



CRESSINGTON HEATH, GARSTON – PHASE 2 DEVELOPMENT **ECOLOGICAL ASSESSMENT**

for

REDROW HOMES

JULY 2011

(Report Ref 3001.001)

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Written:	Checked:	Approved:
FBH	RAH	FBH

1.0 INTRODUCTION

- 1.1 Redrow Homes intend to construct about 50 houses on land within the Garston Dock complex owned by Associated British Ports (ABP). The site boundary and ecological survey is shown on TEP Drawing G3001.001. The site is located at grid reference SJ 395845.
- 1.2 TEP was commissioned in July 2011 to assess the ecology of the site. TEP carried out the following surveys:
 - Desktop Survey, contacting Merseyside BioBank for past records of species and habitats on and around the site; and contacting Liverpool City Council to find out the nature conservation designation status of the site (Appendix 1).
 - Detailed botanical survey, using the National Vegetation Classification (NVC) (Appendix 2).
 - Fauna assessment, including a bat survey (reported below).
- 1.3 The surveys were carried out in the week commencing July 18th 2011. Surveys were carried out by highly experienced and appropriately licenced surveyors, all full members of the Institute of Ecology and Environmental Management.

2.0 NATURE CONSERVATION DESIGNATIONS

- 2.1 The site is shown on the 2002 Liverpool Unitary Development Plan map as being part of a larger Site of Nature Conservation Value (SNCV). The site was also designated under the UDP for port uses and as green space.
- 2.2 Liverpool City Council has nearly completed a review of their Local Wildlife Sites (LWS - formerly called SNCV's). The City Council intend to re-draw the Cressington Heath LWS boundary so it only covers an area of managed grassland and woodland that was created under a S106 agreement pertaining to the Redrow housing development immediately to the north of this site. In other words, this application site will no longer be designated as a Local Wildlife Site. The boundary of the proposed LWS is shown at Appendix 1.
- 2.3 The site is within 1km of the Mersey Estuary SSSI, also designated as a Ramsar Site and Special Protection Area for birds. However, the application site is not functionally or spatially linked to the Mersey Estuary and the estuary's species of interest (known as "qualifying features") do not use the application site.
- 2.4 Appendix 1 also contains a detailed report from Merseyside BioBank indicating the boundaries of the SSSI/SPA/Ramsar Site; along with other data on prior records of protected species in the area.

3.0 HABITAT AND BOTANICAL SURVEYS

- 3.1 Appendix 2 contains a full description of the botanical surveys including target notes, TABLEFIT analyses and species lists.
- 3.2 In Phase1 Habitat Survey terms the site can be characterised as naturally regenerated broad-leaved woodland, surrounded by a weedy version of modified neutral grassland with patches of native and introduced scrub and small stands of tall ruderal herb.
- 3.3 The vegetation is relatively recent in origin, establishing only after the extensive dockside development contracted to meet modern commercial practices. There are no signs of any active vegetation management, although the site has been greatly modified, mainly by tipping. The flat grassland (target note T02 area) is the least tipped, although there are some piles of sandstone from demolished buildings.



Figure 1: Site is to the right of the photo, with retained ABP building to the left. Recent Redrow development to rear

- 3.4 There has been extensive tipping within the large area of scrub/woodland (target note T04 area) with mounds of demolition rubble, piles of road planings and other materials throughout. The scrub/woodland has developed through and on these piles. Other recent disturbance has been the creation of a low earth bank through area T01 and a tall bank (T03) along the eastern edge of the site, parallel to the boundary with the adjacent housing.
- 3.5 The site is relatively diverse, with 107 vascular plant species, although none are locally rare.

Woodland

- 3.6 The scrub woodland covers 1.1ha. This is dominated by silver birch (*Betula pendula*); a typical pioneer species whose wind-blown seeds, along with those of willow species, are amongst the earliest to arrive at any site suitable for colonisation. The woodland also has four other constant species: bramble, false oat-grass, rough-stalked feather-moss (*Brachythecium rutabulum*) and red fescue (*Festuca rubra*).



Figure 2: Woodland edge, photo taken from Target Note 2

- 3.7 No typical woodland groundflora associations were recorded, mainly shade-affected and sparse mesotrophic grassland with varying amounts of bramble growth.
- 3.8 The woodland has a spurious affinity to NVC community W16, but as the site is more fertile than the acidic soils needed to maintain true W16 woodland, over time the birch woodland would become colonised by willow, elder and, eventually, oak.
- 3.9 The woodland is not of biodiversity-priority, nor are there any unusual or locally uncommon plants in the canopy or ground flora.
- 3.10 Merseyside Biobank do not identify the woodland as of local biodiversity priority, although they note that more mature woodland on ABP land west of the site is of local interest.



Figure 3: Disturbed ground on which birch woodland has established

Grassland

- 3.11 Grassland along the southern and western sides of the main woodland block is disturbed and weedy mesotrophic grassland, totalling 0.57ha.
- 3.12 The sward is characterised by high frequencies of red fescue and Yorkshire fog. Although it does not key out to a typical NVC Mesotrophic grassland, it is a commonly encountered sward on disturbed land in lowland England. The Review of Coverage of the National Vegetation Classification (Rodwell J. S. *et al*, JNCC Report 302, July 2000) describes this community as

'Often species-poor and rank these swards have frequent red fescue, Yorkshire fog, sweet vernal-grass, smooth-stalked meadowgrass (Poa pratensis), cock's-foot (Dactylis glomerata), white clover (Trifolium repens), ribwort plantain (Plantago lanceolata), and mosses such as Pseudoscleropodium purum and Rhytidiadelphus squarrosus, but with little or no perennial ryegrass (Lolium perenne) and relatively few of the taller dicotyledons associated with meadows....This kind of grassland grades into younger stands of MG1 false oatgrass mesotrophic grassland....Of little intrinsic floristic value, this grassland is an important element of marginal agricultural landscapes in western Britain.'

- 3.13 This form of mesotrophic grassland has little botanical value and is not considered as a UKBAP priority. Two plant species; wood reed-grass (*Calamagrostis epigeos*) and soft shield-fern (*Polystichum setiferum*), are quite scarce in a Liverpool context. However, neither of these species is nationally scarce nor has any national conservation designation. The site might be considered as an urban grassland under the North Merseyside Biodiversity Action Plan, but the action plan does not advocate conservation of every example of urban grassland, especially where it is relatively small in area.

Tall herb and bramble scrub

- 3.14 Along the eastern side of the site are strips of bramble, buddleia and willow scrub. Parts can be described as W24 bramble-Yorkshire fog underscrub, but much of these disturbed strips support vegetation not matching any recognised NVC types. Within this eastern banked area (T04) there is also much tall ruderal herb and weedy MG grassland swards.



Figure 4: Flat grassland (Target Note 2). Tall herbs on bank bounding recent Redrow scheme to rear.

Invasive Species

- 3.15 No invasive species were noted.

4.0 FAUNA

- 4.1 Desktop survey revealed no records of interest from the application site itself, although the site will not have been frequently recorded by naturalists as it lies within the secure dock compound.
- 4.2 During the botanical survey, notes were made of species on the site. No invertebrate species were noted, due to persistent rainfall. However some scattered anthills were seen within the flat area of neutral grassland described under target note T01.
- 4.3 Some birds were noted, whitethroat being heard in the north-western part of the site. Magpie was noted moving throughout most of the site and a large flock of feral pigeons and a collared dove was seen between the two large sheds to the west of the site. Pigeon remains, mainly feathers, were found scattered within

the site. Linnet (a UKBAP species) and greenfinch were seen and heard flying at tree-top level in small groups.

- 4.4 Within the scrub/woodland habitat a small range of common species was encountered: wood pigeon, blackbird, chaffinch and wren. However, this site contains habitat suitable for bird nesting and foraging for other species and it is likely that a range of woodland edge and garden bird species would be found here during the prime breeding season and under less wet survey conditions.
- 4.5 The desktop survey indicated that various bird species of open grassland have been previously encountered in the Cressington Heath (e.g. skylark, grey partridge, lapwing). However these were not observed within the site and the extent of scrub colonisation makes the site unsuitable for these species.
- 4.6 The desktop survey also highlights the general importance of certain “urban birds” (i.e. starling, house sparrow, swift and house martin) to Liverpool. None of these species were noted on site.
- 4.7 The only other wildlife observed was a rabbit and a fox, seen moving from the scrub/woodland (T04) into the edge of the T02 grassland. Prior to seeing the fox, numerous mammal paths were noted through the grassland area. It is likely that the local fox population is responsible for these tracks, as well as the scattered pigeon remains; although domestic cats may hunt in the area.
- 4.8 No small mammals were seen, but may be present in the dense vegetation. Nor were any reptiles nor amphibians noted. The desktop survey notes no records of great crested newts and the absence of any waterbodies on or near site means this species will not be present.
- 4.9 The desktop survey notes that, in 1990, a common lizard was recorded within 2km of the site. The record is associated with the Mersey Cliffs, so it is unlikely that the site would host lizards as it is not on any accessible wildlife corridor from the Cliffs.
- 4.10 The desktop survey notes the presence of pipistrelle and noctule bats in the surrounding area.
- 4.11 A bat activity survey was carried out in the evening of July 19th. The weather conditions were overcast with one minute of light drizzle, but little wind. The surveyors walked through the site, using heterodyne bat detectors, paying particular attention at dusk to activity in the trees and later moving around the site to assess foraging activity around the woodland edges.
- 4.12 No roosts were observed in any of the trees, which are young and small and are therefore unlikely to support roosts.
- 4.13 Only two contacts were made by the bat detectors, both being common pipistrelle. The first contact was made shortly after dusk (21:20) and the second contact was made at 22:40. Both were brief contacts of flight along the woodland edge, with no feeding “buzzes”, implying commuting behaviour.

