) and there is limited foraging potential.

Based on the current proposed development no bats will be directly impacted or disturbed and therefore only best practice recommendations have been made with regards to the development. Should plans change and The Kop stand or The Albert public house be affected by the development further surveys and a Natural England development licence will be required before the development can proceed.

1 Introduction

1.1 Project Background

Mott MacDonald Limited (MML) was instructed by Liverpool Football Club (LFC) in October 2013 to undertake an initial bat assessment of Anfield Football Stadium and the immediately surrounding area, hereafter referred to as 'the Site'. The aims of this study are:

- To determine the bat roost potential of the stadium and any adjacent buildings and outline the consequent implications for development work with respect to the Wildlife & Countryside Act 1981, the Conservation of Habitats and Species Regulations 2010, and relevant Planning Policy Guidance;
- To assess the value of the Site for use by bats for foraging and feeding; and,
- To provide recommendations for any necessary additional survey work and mitigation measures required to offset any impacts caused by the development work including recommendations as to any licensing requirements.

To fulfil the above brief, an initial bat survey was undertaken on the 30 October 2013.

1.2 Site Description

Anfield Stadium is located between Walton Breck Road and Anfield Road in the Anfield area of Liverpool (central Ordnance Survey (OS) Grid Reference: SJ 3624 9308).

Anfield Stadium is located approximately 3 km north east of Liverpool city centre in a mainly residential area, with terraced housing positioned on three sides of the stadium. To the north east, along Anfield Road, is an area of hardstanding and bare ground beyond which lies Stanley Park. Stanley Park is a large area of public open space which includes amenity sports pitches as well as a large lake and mature trees and lies immediately adjacent to Anfield Cemetery. In total the park and cemetery create an area of approximately 80 ha of green space.

The north west boundary of the Site abuts houses located on Alroy Road and Gilman Road, with the south west boundary running along the northern side of Walton Breck Road. The south east boundary follows the rear boundary walls of properties situated on Skerries Road before cutting across Anfield road to the boundary with Stanley Park. Finally, the north east boundary of the Site directly abuts Stanley Park. A detailed Site Location Plan is provided in Appendix A.

1.3 Proposed Development

The proposed development comprises the expansion and redevelopment of the existing Anfield Stadium at Anfield and will include:

i. An application for full planning permission to erect a new Main Stand with associated player, media, conferencing and banqueting facilities and the provision of its surrounds to provide high quality public realm, improved circulation space and an improved public connection between

Walton Park Road and Stanley Park, along with additional car parking spaces on the former Anfield Comprehensive School.

ii. An application for outline planning permission to redevelop the Anfield Road Stand, principally to create additional spectator facilities to increase the capacity of the stadium.

Overall the development will increase the capacity of the stadium from c.45,000 to c.60,000

2 Methodology

2.1 Overview

The study comprised two phases: a desk study consultation exercise and a daytime inspection of the stadium and immediately surrounding area. By combining the two phases it is possible to identify and evaluate the potential value of the Site for bats in order to recommend any additional survey work and determine the potential impacts of the proposed development.

2.2 Desk Study

A data search was undertaken in order to determine the presence of records of bats. The data search was conducted over a 5 km radius from the centre of the site as recommended in the *Bat Mitigation Guidelines* (Mitchell-Jones, 2004). The consultees for the desk study were:

- Merseyside BioBank (MBB), incorporating records from Merseyside and West Lancs Bat Group; and,
- Multi Agency Geographical Information for the Countryside (MAGIC) website for statutory conservation sites designated for bats.

2.3 Building Inspection

The football stadium was internally and externally assessed to determine its potential to support roosting bats. This was undertaken in the field by Tom Oliver, a licensed bat worker (Natural England Bat Class Licence Registration Number: CLS00071). The survey was commensurate with good practice, following the guidance set out in the *Bat Mitigation Guidelines* (Mitchell-Jones, 2004) and *Bat Surveys: Good Practice Guidelines 2nd Edition* (Hundt, 2012).

The building survey included looking for signs of use by bats, internally and externally, including:

- Bat droppings (size of droppings grouped into small, medium or large to signify type of bat that may be present);
- Feeding remains (bats often eat the bodies and leave the wings of invertebrate prey including moths, butterflies and larger flies such as lace wings);
- Oil (from fur) and urine stains;
- Scratch marks;
- Bat corpses; and
- Actual sightings.

The buildings were examined using direct observation, binoculars, endoscopes, ladders and a high power torch, where necessary, to enable closer inspection of suitable features.

Each building or stadium stand was classified as having negligible, low, moderate or high potential for roosting bats, or as a confirmed bat roost, based upon the evidence discovered during the survey or the features of the building. These features include gaps under roof and ridge tiles, and around lead flashing; holes in the roof or gable end of buildings; gaps under the eaves; gaps between sections of corrugated

walls; and in the under croft and welfare area behind the stadium seating. The criteria for assessing the potential of each building to support roosting bats are outlined in Table 2.1.

Table 2.1: Criteria for bat roost potential assessment of a structure.

Bat Roost Potential	Description
Negligible	The structure lacks any features suitable for roosting bats.
Low	The structure may have some interest to roosting bats, e.g. external roosting features such as fascia or soffit boards, but is considered to be sub-optimal to the extent that bats would not be anticipated to use it.
Moderate	The structure exhibits features suitable for use by roosting bats, such as internal and external cavities well insulated from external weather conditions, but is less than ideal in some way. It may be situated in less than ideal habitat, lacking suitable commuting corridors.
High	The structure exhibits a number of features suitable for use by roosting bats e.g. numerous roosting opportunities such as dark, enclosed roof voids; the structure has a high degree of connectivity with likely navigation routes; and the building is located within suitable foraging habitat, likely to be noticed by commuting bats.
Confirmed	Positive signs of bats are recorded within the structure (internally or externally), such as individual bats or bat droppings.

Source: Modified from Bat Surveys – Good Practice Guidelines – 2nd Edition (Hundt, 2012).

2.4 Tree Inspection

All trees within and immediately adjacent to the Site were surveyed for evidence of, or potential for, roosting bats. The trees were classified according to the criteria detailed below in Table 2.2, based upon the features of trees commonly used by roosting bats, Table 2.3.

Table 2.2: Protocol for visual inspection of trees due to be affected by arboricultural work, to assess the value of the trees to bats.

Tree Category	Description
Known Roost	Trees with a confirmed roost present
1*	Trees with multiple, highly suitable features capable of supporting larger roosts.
1	Trees with definite bat potential, supporting fewer suitable features than category 1* trees or with potential for use by single bats.
2	Trees with no obvious potential, although the tree is of a size and age that elevated surveys may result in cracks or crevices being found; or the tree supports some features which may have limited potential to support bats.
3	Trees with no bat potential to support bats.

Source: Bat Surveys – Good Practice Guidelines – 2nd Edition (Hundt, 2012).

Table 2.3: Features of trees commonly used by bats for roosting and shelter, and field signs that may indicate use of trees by bats

Features of Trees Used as Bat Roosts	Signs Indicating Possible Use by Bats
Natural holes	Tiny scratches around entry point
Woodpecker holes	Staining around entry point
Cracks / splits in major limbs	Bat droppings in, around or below entrance
Loose bark	Audible squeaking at dawn or in warm weather
Hollows / cavities	Flies around entry point
Dense epicormic growth (bats may roost within it)	Distinctive smell of bats
Bird and bat boxes	Smoothing of surfaces around cavity

Source: Bat Surveys – Good Practice Guidelines – 2nd Edition (Hundt, 2012).

Any habitat considered suitable for commuting or foraging bats was also recorded.