- 4.14 In summary, there is no evidence of bat roosting and little value for foraging, nor does the site appear to be of particular bird interest.
- 4.15 Nevertheless the general diversity of plant species (107 recorded), coupled with the variety of microhabitats resulting from tipping of various substrates and subsequent vegetation colonisation, will create conditions of interest for a range of invertebrates and birds.

5.0 EVALUATION

- 5.1 The site was evaluated against the Local Wildlife Selection Guidelines for North Merseyside (2008 version). It would not qualify as LWS under any faunal criteria, since there are no protected or priority species (that are listed under the guidelines) present.

- 5.2 In terms of botanical interest, the site would score 30 points as tabulated below

Criteria	Site Score	Comments
H1: Habitat Rarity	0	No habitats uncommon at UK or local level
H2: Habitat Diversity	15	3 habitat types present: broadleaved woodland, mesotrophic grassland and tall herb (each score 5 points)
H3: Continuity	0	
H4: Isolation	5	The site is only close to the neighbouring Cressington Heath LWS. The Mersey Estuary is within 1km, but is not functionally linked
SP1: Higher plant rarity	0	No rare or uncommon species present
SP2: Higher plant diversity	5	> 100 vascular plant species present
SP3: Naturalness	5	> 80% plants native to the area
SP4: Nationally rare species	0	

- 5.3 Normally the threshold for qualification as a Local wildlife Site is set at 60.
- 5.4 The site does not contain any habitats prioritised in the UK Biodiversity Action Plan.
- 5.5 Linnets (a UKBAP) species were noted flying through the site and feeding. It is not expected that the site is a major breeding area for the species, which range widely. Nevertheless, the choice of species in site landscaping should feature a range of shrubs to provide cover and seed for linnets.
- 5.6 The site contains two habitats noted in the North Merseyside Biodiversity Action Plan: urban grassland and urban trees. The scope of the BAP in respect of these habitats is to highlight the habitats for consideration during development control; but it is not the purpose of the BAPs (for these habitats) to retain them in situ.

6.0 IMPACT ASSESSMENT AND RECOMMENDATIONS FOR MITIGATION

Designated Sites

- 6.1 The development would have no effect on the Mersey Estuary SSSI. There would be no habitat loss, nor is the site important for feeding or roosting of any bird species associated with the SSSI.
- 6.2 The additional local population moving into the new houses would not have direct access to the waterfront. There would be a slight general increase in numbers of people enjoying waterfront recreation along the local promenades, but as the area is well-served for visitor infrastructure, there would be no likelihood that the additional population would result in increased disturbance to the estuary wildlife.
- 6.3 The new development would be close to the Cressington Heath Local Wildlife Site, and it is likely that residents would walk through it, generally following the hard-surfaced path network. Roaming by pets across the grassland areas will occur. This habitat is managed under a S106 management plan associated with the adjoining Cressington Heath phase 1 development. It is recommended that the phase 2 development should also contribute, by means of commuted sums or annual management charges secured by s106 agreement, to continuing management of this grassland habitat. It is advisable that phase 2 residents are subject to the same charging scale as phase 1 residents to avoid ill-will developing towards the principle of habitat management.

Priority Habitats

- 6.4 There are no UK biodiversity-priority habitats. The young woodland is of local biodiversity priority (under the general category of "urban trees"). There would be a local negative impact arising from woodland removal. This can be, in part, mitigated by planting of the perimeter landscape with mixed-species native woodland. The use of berried shrubs would be beneficial to birds and invertebrates, but the precise design will need to be agreed with Liverpool Airport, because the site lies within 5km of the Airport. Although CAA guidance advises against berried shrubs, the use of small and dispersed clusters will not attract large flocks of passerines, which in any case are relatively low-risk in terms of aircraft strike.
- 6.5 The grassland is of slight local interest, under the general category of "urban grassland". Mitigation of loss of grassland diversity can in part be achieved by inclusion of wildflower grassland mixes in the perimeter landscape areas.
- 6.6 The creation of appropriate woodland and grassland mixes in the site landscaping scheme can be a matter for planning condition.

Protected and Priority Species

- 6.7 The development would have no effect on bat roosts or foraging or commuting habitat. The loss of woodland and grassland would result in reductions of bird

and invertebrate populations, which can be partly mitigated by use of native-species mixes in the perimeter and internal landscaping.

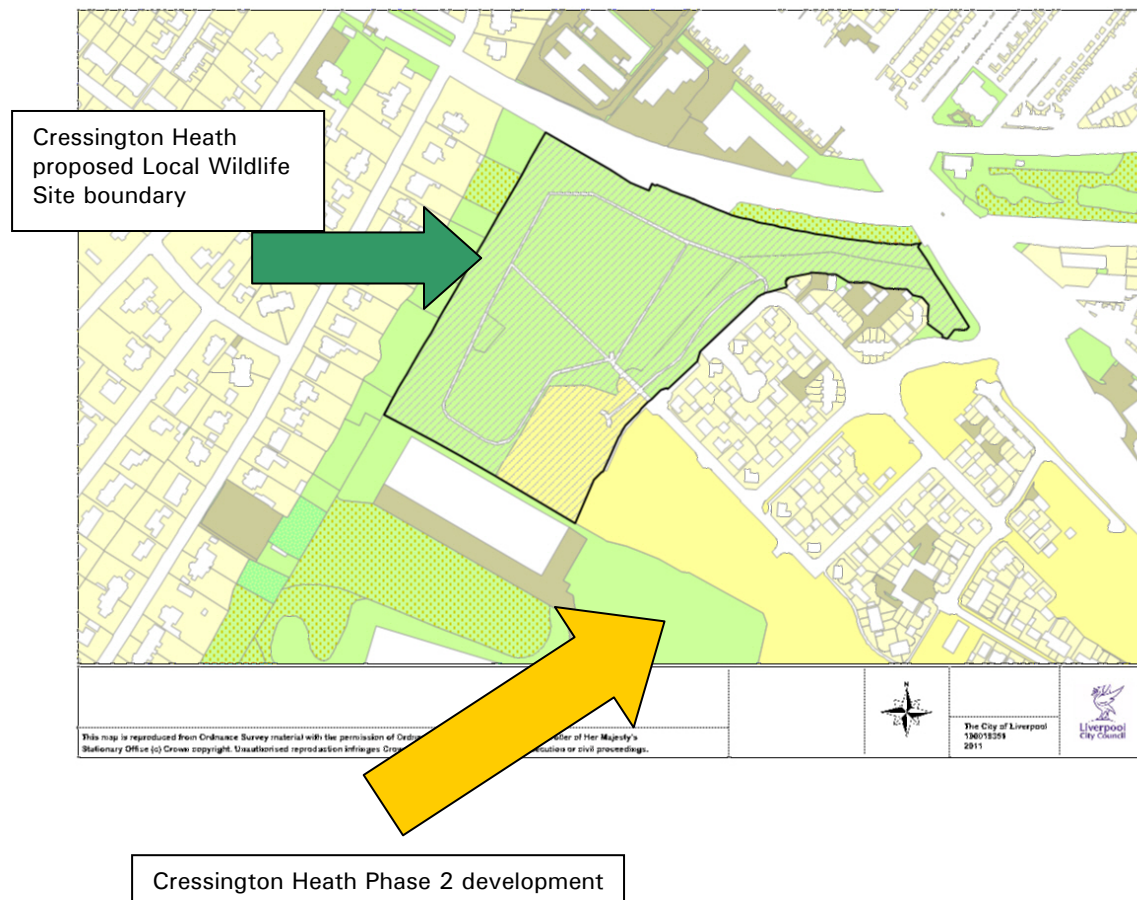
- 6.8 Tree-felling should take place outside the bird breeding season (March to August inclusive) to avoid committing an offence of disturbing wild birds at the nest.
- 6.9 There is no impact on amphibians and reptiles.

APPENDIX ONE: DESKTOP SURVEY INFORMATION

Cressington Heath – proposed revision to Local Wildlife Site boundary (expected to be endorsed by City Council in autumn 2011).

NB – Local Wildlife Site is the term for second-tier nature conservation designations, formerly known as Sites of Nature Conservation Value in Liverpool.

Information provided by K. Curran (City Nature Conservation Officer) by email on July 19th 2011

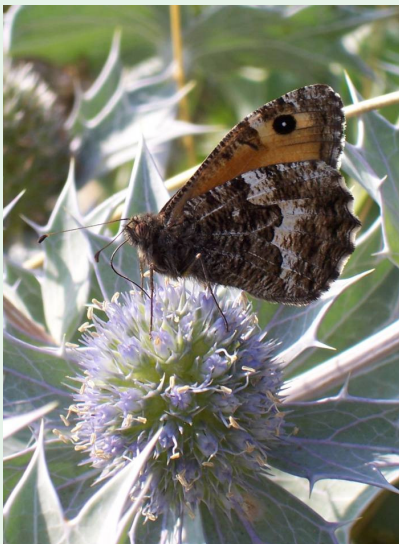




Biodiversity Information Report 19/07/2011

MBB reference: 473-TEP

Site: off Dock road, Garston



Your Ref: 3001
Your contact: Liz Seal

MBB Ref: 473-TEP
MBB Contact: Ben Deed

Date: 19/07/2011

Merseyside BioBank biodiversity information report

These are the results of your data request relating to **an area at off Dock road, Garston defined by a buffer of 2000 metres around the centre of grid reference SJ395845.**

You have been supplied with the following:

- records of **protected** taxa that intersect the search area
- records of **BAP** taxa that intersect the search area
- records of **Red Listed** taxa that intersect the search area
- records of other '**notable**' taxa that intersect the search area
- records of WCA schedule 9 taxa (including '**invasive plants**') that intersect the search area
- a map showing the location of monad and tetrad references that overlap the search area
- a list of all **designated sites** that intersect your search area
- citations, where available, for intersecting Local Wildlife Sites
- a list of **other sites of interest** (e.g. Ancient Woodlands) that intersect your search area
- a map showing such sites
- a list of all **BAP habitats** which intersect the search area
- a map showing BAP habitats

Merseyside BioBank (MBB) is the Local Records Centre (LRC) for North Merseyside. We collect and collate biological and environmental information and make it available to people and organisations that have need to access such information in North Merseyside. We promote the North Merseyside Biodiversity Action Plan and wider participation in conservation through education, community involvement and by supporting the biological recording community of North Merseyside.

The handling charge for this data request is not a charge for the data themselves, but rather a partial charge for the staff time required to service the request. Our annual income from data requests is something less than 20% of our total running costs.

Species records

The biological records held by Merseyside BioBank come from a variety of sources; from large organisations to individual amateur naturalists. Merseyside BioBank operates as managers or custodians of these records but the individuals and groups, who provide their records free of charge, retain copyright on their data. There are too many data contributors to acknowledge individually, but we would like to acknowledge the fact that without their contribution, we would not be able to provide the records included in this report. Their efforts, expertise and goodwill make a substantial contribution to the protection of North Merseyside's biodiversity.

You may only use the records in this document subject to our access terms and conditions which can be found in Appendix 1. Non-adherence to these terms and conditions will be viewed as a breach of contract, which may result in legal redress being sought.

Details of the biological records summarised in the following tables are included in appendix 2 of this report. Note that the date ranges in the summary tables (headed 'Dates') show the earliest and latest years for which records have been summarised for each taxon.

UK Protected Species

'UK Protected species' are those taxa specifically identified by UK legislation including: Wildlife & Countryside Act 1981 (as amended); Protection of Badgers Act 1992; Conservation of Habitats and Species Regulations 2010. The latter regulations enact the European Union's (EU) Habitats Directive (92/43/EEC) in the UK and supercede The Conservation Regulations 1994. In our list of protected species, you may see designations that refer to schedules in the 1994 regulations, but these remain unchanged under the 2010 regulations.

Some protected species may not be legally disturbed unless you are in possession of an appropriate license. If you are in any doubt as to whether or not a license is required, you should contact Natural England.

The following tables detail the protected species that were recorded in the search area.

Group	Common Name	Scientific Name	Records	Dates	Designations
amphibian	Common Frog	<i>Rana temporaria</i>	2	2008-2009	WCA5/9.5a,WCA5/9.5b
	Common Toad	<i>Bufo bufo</i>	1	2008	WCA5/9.5a,WCA5/9.5b
bird	Barn Owl	<i>Tyto alba</i>	1	1998	WCA1i
flowering plant	Bluebell	<i>Hyacinthoides non-scripta</i>	8	1995-1999	WCA8
marine mammal	Common Porpoise	<i>Phocoena phocoena</i>	4	1934-2010	HabRegs2,WCA5/9.5a,WCA5/9.5b,WC A5/9.4A*
	Northern Bottlenose Whale	<i>Hyperoodon ampullatus</i>	1	1953	HabRegs2,WCA5/9.5a,WCA5/9.5b,WC A5/9.4A*
reptile	Common Lizard	<i>Zootoca vivipara</i>	1	1990	WCA5/9.1k/l,WCA5/9.5a,WCA5/9.5b
terrestrial mammal	Eurasian Red Squirrel	<i>Sciurus vulgaris</i>	5	1936-1940	WCA5/9.1k/l,WCA5/9.1t,WCA5/9.2,WC A5/9.4a,WCA5/9.4b,WCA5/9.5a
	Noctule Bat	<i>Nyctalus noctula</i>	3	1987-1988	HabRegs2,WCA5/9.4b,WCA5/9.5a,WC A5/9.5b,WCA5/9.4c
	Pipistrellus	<i>Pipistrellus</i>	8	1985-1990	HabRegs2,WCA5/9.4b,WCA5/9.5a,WC A5/9.5b,WCA5/9.4c

Desig. Code	Desig. Name	Designation Description
WCA5/9.5a	Wildlife and Countryside Act 1981 (Schedule 5 Section 9.5a)	Section 9.5 Animals which are protected from being sold, offered for sale or being held or transported for sale either live or dead, whole or part.
WCA5/9.5b	Wildlife and Countryside Act 1981 (Schedule 5 Section 9.5b)	Section 9.5 Animals which are protected from being published or advertised as being for sale.
WCA1i	Wildlife and Countryside Act 1981 (Schedule 1 Part 1)	Birds which are protected by special penalties at all times.
WCA8	Wildlife and Countryside Act 1981 (Schedule 8)	Plants which are protected from intentional picking, uprooting or destruction (Section 13 1a); selling, offering for sale, possessing or transporting for the purpose of sale (live or dead, part or derivative) (Section 13 2a); advertising (any of these) fo
HabRegs2	The Conservation (Natural Habitats, &c.) Regulations 2010 (Schedule 2)	Schedule 2- European protected species of animals.
WCA5/9.4A*	Wildlife and Countryside Act 1981 (Schedule 5)	Ceteaca/basking shark that are not allowed to be intentionally or recklessly disturbed.
WCA5/9.1k/l	Wildlife and Countryside Act 1981 (Schedule 5 Section 9.1 (killing/injuring))	Section 9.1. Animals which are protected from intentional killing or injuring.
WCA5/9.1t	Wildlife and Countryside Act 1981 (Schedule 5 Section 9.1 (taking))	Section 9.1 Animals which are protected from taking.
WCA5/9.2	Wildlife and Countryside Act 1981 (Schedule 5 Section 9.2)	Section 9.2 Animals which are protected from being possessed or controlled (live or dead).
WCA5/9.4a	Wildlife and Countryside Act 1981 (Schedule 5 Section 9.4a)	Section 9.4 Animals which are protected from intentional damage or destruction to any structure or place used for shelter or protection.

WCA5/9.4b	Wildlife and Countryside Act 1981 (Schedule 5 Section 9.4b)	Section 9.4 Animals which are protected from intentional disturbance while occupying a structure or place used for shelter or protection.
WCA5/9.4c	Wildlife and Countryside Act 1981 (Schedule 5)	Animals which are protected from their access to any structure or place which they use for shelter or protection being obstructed.

North Merseyside BAP Species

The North Merseyside Biodiversity Action Plan (NM BAP) was published in September 2001 and last reviewed in 2008. Like other Local Biodiversity Action Plans (LBAPs) its purpose is to focus local conservation on national priority species and habitats. But LBAPs also embrace the idea of 'local distinctiveness' and species which are not UK BAP priorities can be catered for by LBAPs if they are of particular local significance. Such is the case with the NM BAP which currently names 74 species of which 57 are not UK BAP priority species but are included because their conservation is considered to be a priority in North Merseyside.

The following tables detail the North Merseyside BAP species that were recorded in the search area.

Group	Common Name	Scientific Name	Records	Dates	Designations
bird	Common Starling	<i>Sturnus vulgaris</i>	5	1997-1999	LBAP
	Common Swift	<i>Apus apus</i>	4	1997-1998	LBAP
	Grey Partridge	<i>Perdix perdix</i>	1	1998	LBAP
	House Martin	<i>Delichon urbicum</i>	5	1997-2008	LBAP
	House Sparrow	<i>Passer domesticus</i>	54	1997-2001	LBAP
	Northern Lapwing	<i>Vanellus vanellus</i>	1	2002	LBAP
	Sky Lark	<i>Alauda arvensis</i>	3	1997-2002	LBAP
	Song Thrush	<i>Turdus philomelos</i>	5	1997-1999	LBAP
flowering plant	Bluebell	<i>Hyacinthoides non-scripta</i>	8	1995-1999	LBAP
insect - dragonfly (Odonata)	Blue-tailed Damselfly	<i>Ischnura elegans</i>	1	2000	LBAP
	Brown Hawker	<i>Aeshna grandis</i>	1	2000	LBAP
	Common Darter	<i>Sympetrum striolatum</i>	2	1999-2000	LBAP
	Emperor Dragonfly	<i>Anax imperator</i>	1	2000	LBAP
	Southern Hawker	<i>Aeshna cyanea</i>	1	1940-1960	LBAP
reptile	Common Lizard	<i>Zootoca vivipara</i>	1	1990	LBAP
terrestrial mammal	Brown Hare	<i>Lepus europaeus</i>	5	1973-1998	LBAP
	Eurasian Red Squirrel	<i>Sciurus vulgaris</i>	5	1936-1940	LBAP
	Noctule Bat	<i>Nyctalus noctula</i>	3	1987-1988	LBAP

Desig. Code	Desig. Name	Designation Description
LBAP	North Merseyside BAP	Species that are incorporated within the North Merseyside Biodiversity Action Plan. These species may or may not also be UK BAP species. Some species have their own action plans within the NM BAP, others are members of group species action plans.