2.5 Limitations

The residential properties located on Anfield Road, Lothair Road, Alroy Road, Rockfield Road and Back Rockfield Road were not assessed in detail as part of the survey as they are not currently in the ownership of Liverpool Football Club and have therefore been excluded from this assessment.

The Albert public house was not internally assessed as access could not be gained at the time of survey.

3 Legislation and Ecology

3.1 Legislation

Throughout Britain, bat numbers have suffered a decline in recent years and, as a result, all species of British bat are protected by United Kingdom (UK) and European legislation.

All species of British bats and their roosts are fully protected under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended) with additional protection offered under Schedule 2 of the Conservation of Habitats and Species Regulations 2010 (as amended). This makes it an offence to kill, injure or disturb bats or obstruct access to, damage or destroy bat roosts. Under this legislation, a roost is determined as any structure or place used for shelter. As bats tend to reuse the same roosts, the roost is protected whether the bats are present at the time or not.

3.2 Status of Bats at the Local / Regional Level

There are eighteen species of bat in the UK, seventeen of which are known to be breeding here. Eight bat species are considered to be resident to the North Merseyside region, which are listed below.

- Brandt's bat (*Myotis brandtii*);
- Daubenton's bat (*Myotis daubentonii*);
- Natterer's bat (*Myotis nattereri*);
- Whiskered bat (*Myotis mystacinus*);
- Noctule (*Nyctalus noctula*);
- Common Pipistrelle (*Pipistrellus pipistrellus*);
- Soprano Pipistrelle (*Pipistrellus pygmaeus*);
- Brown Long-eared bat (*Plecotus auritus*);

Additionally Alcathoe's bat (*Myotis alcathoe*) has been recently discovered in Yorkshire and Sussex and due to its similarities to Whiskered and Brandt's bats it may also be present in the North Merseyside region.

Pipistrelle bats are widely distributed throughout North Merseyside, occurring in all four districts, and are the species most people come into contact with, most often found roosting in buildings and feeding in urban areas. Brown long-eared bats and noctule bats are less common but are also found throughout North Merseyside.

Daubenton's bats feed almost exclusively over water. Therefore their distribution is localised and has been recorded from Sefton, Liverpool and St Helens. Whiskered/Brandt's and Natterer's Bats are rare locally. Whiskered has been located in Sefton and St Helens and Natterer's only in St. Helens so far.

3.3 Current Factors Causing Loss or Decline in North Merseyside

British bats are insectivorous, occupying many habitat types. They require warm summer breeding roosts and cool, secure hibernation sites. The main factors currently causing loss or decline in North Merseyside include:

- Reduction in insect prey due to intensification of farming practice.
- Loss and fragmentation of suitable landscape diversity and habitat mosaics (pastures, woodlands, wetlands and hedgerows) resulting in reduced feeding resources and severed connections between feeding habitats and roosts.
- Loss of winter roost sites in old trees and buildings.
- Fear and misunderstanding of bats leading some people to exclude them from buildings.
- Loss of roost sites in buildings due to inappropriate timber treatments.

3.4 Status of Bat Species at the National Level

The unmitigated redevelopment of existing roost and foraging sites is an important factor in the decline in bat populations and national planning policy has been devised to halt or reverse this decline. Paragraph 98 of the Government circular 06/05 (ODPM, 2005) states that 'the presence of a protected species is a material consideration when a planning authority is considering a development proposal that, if carried out, would be likely to result in harm to the species or its habitat'. Paragraph 99 also states that 'It is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development, is established before the planning permission is granted, otherwise all relevant material considerations may not have been addressed in making the decision..

Seven of the British bats are listed as Priority Species in the UK Biodiversity Action Plan (UKBAP) (2007), including the soprano pipistrelle and noctule. The Government Circular (ODPM, 2005) which supports National Planning Policy Framework states that 'local authorities should take steps to further the conservation of habitats and species of principal importance through their planning function.' The habitats and species subject to this duty are those listed as priorities under section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.