NM BAP species: Urban Birds (*Sturnus vulgaris*; *Apus apus*; *Delichon urbicum*; *Passer domesticus*)

The four species covered by the NM BAP Urban Birds Species Action Plan (House Martin, Swift, House Sparrow and Starling) are considered to be in significant decline across the UK. In North Merseyside House Sparrows and Starlings currently breed in all urban areas, while House Martins are restricted to areas nearer sources of mud for nest-building. Swifts occurred in only 55 tetrads during 1997-2000.

Urban bird numbers are thought to relate strongly to the availability of prey species, and nesting opportunities.

Declines are most likely caused by the reduction in the diversity and abundance of invertebrate prey species resulting from increased 'tidiness' in our parks and gardens, the use of pesticides and other changes in farm practices. The exclusion of urban birds from breeding in or around modern buildings reduces nesting opportunities for urban birds.

NM BAP species: Grey Partridge (*Perdix perdix*)

The UK population of Grey Partridge declined by 88% between 1970 and 2005 and though still widespread shows distinct variation according to agricultural practices. In North Merseyside there were an estimated 300 pairs in 1997-99 and they are present in all suitable habitat.

Loss of suitable habitat is the main cause of decline in this species, with changes in agricultural practices being particularly detrimental. The amalgamation of small fields into a larger ones and the removal of hedgerows, ditches and other field margins have destroyed potential nesting sites. Changes in sowing, harvesting and crop type have removed essential winter food sources.

NM BAP species: Lapwing (*Vanellus vanellus*)

Between 1987 and 1998 Lapwing declined by 48% in England and Wales with Wales and the SW of England showing greatest loss. Two thirds of the population is now resident in the N and NW of England.

Locally this species continues to breed in all suitable habitats and the 2002-03 surveys indicated a population of around 1,500 pairs with arable farmland and pockets of grassland being particularly favoured.

Local threats are thought to include development in nesting areas, increasing recreation and disturbance, scrub encroachments on coastal grassland and changes in farm practice towards silage production, livestock and agricultural intensification.

NM BAP species: Skylark (*Alauda arvensis*)

Although Skylark is widespread throughout Europe and large numbers are thought to breed in the UK, it is in significant decline with a fall in the population of 75% between 1972 and 1996 on lowland farms and an overall fall in the UK population of 53% between 1970 and 2005.

Locally Skylark breeds in all remaining suitable habitat and in 1997-2000 there were 750 breeding pairs but declines are thought to reflect the national trend.

This species relies heavily on traditional arable farming and so declines have largely been due to changes in farming practices in recent decades. Conversion to silage production, changes in sowing times and general agricultural intensification have all been particularly detrimental by reducing nesting habitat and sources of food.

Other causes of decline include overgrazing, disturbance during the breeding season and loss of grassland to development and tree planting.

NM BAP species: Song Thrush (*Turdus philomelos*)

Although still widespread, Song Thrush declined sharply by around 73% in farmland (mid 1970s) and 49% in woodland (1968-1993), while overall UK numbers fell by 50% between 1970 and 2005. The North of the UK is thought to have been hit hardest.

In North Merseyside, though thinly distributed, Song Thrush still breed in most areas with an estimated 500 pairs during 1997-2000. Highest breeding concentrations were found to occur in suburban areas where abundant garden and parkland habitats were present.

Song Thrush are reliant on a variety of habitats to meet their needs at different times of the year and loss of these habitats causes a reduction in numbers.

Local factors in the decline of the species include changes in farm practices that remove nesting habitat (hedgerows and dense scrub), limit the abundance of winter food (changes in sowing, cropping and use of herbicides/molluscicides) or cause the loss of feeding habitat (use of pesticides/herbicides and monocropping).

NM BAP species: Bluebell (*Hyacinthoides non-scripta*)

British Bluebells make up about 20% of the global population of *Hyacinthoides non-scripta* and are often found in humid woodland habitat, along hedgerows and on occasion along the coast. Locally there are a number of good colonies.

Local threats to the species include possible over-shading in un-managed woodlands, localised trampling by the public in popular areas and hybridisation with the Spanish Bluebell. On a national scale declines are caused by the loss of woodland habitat, grazing by introduced Muntjac, collection of plants and hybridisation with Spanish Bluebell.

NM BAP species: Dragonflies (*Ischnura elegans*; *Aeshna grandis*; *Sympetrum striolatum*; *Anax imperator*; *Aeshna cyanea*)

Twentyone species of dragonfly and damselfly are included in the NM BAP Dragonflies Species Action Plan. These include vagrant species and some which are thought to be undergoing range expansions in the UK. Eighteen of these species are known to breed in our local area, with significant breeding sites in St Helens and Sefton.

Local causes of decline in this include the destruction or damage of essential wetland habitat through development, waste-tipping and agricultural run-off. Removal of nearby feeding habitats such as woodlands, hedgerows and tall vegetation is also detrimental.

NM BAP species: Common Lizard (*Zootoca vivipara*)

Populations of the Common Lizard are highly localised in Britain. In North Merseyside this species remains relatively common on the Sefton Coast dune and heath, where it is thought to be stable. Inland it is much less common. There are occasional records from Knowsley where the species is thought to be extremely vulnerable.

Declines are primarily due to the loss and fragmentation of suitable habitat, usually caused by changes in land use, urban expansion and increased forestry and scrub encroachment. Predation by cats and the gassing of rabbit burrows may also be having a detrimental effect.

NM BAP species: Brown Hare (*Lepus europaeus*)

Whilst still well distributed in North Merseyside it is thought that the local population of Brown Hare declined in-line with National trends which have shown severe declines in the western pastoral parts of the country to around 20% of the numbers present in Victorian times.

Reasons for local declines are thought to include loss and fragmentation of suitable habitat to development, illegal hunting and changes in farming practices and land use that cause increased disturbance (changes in cropping/sowing times, livestock trampling and recreation).

NM BAP species: Red Squirrel (*Sciurus vulgaris*)

Over the last 100 years the UK range Red Squirrel has contracted massively. In most areas of Britain it has vanished and most populations are now restricted to areas of Scotland and North England. North Merseyside has a relatively stable population on the Sefton Coast with small numbers across Knowsley and St Helens.

Threats include the Grey Squirrel which carries the squirrel pox virus that appears to have been the main cause of the red squirrel decline in Britain. In addition the fragmentation of woodland has reduced suitable habitat and increased road mortality as individuals try to move between pockets of habitats. Locally, over-maturation of trees will soon greatly reduce the Red Squirrels food source.

NM BAP species: Bats (*Nyctalus noctula*)

The NM BAP Bats Species Action Plan covers all species found in North Merseyside since all are considered to be locally threatened.

Bat Species are found throughout North Merseyside, with Pipistrelles (Common/Soprano) most often encountered and Brown Long-eared and Noctules less common. Daubenton's are also frequently encountered in suitable wetland habitat. Whiskered, Brandt's and Natterers are considered rare locally.

Bat species will roost in many locations that are warm, dark, sheltered and little undisturbed. Such places can include derelict buildings, barns, roof spaces and tree hollows.

Factors causing declines in these species include the loss of prey insects due to the increased use of pesticides and general park/garden 'tidiness', loss and fragmentation of habitat mosaics, loss of winter roosts in old trees and buildings and intentional exclusion from buildings by people.

NERC Act Section 41 Species (UKBAP)

Known also as 'Species of Principle Importance in England' and the 'England Biodiversity List' this list was developed to meet the requirements of Section 40 of the Natural Environment and Rural Communities Act (2006). The list is derived, almost wholly, from the 2007 revised list of UK BAP priority species. The section 41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40 of the Natural Environment and Rural Communities Act 2006 'to have regard' to the conservation of biodiversity in England, when carrying out their normal functions. In particular:

- Regional Planning Bodies and Local Planning Authorities must use it to identify the species that should be afforded priority when applying the requirements of Planning Policy Statement 9 (PPS9) to maintain, restore and enhance species and habitats.
- Local Planning Authorities must use it to identify the species that require specific consideration in dealing with planning and development control, recognising that under PPS the aim of planning decisions should be to avoid harm to all biodiversity.
- All Public Bodies must use it to identify species that should be given priority when implementing the NERC Section 40 duty.

The following tables detail the NERC Section 41 (UK BAP) species that were recorded in the search area.

Group	Common Name	Scientific Name	Records	Dates	Designations
amphibian	Common Toad	<i>Bufo bufo</i>	1	2008	Sect.41
bird	Grey Partridge	<i>Perdix perdix</i>	1	1998	Sect.41
	House Sparrow	<i>Passer domesticus</i>	54	1997-2001	Sect.41
	Northern Lapwing	<i>Vanellus vanellus</i>	1	2002	Sect.41
	Reed Bunting	<i>Emberiza schoeniclus</i>	2	1998-2002	Sect.41
	Sky Lark	<i>Alauda arvensis</i>	3	1997-2002	Sect.41
flowering plant	Small Cord-grass	<i>Spartina maritima</i>	1	1995	Sect.41
	Yellow Bird's-nest	<i>Monotropa hypopitys</i>	1	2009	Sect.41
insect - butterfly	Wall	<i>Lasiommata megera</i>	1	1988	Sect.41
insect - moth	Brindled Ochre	<i>Dasypolia templi</i>	1	1887	Sect.41
	Cinnabar	<i>Tyria jacobaeae</i>	1	2002	Sect.41
marine mammal	Common Porpoise	<i>Phocoena phocoena</i>	4	1934-2010	Sect.41
reptile	Common Lizard	<i>Zootoca vivipara</i>	1	1990	Sect.41
terrestrial mammal	Brown Hare	<i>Lepus europaeus</i>	5	1973-1998	Sect.41
	Eurasian Red Squirrel	<i>Sciurus vulgaris</i>	5	1936-1940	Sect.41
	Noctule Bat	<i>Nyctalus noctula</i>	3	1987-1988	Sect.41
	West European Hedgehog	<i>Erinaceus europaeus</i>	7	1973-1984	Sect.41

Desig. Code	Desig. Name	Designation Description
Sect.41	Natural Environment and Rural Communities Act 2006 - Species of Principal Importance in England (sec	Species "of principal importance for the purpose of conserving biodiversity" covered under section 41 (England) of the NERC Act (2006) and therefore need to be taken into consideration by a public body when performing any of its functions with a view to c

IUCN Red-listed Species

The IUCN Red List of Threatened Species (sometimes called 'Red Data Book' species) indicates the conservation status of plants and animals that have been globally evaluated using the IUCN Red List Categories and Criteria. The system is designed to determine the relative risk of extinction, and the main purpose of the IUCN Red List is to catalogue and highlight those plants and animals that are facing a higher risk of global extinction (i.e. those listed as Critically Endangered, Endangered and Vulnerable). The IUCN Red List also includes information on plants and animals that are categorized as 'Extinct' or 'Extinct in the Wild'; on taxa that cannot be evaluated because of insufficient information ('Data Deficient'); and on plants and animals that are either close to meeting the threatened thresholds or that would be threatened were it not for an ongoing taxon-specific conservation programme ('Near Threatened').

The following tables detail the IUCN Red-listed species that were recorded in the search area.

Group	Common Name	Scientific Name	Records	Dates	Designations
flowering plant	Corn Marigold	<i>Glebionis segetum</i>	2	1997	RLGB.VU
	Field Woundwort	<i>Stachys arvensis</i>	2	1997	RLGB.Lr(NT)
	Round-leaved Mint	<i>Mentha suaveolens</i>	1	1995	RLGB.DD
	Small Cord-grass	<i>Spartina maritima</i>	1	1995	RLGB.EN
	Yellow Bird's-nest	<i>Monotropa hypopitys</i>	1	2009	RLGB.EN
insect - butterfly	Wall	<i>Lasiommata megera</i>	1	1988	RLGB.Lr(NT)

Desig. Code	Desig. Name	Designation Description
RLGB.VU	IUCN (2001) - Vulnerable	A taxon is Vulnerable when it is not Critically Endangered or Endangered but is facing a high risk of extinction in the wild in the medium term future.
RLGB.Lr(NT)	IUCN (2001) - Lower risk - near threatened	Taxa which do not qualify for Lower Risk (conservation dependent), but which are close to qualifying for Vulnerable. In Britain, this category includes species which occur in 15 or fewer hectads but do not qualify as Critically Endangered, Endangered or V
RLGB.DD	IUCN (2001) - Data Deficient	A taxon is Data Deficient when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. A taxon in this category may be well studied, and its biology well known
RLGB.EN	IUCN (2001) - Endangered	A taxon is Endangered when it is not Critically endangered but is facing a very high risk of extinction in the wild in the near future.

Nationally Notable Species

These are plants and animals which do not fall within red-list categories but which are none-the-less uncommon in Great Britain.

The following tables detail the Nationally Notable species that were recorded in the search area.

Group	Common Name	Scientific Name	Records	Dates	Designations
flowering plant	Round-leaved Mint	<i>Mentha suaveolens</i>	1	1995	NS
	Small Cord-grass	<i>Spartina maritima</i>	1	1995	NS

Desig. Code	Desig. Name	Designation Description
NS	Nationally scarce	Occurring in 16-100 hectads in Great Britain.

WCA schedule 9 species (including non-native invasive plants)

Schedule 9 of the Wildlife & Countryside Act (amended 2010) lists species of plants and animals for which it is a specific offence to plant or otherwise cause to grow in the wild (plants) or release or allow to escape into the wild (animals). Many of these are invasive non-native plants and animals, but there are also a number of native animals on the list (e.g. Barn Owl) which cannot be released into the wild in England without a license from Natural England.

The following tables detail the WCA Schedule 9 species recorded in the search area.

Group	Common Name	Scientific Name	Records	Dates	Designations
bird	Barn Owl	<i>Tyto alba</i>	1	1998	MBB-WCA-S9
	Greater Canada Goose	<i>Branta canadensis</i>	1	1998	MBB-WCA-S9
flowering plant	Indian Balsam	<i>Impatiens glandulifera</i>	1	1995	MBB-WCA-S9
	Japanese Knotweed	<i>Fallopia japonica</i>	5	1995-2010	MBB-WCA-S9
	Japanese Rose	<i>Rosa rugosa</i>	1	1997	MBB-WCA-S9
	Montbretia	<i>Crocsmia pottsii x aurea = C. x crocosmiiflora</i>	2	1997	MBB-WCA-S9
	Rhododendron	<i>Rhododendron ponticum</i>	3	1995-2006	MBB-WCA-S9
terrestrial mammal	Eastern Grey Squirrel	<i>Sciurus carolinensis</i>	2	2010	MBB-WCA-S9

Desig. Code	Desig. Name	Designation Description
MBB-WCA-S9	Wildlife and Countryside Act 1981 (Variation of Schedule 9) (England and Wales) Order 2010	Species on Schedule 9 (part 2) as revised 2010. Under section 14 of the Act it is illegal to release into the wild any animal or allow to grow in the wild any plant which is not ordinarily resident in GB or which is a known threat and is listed on Schedule 9 of the Act.

BAP priority habitats

In 2007 the Local Biodiversity Manager (responsible for the North Merseyside Biodiversity Action Plan) undertook a review of the extent of UK BAP priority habitats in North Merseyside and produced GIS layers to show their extents. In most cases these inventories were derived from two main sources: the latest Phase 1 habitat surveys which were conducted for the four North Merseyside local authorities between 1996 and 2007; and an NVC survey of the Sefton Coast carried out between 2003 and 2004. A separate NVC survey of the Ribble estuary carried out in 2002 (which also included saltmarsh at the Alt) was also useful as were one or two other sources. Because of the diverse nature of habitat classifications, it was not always possible to produce inventories with a one-to-one correspondence with UK BAP priority habitats. The table below shows the BAP habitat inventories for North Merseyside and their correspondence with UK BAP priority habitats.

North Merseyside habitat inventory	Correspondence with UK BAP priority habitats
Lowland Acid Grassland	Lowland Dry Acid Grassland
Lowland Heathland	Lowland Heathland
Lowland Raised Bog	Lowland Raised Bog
Neutral Grassland	Incorporates the UK BAP habitat Lowland Meadows but also, in North Merseyside, includes a lot of amenity grassland, road verges etc.
Calcareous Grassland	Calcareous Grassland
Ponds	Ponds
Lakes	Eutrophic lakes
Reedbeds	Reedbeds
Hedgerows	Hedgerows
Saltmarsh	Coast Saltmarsh
Sand Dune	Coastal Sand Dune
All Woodland	It was not possible, from the available data, to produce separate inventories for different woodland types in North Merseyside, so this inventory incorporates elements of several UK BAP priority habitats such as Lowland Mixed Deciduous Woodland, Wet Woodland and Wood Pasture & Parkland.

Note that the 'Ponds' BAP inventory was derived locally using water bodies less than two hectares in extent from Ordnance Survey data. The 'Lakes' BAP inventory is a nationally supplied inventory, but the lakes are only represented in this as points. Therefore any water body over two hectares in extent will only be represented on our habitat maps by a point and will not show the extent of the lake. However, ponds will be indicated by polygons showing their extent. Occasionally a large pond – though still less than two hectares in extent – will be represented in both the 'Lake' and 'Pond' inventories.

The following table indicates the results of the intersection between the search area and the BAP habitat inventories described above (see appendix 3 for maps).