4 Results

4.1 Desk Study

There are no European Special Area of Conservation (SAC) designations for bat protection located within 30 km of the Site. However, Merseyside BioBank provided a range of bat records within 5 km of the Site; see Table 4.1 for full details. Species without records in the last ten years are considered to be less relevant.

Table 4.1: Summary of bat species within 5 km of the Site.

Species	No. of records	Most recent record	Proximity of most recent record to the Site	Proximity of nearest roost to Site	UK BAP	Local BAP
Savi's Pipistrelle (*Hypsugo savii*)	1	1996	4.5 km west	N/A	×	×
Daubenton's bat (*Myotis daubentonii*)	3	1990	4.6 km north east	N/A	×	✓
Noctule (*Nyctalus noctula*)	13	2007	4.6 km north east	N/A	✓	✓
Common Pipistrelle (*Pipistrellus pipistrellus*)	31	2013	3.6 km north east	4.8 km north east	×	✓
Soprano Pipistrelle (*Pipistrellus pygmaeus*)	1	2007	4.6 km north east	N/A	✓	✓
Pipistrelle (*Pipistrellus* sp.)	58	2012	200m south	4.6 km north east	×	✓
Brown Long-eared bat (*Plecotus auritus*)	21	1996	4.6 km north east	4.6 km north east	✓	✓

Source: Merseyside BioBank

4.2 Initial Daytime Inspection

4.2.1 Building Survey

An initial external and internal survey of the Site, where access allowed, was undertaken on the 30 October 2013, the results of which are detailed in Table 4.2.

Table 4.2: Summary of results from the stadium inspection

Building	Map Colour Code	Description	Potential Roost / Access Features	Evidence of Bat Presence	Bat Roost Potential	Photo No.
Main Stand	Red	Single tiered stand constructed from concrete and a metal support structure. The external walls and roof are clad in corrugated metal sheeting with a long window along the north west facing side. In the seating area the side walls and roof are also clad in corrugated metal sheeting. An expansive roof void is present above the seating area.	Access is possible into the roof void as well as the welfare areas behind the seating. There were no obvious places suitable for bat roosting.	None	Low	C.1-C.4
The Kop	Orange	Single tiered stand constructed from concrete and a metal support structure. The external walls and roof are clad in corrugated metal sheeting with a long window along the south west facing side, divided by red brick walls. In the seating area the side walls are also clad in corrugated metal sheeting with clear corrugated plastic sheets on the roof.	Direct access is possible to the welfare areas behind the seating through multiple entry and exit points.	Yes, droppings and bat found roosting behind a hand rail of the back wall of the 2nd floor welfare area.	Overall low, but bat found to be roosting.	C.5-C.9
Centenary Stand	Yellow	Two tiered stand constructed from a mixture of concrete and brickwork with a metal support structure. The external walls are mainly brick work, with windows and a mixture of flat and corrugated metal sheeting. In the seating area the side walls are also clad in corrugated metal sheeting with clear corrugated plastic sheets on the roof.	Direct access is possible to the welfare areas behind the seating through multiple entry and exit points.	No	Low	C.10-C.12
Anfield Road Stand	Green	Two tiered stand constructed from a mixture of concrete with a metal support structure, some of which is visible above the roof. The external walls are clad in flat metal sheeting. In the seating area the side walls are also clad in corrugated metal sheeting with clear corrugated plastic sheets on the roof.	Direct access is possible to the welfare areas behind the seating through multiple entry and exit points.	No	Low	C.13-C.14

Building	Map Colour Code	Description	Potential Roost / Access Features	Evidence of Bat Presence	Bat Roost Potential	Photo No.
The Conference and Events Department Building	Purple	Three storey brick office building with a gently pitched tiled roof located next to the Shankly Gates. A single level garage is also attached to the main office building. The building is in a very good structural condition, with no holes in the brick work or missing roof tiles.	No obvious access points and the building appears in a good condition.	No	Negligible	C.15
The Albert public house	Blue	Two storey detached Victorian redbrick building with a tiled pitched roof fronting on to Walton Breck Road. The building is generally in a good state of repair with some minor damage visible around the pub name sign. The gable ends both have overhanging wooden soffits.	No obvious internal access points although the gable end wooden soffits overhang the brickwork	No	Medium	C.16