Habitat	Operation	Units	Amount
All Woodland	Intersect	hectares	31.61
Neutral Grassland	Intersect	hectares	2.77
Ponds	Intersect	hectares	0.19
Ponds	Intersect	count	2
Hedgerows	Intersect	kilometres	3.29
Reedbeds	Intersect	count	3
All Woodland	Contain	hectares	27.15
Neutral Grassland	Contain	hectares	1.7
Ponds	Contain	hectares	0.19
Ponds	Contain	count	2

Hedgerows	Contain	kilometres	3.29
Reedbeds	Contain	count	3

Two operations are carried out on each intersecting BAP habitat – ‘intersect’ & ‘contains’. This is to help you to interpret the amount of habitat that actually occurs *within* the search area. A map is included at end of the report to show the distribution of these priority habitats in the search area.

Designated Areas

There are a number of types of 'designated areas' in North Merseyside. These types are shown in the table below together with the total number of North Merseyside sites for each.

Type of area	No. of sites
Site of Special Scientific Interest	6
Special Protection Area (Natura 2000)	3
Marine Special Protection Area	1
Special Area of Conservation (Natura 2000)	1
RAMSAR (wetland of international importance)	3
National Nature Reserve	3
Local Nature Reserve	57
Knowsley Local Wildlife Site	23
Sefton Local Wildlife Site	55
St Helens Local Wildlife Site	121
Liverpool Local Wildlife Site (current)	28
Liverpool Local Wildlife Site (proposed)	30
Merseyside Ancient Woodland Inventory	11
RSPB/LWT Windfarm Alert Map	1

The following table indicates the results of the intersection between the search area and designated areas detailed above (see appendix 3 for maps).

Name	Type
Mersey Estuary	Site of Special Scientific Interest
Mersey Estuary	Site of Special Scientific Interest
Mersey Estuary	Site of Special Scientific Interest
Mersey Estuary	Special Protection Area (Natura 2000)
Mersey Estuary	Special Protection Area (Natura 2000)
Mersey Estuary	Special Protection Area (Natura 2000)
Mersey Estuary	Special Protection Area (Natura 2000)
Mersey Estuary	Special Protection Area (Natura 2000)
Mersey Estuary	RAMSAR (wetland of international importance)
Mersey Estuary	RAMSAR (wetland of international importance)
Mersey Estuary	RAMSAR (wetland of international importance)
Mersey Estuary	RAMSAR (wetland of international importance)
Mersey Estuary	RAMSAR (wetland of international importance)
MERSEY ESTUARY/MERSEY WAY	Liverpool Local Wildlife Site (current)
OTTERPOOL PARK	Liverpool Local Wildlife Site (current)
CRESSINGTON HEATH	Liverpool Local Wildlife Site (current)
GARSTON GAS WORKS	Liverpool Local Wildlife Site (current)
SITES ON THE NORTHERN AIRFIELD	Liverpool Local Wildlife Site (current)

Otterspool Park & Gorge	Liverpool Local Wildlife Site (proposed)
Cressington Heath	Liverpool Local Wildlife Site (proposed)
Mersey Estuary & Coastal Set-aside	Liverpool Local Wildlife Site (proposed)
Garston Gas Works	Liverpool Local Wildlife Site (proposed)
Land fo Brunt Lane	Liverpool Local Wildlife Site (proposed)

Citations¹ for Local Wildlife Sites are supplied separately.

¹ In Knowsley, some Local Wildlife Site citations do not include lists of species and habitats for which they are designated and where this is the case a separate list is supplied for the site. No Local Wildlife citations are currently available for Liverpool Local Wildlife Sites (current or proposed). No citations for LNRs are available. Citations for national and internationally designated sites (SSSI, SPA etc) are publicly available.

Interpretation and caveats

All relevant records which intersect the search area are included. If a record can only be located to a relatively low precision (e.g. 1 km or 2 km square), then it is possible that the unrecorded precise location of the animal or plant might have been outside of the search area. Sometimes the location name column can be useful in deciding whether or not this was likely to have been the case.

Please note that these results refer only to data held within the Merseyside BioBank Database. The absence of biological records for an area in no way implies that taxa are not present. Whilst Merseyside BioBank has taken reasonable steps to ensure the validity of the records that it holds, they accept no responsibility for any errors subsequently discovered.

Only bird records with a recorded status of proven, probable and possible breeding have been included in this data search. Bird records with other statuses are not included. Neither are the most recent bird records for North Merseyside included, e.g. those generated for the ongoing breeding and wintering atlas projects, since these data have yet to undergo verification by the County Bird Recorder. It is possible for you to contact the County Bird Recorder independently for his interpretation of the most recent data with respect to your search area. The contact details are:

Steve White
swhite@lancswt.org.uk

Lancashire Wildlife Trust
Seaforth Nature Reserve,
Royal Seaforth Docks,
Liverpool. L21 1JD

Tel: 0151 920 3769

Please note that if this is a commercial data request you will be invoiced by **Sefton Borough Council**, which is the hosting authority for Merseyside BioBank LRC.

Appendix 1: Terms and conditions of use

Merseyside BioBank receives data from a variety of sources, from large organisations to amateur naturalists. With Merseyside BioBank operating as custodians, these individuals and groups, who provide their records free of charge, retain copyright on their data.

All data passed to a third party (users) by Merseyside BioBank are subject to these access terms and conditions. Non-adherence to these terms and conditions will be viewed as a breach of contract, which may result in legal redress being sought.

1. Users agree that data released by Merseyside BioBank, in any format and on any media, will only be used for the purpose for which it was originally requested and for any time period originally agreed upon (See note 3 below).
2. Users agree that data released by Merseyside BioBank will not be added to any permanent database system (electronic or paper based) unless by written agreement with Merseyside BioBank.
3. Users understand that following the end of the agreed time period, or 12 months from the enquiry date, the received data must be deleted from any electronic system (See note 2 above). Use of the data beyond this period must be preceded by a further request to Merseyside BioBank.
4. Users agree that data retrieved from Merseyside BioBank will not be passed on to or communicated with third parties except as aggregated data within reports, or as anonymised data in the form of maps etc., which constitute a part of the agreed reason for the original enquiry.
5. Merseyside BioBank disclaims any responsibility for the accuracy of the information within its reports and accepts no liability for any result of using these data.
6. Any biological record is specific to the date of the recording and does not necessarily imply the continuance of the species at that site.
7. The lack of species and/or habitat information for a geographically defined area does not necessarily imply a low biodiversity value for that area. It may simply be unrecorded.
8. While the information from Merseyside BioBank in itself will remain free, Merseyside BioBank reserves the right to charge a reasonable fee to cover administration and a proportion of overheads as detailed in our charging policy.
9. A copy of any report, or other product, produced using the data from Merseyside BioBank would be gratefully received if provided without cost.
10. Merseyside BioBank must be acknowledged within any report, or other product produced, using data provided by Merseyside BioBank.

Appendix 2: Full species records

The following records for protected, BAP, red-listed, notable and invasive species were found to intersect the search area. (Appendix 3 includes a map to show the location of 1 km and tetrad grid references.)

GridRef	Location Name	Common Name	Scientific Name	Group	Abundance or Status	Date	Comment
SJ397852	Islamy Hosse, 6 Grassendale Road, Liverpool	Common Frog	<i>Rana temporaria</i>	amphibian	100 Count of young; 12 Count of Adult	June 2009	
SJ399861	back garden, L18 9SR	Common Frog	<i>Rana temporaria</i>	amphibian	1 Count of Adult	14/06/2008	active
SJ399861	back garden, L18 9SR	Common Toad	<i>Bufo bufo</i>	amphibian	1 Count of Adult	07/06/2008	active
SJ48D	Calderstones Park	Barn Owl	<i>Tyto alba</i>	bird	1 Count of possible breeding	1998	
SJ48C	Allerton, Clarke Gardens	Common Starling	<i>Sturnus vulgaris</i>	bird	1 Count of proved breeding	1999	
SJ38Y	Mossley Hill	Common Starling	<i>Sturnus vulgaris</i>	bird	1 Count of proved breeding	1997	
SJ48B	Speke Hall	Common Starling	<i>Sturnus vulgaris</i>	bird	1 Count of possible breeding	1998	
SJ48D	Calderstones Park	Common Starling	<i>Sturnus vulgaris</i>	bird	1 Count of proved breeding	1998	
SJ38X	Grassendale/Garston Docks tetrad	Common Starling	<i>Sturnus vulgaris</i>	bird	1 Count of proved breeding	1998	
SJ38X	Cressington Heath	Common Swift	<i>Apus apus</i>	bird	1 Count of proved breeding	1997	
SJ38X	Grassendale/Garston Docks tetrad	Common Swift	<i>Apus apus</i>	bird	1 Count of proved breeding	1998	
SJ38Y	Mossley Hill	Common Swift	<i>Apus apus</i>	bird	1 Count of possible breeding	1997	
SJ48D	Calderstones Park	Common Swift	<i>Apus apus</i>	bird	1 Count of proved breeding	1998	
SJ48D	Calderstones Park	Greater Canada Goose	<i>Branta canadensis</i>	bird	1 Count of proved breeding	1998	
SJ48B	Speke Hall	Grey Partridge	<i>Perdix perdix</i>	bird	1 Count of proved breeding	1998	
SJ48B	Speke Hall	House Martin	<i>Delichon urbicum</i>	bird	1 Count of possible breeding	1998	
SJ38X	Grassendale/Garston Docks tetrad	House Martin	<i>Delichon urbicum</i>	bird	1 Count of possible breeding	1998	