4.2.2 Tree Survey

All trees situated within the Site or immediately adjacent to it were assessed for their potential to support roosting bats with all the trees currently located within the Site showing no potential to support roosting bats and have therefore been classified as Category 3 trees – no potential to support bats (Hundt, 2012).

The trees located immediately adjacent to the north east boundary of the Site, within Stanley Park, were also assessed due to their close proximity to the Site. These trees are larger and more mature than any trees located within the Site (Photos C.17 – C.18) but still lack the required features capable of supporting roosting bats and have again been classified as Category 3 trees – no potential to support bats (Hundt, 2012).

4.2.3 Foraging Habitat

The introduced shrub habitat offers a small amount of suitable habitat for foraging bats, although the rest of the Site has no suitability. The adjacent Stanley Park has good foraging resources including mature trees, scrub and open water.

5 Interpretation and Recommendations

5.1 Interpretation

5.1.1 Building Survey

The stadium as a whole offers very little suitability for roosting bats; however, despite the lack of roosting opportunities, a single pipistrelle bat was found roosting in The Kop stand during the survey. The presence of the bat is likely to be because of a number of factors:

1. The stadium is only sporadically used, meaning it is quiet for extended periods of time;
2. Unrestricted access is available to the roosting position via open entrance/exit points into the seating area; and,
3. Stable atmospheric conditions; the welfare areas behind the seating are unheated and not in direct sunlight.

Pipistrelle bats are the most common bat in the urban environment and a small, opportunistic species able to exploit areas for roosting unsuitable for other bats. The presence of the bat within The Kop stand can potentially be explained by the combination of factors outlined above, combined with the opportunistic nature of the species and daring of a singular bat. It is highly unlikely that more bats will be roosting elsewhere with the stadium or that more bats will exploit the unique environment currently found within the second floor welfare area of The Kop.

As no works are currently planned to The Kop stand, it is considered that the planned development will have no effect on the individual currently roosting within the stand.

The Conference and Events Department building has negligible potential to support roosting bats as it is in a good condition, with no signs of cracks or crevices or lifted roof tiles. The Albert public house has some opportunities for roosting bats behind the overhanging wooden soffits on the gable ends as well as some missing roof tiles and a damaged pub sign and has therefore been classified as having moderate bat roost potential. However, given the location of these buildings and the presence of more suitable roosting areas elsewhere within the Site it is not anticipated that either of these buildings currently support bats. Additionally, as plans currently stand The Albert public house will not be directly affected by the proposed works.

5.1.2 Tree Survey

None of the trees within the Site are of sufficient maturity to support roosting bats. The trees immediately adjacent to the Site within Stanley Park are of sufficient maturity but currently lack the features required to support roosting bats. Therefore all trees within and immediately adjacent to the Site have been classified as Category 3 trees (no potential to support bats), and therefore roosting bats are not anticipated as being present within these habitats.

5.1.3 Foraging Habitat

Foraging bats are unlikely to use the Site in any great capacity. The small amount of suitable habitat, the introduced shrub, which is present within the Site, is not likely to support the numbers of invertebrates required to make it a regular foraging resource. It is more likely that bats occasionally forage or move across the Site when heading towards Stanley Park, which has good foraging resources for a range of different bat species.

5.1.4 Excluded Terraced Housing

This survey has specifically excluded the terraced housing on Anfield Road, Lothair Road, Alroy Road, Rockfield Road and Back Rockfield Road which currently lies outside the ownership of Liverpool Football Club. It is understood that this housing is currently owned by Liverpool City Council/Your Housing Group and will be demolished prior to the submission of the stadium expansion planning application.