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SJ48D		House Martin	<i>Delichon urbicum</i>	bird	1 Count of possible breeding	1998	
SJ38Y	Mossley Hill	House Martin	<i>Delichon urbicum</i>	bird	1 Count of possible breeding	1997	
SJ399861	STROMA ROAD	House Martin	<i>Delichon urbicum</i>	bird	1 Count of Nest	13/06/2008	THE HOUSE MARTIN ARE NESTING UNDER THE EAVES OF A NEIGHBOURS HOUSE.
SJ393861		House Sparrow	<i>Passer domesticus</i>	bird	3 Proven Count of proved breeding	2001	
SJ396857		House Sparrow	<i>Passer domesticus</i>	bird	1 Proven Count of proved breeding	2001	
SJ390857		House Sparrow	<i>Passer domesticus</i>	bird	2 Proven Count of proved breeding	2001	
SJ397850		House Sparrow	<i>Passer domesticus</i>	bird	2 Proven Count of proved breeding	2001	
SJ407856		House Sparrow	<i>Passer domesticus</i>	bird	1 Proven Count of proved breeding	22/05/2001	
SJ393856		House Sparrow	<i>Passer domesticus</i>	bird	1 Proven Count of proved breeding	2001	
SJ382859		House Sparrow	<i>Passer domesticus</i>	bird	2 Proven Count of proved breeding	2001	
SJ383858		House Sparrow	<i>Passer domesticus</i>	bird	3 Proven Count of proved breeding	2001	
SJ385858		House Sparrow	<i>Passer domesticus</i>	bird	Proven Count of proved breeding	2001	
SJ391847		House Sparrow	<i>Passer domesticus</i>	bird	3 Proven Count of proved breeding	2001	
SJ393855		House Sparrow	<i>Passer domesticus</i>	bird	1 Proven Count of proved breeding	2001	
SJ385855		House Sparrow	<i>Passer domesticus</i>	bird	9 Proven Count of proved breeding	09/05/2001	
SJ383861		House Sparrow	<i>Passer domesticus</i>	bird	6 Proven Count of proved breeding	2001	
SJ397852		House Sparrow	<i>Passer domesticus</i>	bird	2 Proven Count of proved breeding	2001	
SJ407849		House Sparrow	<i>Passer domesticus</i>	bird	2 Proven Count of proved breeding	2001	
SJ404847		House Sparrow	<i>Passer domesticus</i>	bird	2 Proven Count of proved breeding	2001	
SJ403860		House Sparrow	<i>Passer domesticus</i>	bird	2 Proven Count of proved breeding	2001	
SJ403855		House Sparrow	<i>Passer domesticus</i>	bird	1 Proven Count of proved breeding	22/05/2001	
SJ403852		House Sparrow	<i>Passer domesticus</i>	bird	5 Proven Count of proved breeding	2001	

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SJ405845		House Sparrow	<i>Passer domesticus</i>	bird	8 Proven Count of proved breeding	14/05/2001	
SJ405855		House Sparrow	<i>Passer domesticus</i>	bird	8 Proven Count of proved breeding	22/05/2001	
SJ406858		House Sparrow	<i>Passer domesticus</i>	bird	Proven Count of proved breeding	2001	
SJ406857		House Sparrow	<i>Passer domesticus</i>	bird	10 Proven Count of proved breeding	2001	
SJ406856		House Sparrow	<i>Passer domesticus</i>	bird	1 Proven Count of proved breeding	22/05/2001	
SJ405863		House Sparrow	<i>Passer domesticus</i>	bird	1 Proven Count of proved breeding	2001	
SJ403848		House Sparrow	<i>Passer domesticus</i>	bird	4 Proven Count of proved breeding	2001	
SJ402844		House Sparrow	<i>Passer domesticus</i>	bird	4 Proven Count of proved breeding	2001	
SJ401861		House Sparrow	<i>Passer domesticus</i>	bird	1 Proven Count of proved breeding	2001	
SJ399862		House Sparrow	<i>Passer domesticus</i>	bird	4 Proven Count of proved breeding	2001	
SJ399858		House Sparrow	<i>Passer domesticus</i>	bird	1 Proven Count of proved breeding	2001	
SJ397858		House Sparrow	<i>Passer domesticus</i>	bird	1 Proven Count of proved breeding	2001	
SJ397854		House Sparrow	<i>Passer domesticus</i>	bird	3 Proven Count of proved breeding	2001	
SJ399864		House Sparrow	<i>Passer domesticus</i>	bird	2 Proven Count of proved breeding	2001	
SJ400835		House Sparrow	<i>Passer domesticus</i>	bird	2 Proven Count of proved breeding	16/05/2001	
SJ401858		House Sparrow	<i>Passer domesticus</i>	bird	1 Proven Count of proved breeding	22/05/2001	
SJ400857		House Sparrow	<i>Passer domesticus</i>	bird	3 Proven Count of proved breeding	2001	
SJ400855		House Sparrow	<i>Passer domesticus</i>	bird	3 Proven Count of proved breeding	2001	
SJ400845		House Sparrow	<i>Passer domesticus</i>	bird	17 Proven Count of proved breeding	13/05/2001	
SJ407857		House Sparrow	<i>Passer domesticus</i>	bird	1 Proven Count of proved breeding	22/05/2001	
SJ408855		House Sparrow	<i>Passer domesticus</i>	bird	1 Proven Count of proved breeding	2001	
SJ408859		House Sparrow	<i>Passer domesticus</i>	bird	2 Proven Count of proved breeding	2001	

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SJ48D	Calderstones Park	House Sparrow	<i>Passer domesticus</i>	bird	1 Count of proved breeding	1998	
SJ38X	Grassendale/Garston Docks tetrad	House Sparrow	<i>Passer domesticus</i>	bird	1 Count of proved breeding	1998	
SJ407845		House Sparrow	<i>Passer domesticus</i>	bird	3 Proven Count of proved breeding	2001	
SJ409858		House Sparrow	<i>Passer domesticus</i>	bird	Proven Count of proved breeding	2001	
SJ48B	Speke Hall	House Sparrow	<i>Passer domesticus</i>	bird	1 Count of proved breeding	1998	
SJ38Y	Mossley Hill	House Sparrow	<i>Passer domesticus</i>	bird	1 Count of proved breeding	1997	
SJ409858		House Sparrow	<i>Passer domesticus</i>	bird	1 Proven Count of proved breeding	22/05/2001	
SJ410857		House Sparrow	<i>Passer domesticus</i>	bird	1 Proven Count of proved breeding	2001	
SJ48C	Allerton, Clarke Gardens	House Sparrow	<i>Passer domesticus</i>	bird	1 Count of proved breeding	1999	
SJ409857		House Sparrow	<i>Passer domesticus</i>	bird	1 Proven Count of proved breeding	2001	
SJ411851		House Sparrow	<i>Passer domesticus</i>	bird	3 Proven Count of proved breeding	2001	
SJ410857		House Sparrow	<i>Passer domesticus</i>	bird	2 Proven Count of proved breeding	2001	
SJ408859		House Sparrow	<i>Passer domesticus</i>	bird	1 Proven Count of proved breeding	22/05/2001	
SJ4183		Northern Lapwing	<i>Vanellus vanellus</i>	bird	1 Count of proved breeding	2002	Whole 1km square
SJ4183		Reed Bunting	<i>Emberiza schoeniclus</i>	bird	2 Count of proved breeding	2002	Whole 1km square surveyed but counts not comprehensive.
SJ48B	Speke Hall	Reed Bunting	<i>Emberiza schoeniclus</i>	bird	3 Count of proved breeding	1998	
SJ4183		Sky Lark	<i>Alauda arvensis</i>	bird	15 Count of proved breeding	2002	Whole 1km square surveyed. Counts not comprehensive.
SJ38X	Cressington Heath	Sky Lark	<i>Alauda arvensis</i>	bird	2 Count of proved breeding	1997	
SJ48B	Speke Hall	Sky Lark	<i>Alauda arvensis</i>	bird	12 Count of proved breeding	1998	
SJ38X	Grassendale/Garston Docks tetrad	Song Thrush	<i>Turdus philomelos</i>	bird	4 Count of proved breeding	1998	
SJ48C	Allerton, Clarke Gardens	Song Thrush	<i>Turdus philomelos</i>	bird	5 Count of proved breeding	1999	
SJ48D	Calderstones Park	Song Thrush	<i>Turdus philomelos</i>	bird	28 Count of proved breeding	1998	