5.2 Recommendations

As present the proposed works should not directly impact any roosting bats and will have a minimal effect on bats which occasionally forage or move across the Site and there are no specific recommendations beyond best practice guidance:

- The buildings should be demolished or development works started as soon as practically possible, reducing the risk of bats exploiting what little potential exists and potentially roosting in the intervening period.
- If any bats are located during demolition or development works, work should cease and a licensed bat worker or Natural England should be consulted for advice.
- If development work has not started within a year of this report, further surveys maybe required to assess whether the buildings have been colonised by bats in the intervening period.

Should the proposed works alter so that The Kop stand is directly affected by the development works, the following recommendations are made:

- Prior to any development work taking place, a European Protected Species (EPS) development licence will need to be obtained from Natural England to cover the alteration of the current roost and the disturbance to roosting bats.

Additionally, if the proposed works alter so that The Albert public house is directly affected by the development works the following recommendations are made:

- A detailed internal inspection of the roof voids within the building, by a licenced bat ecologist, should be undertaken to identify potential evidence of bats.
- If evidence of bats is found or their absence cannot be ruled out nocturnal bat surveys maybe required to determine whether the building is used by roosting bats and in what capacity. These surveys should

be undertaken prior to any demolition or alterations and within the recognised bat survey season (between May and September), during appropriate weather conditions.

6 Conclusions

The initial bat survey of the Site identified that the stadium generally has low potential to support roosting bats. Despite this a single pipistrelle bat was found roosting behind a shelf attached to the back wall of the second floor welfare area (area behind the seating) in The Kop stand. The other buildings surveyed within the Site, the Conference and Events Department building and The Albert public house, were assessed as having low and moderate potential for roosting bats respectively. The excluded terraced housing has high potential to support roosting bats, but these buildings will be demolished prior to submission of the planning application.

No trees capable of supporting roosting bats are currently present within the Site. The trees immediately adjacent to the Site in Stanley Park are of sufficient maturity to potentially support bats, but currently lack the required features, such as cracks and crevices. Therefore all trees within or immediately adjacent to the Site have been classified as Category 3 trees – no potential to support roosting bats (Hundt, 2012).

The Site has limited foraging potential, but due to the presence of a major foraging resource adjacent to the Site it is likely that low numbers of bats forage or move across the Site.

The location of the roosting bat within The Kop stand is in a place which will remain unaffected by the proposed development. Given the levels of disturbance the bat is willing to endure when the stadium is in use the proposed development should also not disturb the bat either. Therefore as plans currently stand not recommendations have been made with regards to the bat, other than it is left in situ, left undisturbed and allowed to move freely.

Based on the current proposed development no bats will be directly impacted or disturbed and therefore only best practice recommendations have been made with regards to the development. Should plans change and The Kop stand or The Albert public house be affected by the development further surveys and a Natural England development licence will be required before the development can proceed.

7 References

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Multi-Agency Geographic Information for the Countryside (MAGIC) website: http://magic.defra.gov.uk/

Schofield, H.W. & Mitchell-Jones, A.J. (2004) *The Bats of Britain and Ireland*. The Vincent Wildlife Trust.

UK Biodiversity Action Plan Steering Group (1994) *Biodiversity: the UK Action Plan*. HMSO, UK.

Where's the path website: http://wtp2.appspot.com/wheresthepath.htm

Appendices

Appendix A. Site Location Plan

336000 336100 336200 336300 336400 336500 336600

393300 393200 393100 393000

N

Legend

Site Boundary

Mott MacDonald
Royal Liver Building
Pier Head
Liverpool
L3 1JH
Tel +44 (0)1512 364 343
Web www.mottmac.com

0 25 50 100
Metres

Rev	Date	Drawn	Description	Ch'k'd	App'd
P1	21/01/2014	JW	Drawing created	TIO	AL

Title: LFC Expansion Project - Site Boundary

Drawn	JW
Checked	TIO
Approved	AL
Scale at A3	1:1,500

Drawing Number
MMD-317415-EN-DR-00-XX-3001

Rev	Status
P1	INF

Appendix B. Building Plan

336000 336100 336200 336300 336400 336500

393300 393200 393100 393000

N

Legend

- Anfield Road Stand
- Centenary Stand
- Conference and Events Department
- Main Stand
- THe Albert Public House
- The Kop
- Site Boundary
- Area Excluded from Survey

Mott MacDonald
Royal Liver Building
Pier Head
Liverpool
L3 1JH
Tel +44 (0)1512 364 343
Web www.mottmac.com

0 25 50 100
Metres

Rev	Date	Drawn	Description	Ch'k'd	App'd
P1	21/01/2014	JW	Drawing created	TIO	AL

Title: LFC Expansion Project - Building Plan

Drawn	JW
Checked	TIO
Approved	AL
Scale at A3	1:1,500

Drawing Number
MMD-317415-EN-DR-00-XX-3003

Rev	Status
P1	INF

Appendix C. Site Photographs

Photo C.1: Outside view of the Main Stand which is clad in corrugated metal.

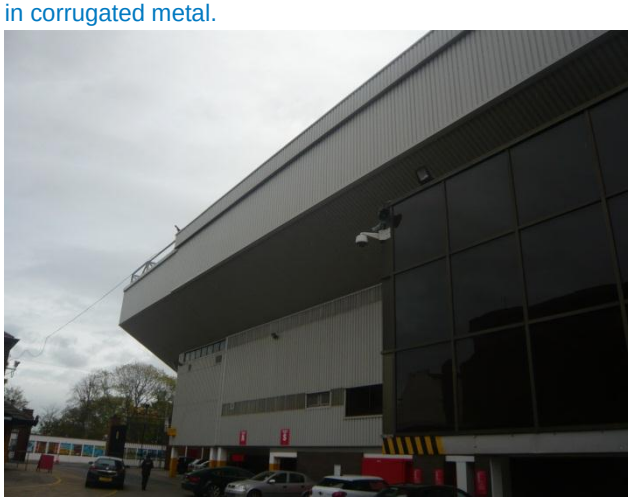

Photo C.2: Inside the stand the walls and roof are also clad in corrugated metal sheeting.

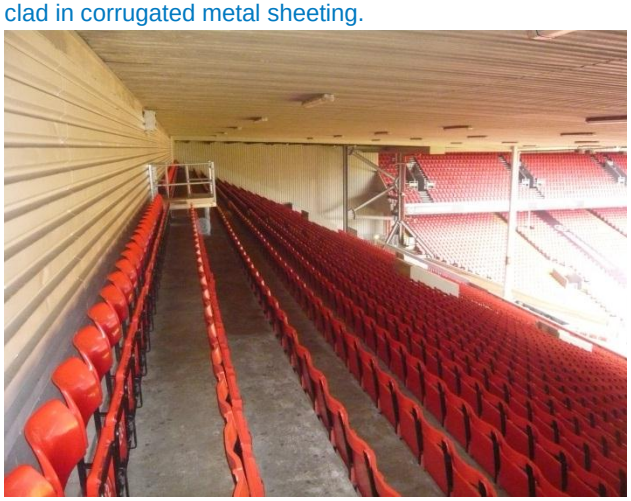

Photo C.3: The entry/exit points provide a constant open access to the welfare areas behind the seating.

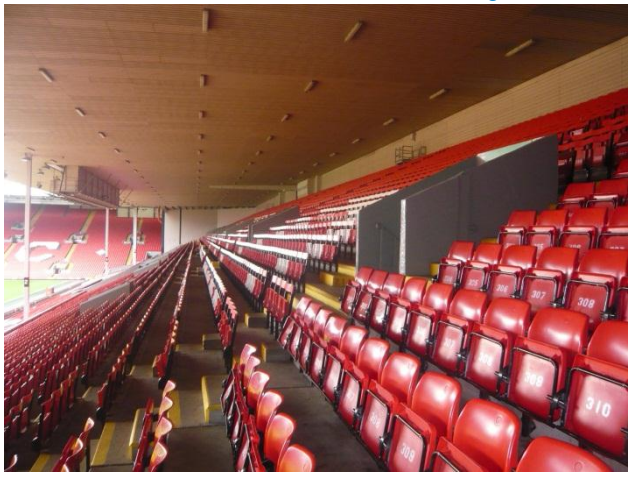

Photo C.4: The roof is open and expansive but lacks any suitable areas for bats.

Photo C.5: Outside view of The Kop which is constructed from metal, glass and brickwork.

Photo C.6: The Kop is a single tier of seating which has multiple entry/exit points to the welfare areas behind.

Photo C.7: The hand rail/shelf on the back wall of the 2nd floor, behind which a pipistrelle bat was roosting.

Photo C.8: Small group of pipistrelle bat droppings under the shelf.

Photo C.9: Small pipistrelle bat found between the wall and the shelf.

Photo C.10: The outside view of the Centenary Stand.

Photo C.11: The two tiered stand has little potential for bats with single skin metal sheeting on the walls and roof.

Photo C.12: Top of the Centenary Stand.

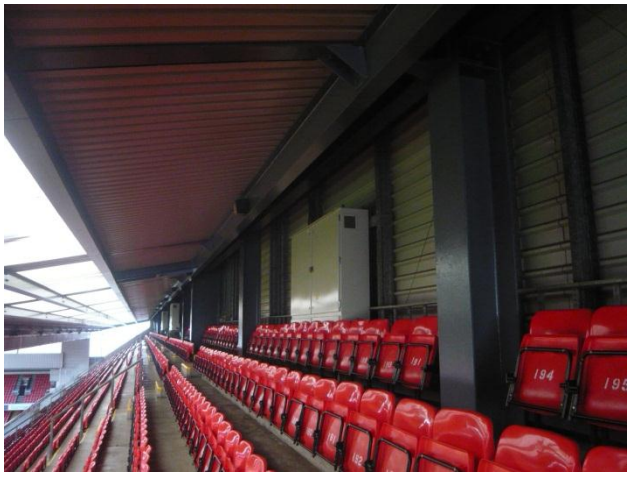

Photo C.13: View of the Anfield Road stand from Stanley Park.

Photo C.14: Again, the open nature of the seating area and use of corrugated metal makes it highly unsuitable for bats.

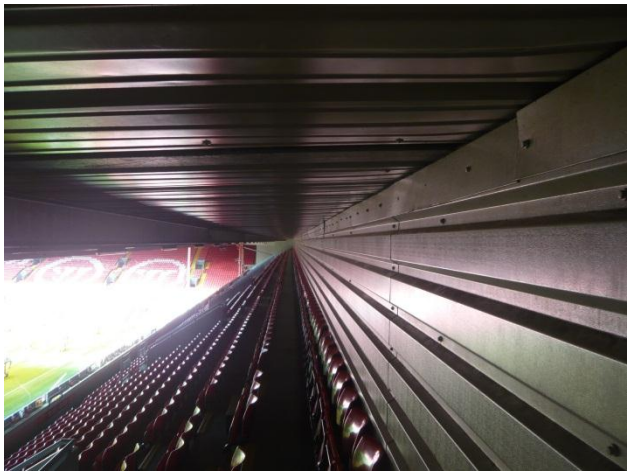

Photo C.15: The Conference and Events Department building located at the northern tip of the stadium.

Photo C.16: The Albert public house on Walton Breck Road.

Photo C.17: The trees located in Stanley Park which lie adjacent to the Site

Photo C.18: Example of the age of tree found in the park.