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SJ38Y	Mossley Hill	Song Thrush	<i>Turdus philomelos</i>	bird	1 Count of proved breeding	1997	
SJ48B	Speke Hall	Song Thrush	<i>Turdus philomelos</i>	bird	2 Count of proved breeding	1998	
SJ396847	Cressington Heath, Cressington Heath	Scots Pine	<i>Pinus sylvestris</i>	conifer		05/11/1997	
SJ378856	Otterspool Park South	Bluebell	<i>Hyacinthoides non-scripta</i>	flowering plant	LF DAFOR of	22/06/1995	
SJ38Y		Bluebell	<i>Hyacinthoides non-scripta</i>	flowering plant	1 Count of presence	1997	
SJ48B		Bluebell	<i>Hyacinthoides non-scripta</i>	flowering plant	1 Count of presence	1999	
SJ38S		Bluebell	<i>Hyacinthoides non-scripta</i>	flowering plant	1 Count of presence	1995	
SJ48B		Bluebell	<i>Hyacinthoides non-scripta</i>	flowering plant	1 Count of presence	1995	
SJ48D		Bluebell	<i>Hyacinthoides non-scripta</i>	flowering plant	1 Count of presence	1997	
SJ48C		Bluebell	<i>Hyacinthoides non-scripta</i>	flowering plant	1 Count of presence	1997	
SJ38X		Bluebell	<i>Hyacinthoides non-scripta</i>	flowering plant	1 Count of presence	1995	
SJ396847	Cressington Heath, Cressington Heath	Corn Marigold	<i>Glebionis segetum</i>	flowering plant		05/11/1997	
SJ408840	Cressington Heath, Garston Dock	Corn Marigold	<i>Glebionis segetum</i>	flowering plant	1 Count	05/11/1997	
SJ396847	Cressington Heath, Cressington Heath	Field Woundwort	<i>Stachys arvensis</i>	flowering plant		05/11/1997	
SJ408840	Cressington Heath, Garston Dock	Field Woundwort	<i>Stachys arvensis</i>	flowering plant	1 Count	05/11/1997	
SJ38Y		Hyacinthoides non-scripta x hispanica = H. x massartiana	<i>Hyacinthoides non-scripta x hispanica = H. x massartiana</i>	flowering plant	1 Count of presence	1997	
SJ48C		Hyacinthoides non-scripta x hispanica = H. x massartiana	<i>Hyacinthoides non-scripta x hispanica = H. x massartiana</i>	flowering plant	1 Count of presence	1997	
SJ48D		Hyacinthoides non-scripta x hispanica = H. x massartiana	<i>Hyacinthoides non-scripta x hispanica = H. x massartiana</i>	flowering plant	1 Count of presence	1997	
SJ48B		Hyacinthoides non-scripta x hispanica = H. x massartiana	<i>Hyacinthoides non-scripta x hispanica = H. x massartiana</i>	flowering plant	1 Count of presence	1995	
SJ378856	Otterspool Park South	Indian Balsam	<i>Impatiens glandulifera</i>	flowering plant	R DAFOR of	22/06/1995	
SJ408840	Cressington Heath, Garston Dock	Japanese Knotweed	<i>Fallopia japonica</i>	flowering plant	1 Count	05/11/1997	
SJ378856	Otterspool Park South	Japanese Knotweed	<i>Fallopia japonica</i>	flowering plant	R DAFOR of	22/06/1995	
SJ396847	Cressington Heath, Cressington Heath	Japanese Knotweed	<i>Fallopia japonica</i>	flowering plant		05/11/1997	
SJ407841	Speke Way/Banks Road	Japanese Knotweed	<i>Fallopia japonica</i>	flowering plant	LD DAFOR of	19/08/1995	
SJ395848	Cressington Heath	Japanese Knotweed	<i>Fallopia japonica</i>	flowering plant		24/06/2010	
SJ396847	Cressington Heath, Cressington Heath	Japanese Rose	<i>Rosa rugosa</i>	flowering plant		05/11/1997	
SJ378856	Otterspool Park South	Lime	<i>Tilia platyphyllos x cordata = T. x europaea</i>	flowering plant	R DAFOR of	22/06/1995	

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SJ408840	CRESSINGTON HEATH	Lime	<i>Tilia platyphyllos x cordata = T. x europaea</i>	flowering plant		26/07/2006	
SJ396847	Cressington Heath, Cressington Heath	Montbretia	<i>Crocsmia pottsii x aurea = C. x crocosmiiflora</i>	flowering plant		05/11/1997	
SJ408840	Cressington Heath, Garston Dock	Montbretia	<i>Crocsmia pottsii x aurea = C. x crocosmiiflora</i>	flowering plant	1 Count	05/11/1997	
SJ407841	GARSTON GAS WORKS	Rhododendron	<i>Rhododendron ponticum</i>	flowering plant		26/07/2006	
SJ396847	Cressington Heath, Cressington Heath	Rhododendron	<i>Rhododendron ponticum</i>	flowering plant		05/11/1997	
SJ378856	Otterspool Park South	Rhododendron	<i>Rhododendron ponticum</i>	flowering plant	LF DAFOR of	22/06/1995	
SJ404833	Garston West Bank/Oglet Foreshore	Round-leaved Mint	<i>Mentha suaveolens</i>	flowering plant	O DAFOR of	05/09/1995-10/09/1995	
SJ404833	Garston West Bank/Oglet Foreshore	Small Cord-grass	<i>Spartina maritima</i>	flowering plant	LD DAFOR of	05/09/1995-10/09/1995	
SJ406841	Garston Gasworks	Yellow Bird's-nest	<i>Monotropa hypopitys</i>	flowering plant	8 Count	01/07/2009	
SJ3984	Garston Docks	Wall	<i>Lasiommata megera</i>	insect - butterfly	2-9 Count of	05/08/1988	
SJ384854	Riversdale College Pond	Blue-tailed Damselfly	<i>Ischnura elegans</i>	insect - dragonfly (Odonata)	Present Count of Adult	19/07/2000	
SJ384854	Riversdale College Pond	Brown Hawker	<i>Aeshna grandis</i>	insect - dragonfly (Odonata)	1 Count of Adult	19/07/2000	
SJ384854	Riversdale College Pond	Common Darter	<i>Sympetrum striolatum</i>	insect - dragonfly (Odonata)	Present Count of Adult	19/07/2000	
SJ384854	Riversdale College Pond	Common Darter	<i>Sympetrum striolatum</i>	insect - dragonfly (Odonata)	Present Count of Adult	1999	
SJ384854	Riversdale College Pond	Emperor Dragonfly	<i>Anax imperator</i>	insect - dragonfly (Odonata)	1 Count of Female	19/07/2000	
SJ4086	Allerton, Garden	Southern Hawker	<i>Aeshna cyanea</i>	insect - dragonfly (Odonata)		1940 - 1960	
SJ3986	Aigburth, Nr. Liverpool, South Lancashire	Brindled Ochre	<i>Dasypolia templi</i>	insect - moth	1 Count of Adult	1887	Field record / observation
SJ408849	Holly Park, South Lancashire	Cinnabar	<i>Tyria jacobaeae</i>	insect - moth	1 Count of Adult	30/06/2002	Field record / observation
SJ3983	Garston	Common Porpoise	<i>Phocoena phocoena</i>	marine mammal		11/08/1934	Sight record.
SJ3785	Otterspool	Common Porpoise	<i>Phocoena phocoena</i>	marine mammal	2 Count	02/05/2009	
SJ3785	Otterspool	Common Porpoise	<i>Phocoena phocoena</i>	marine mammal	2 Count	02/05/2009	
SJ38258476	River Mersey (Aigburth)	Common Porpoise	<i>Phocoena phocoena</i>	marine mammal	2 Count of	19/04/2010	Observations from University of Liverpool Vessel - RV Marisa
SJ3784	River Mersey	Northern Bottlenose Whale	<i>Hyperoodon ampullatus</i>	marine mammal	1 Count of dead	15/09/1953	
SJ407829	Mersey Cliffs	Common Lizard	<i>Zootoca vivipara</i>	reptile	1 Count of presence	1990	Date unknown
SJ4183	speke airport, airfield, shoreline,	Brown Hare	<i>Lepus europaeus</i>	terrestrial		1975	small groups seen on airfield in march, singles

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	farmland, woodland			mammal			rest of the year
SJ4183	speke airport	Brown Hare	<i>Lepus europaeus</i>	terrestrial mammal		07/02/1973	many sighted, protected
SJ4083	Speke airport	Brown Hare	<i>Lepus europaeus</i>	terrestrial mammal		01/02/1973	many sighted, protected
SJ4082	Liverpool airport, Speke	Brown Hare	<i>Lepus europaeus</i>	terrestrial mammal		07/02/1973	c. 150 seen - protected and little disturbed
SJ48B		Brown Hare	<i>Lepus europaeus</i>	terrestrial mammal	1 Count of presence	1998	
SJ3985	Cressington, South Lancashire	Eastern Grey Squirrel	<i>Sciurus carolinensis</i>	terrestrial mammal	1 Count of Present	24/02/2010	
SJ3785	Otterspool Park, South Lancashire	Eastern Grey Squirrel	<i>Sciurus carolinensis</i>	terrestrial mammal	1 Count of Present	12/02/2010	
SJ4185	Allerton	Eurasian Red Squirrel	<i>Sciurus vulgaris</i>	terrestrial mammal		1936	many sightings in the summer. lanc & cheshire fauna committee annual report 26
SJ405859	Allerton, Aigburth & Mossley Hill	Eurasian Red Squirrel	<i>Sciurus vulgaris</i>	terrestrial mammal		1939 - 1940	Report on the Mammals, Reptiles & Amphibians 1939-42. Many recorded at all three areas during the summer of 1939 & 1940. Allerton (SJ405859), Aigburth (SJ386864) & Mossley Hill (SJ390873).
SJ4185	Allerton, gardens	Eurasian Red Squirrel	<i>Sciurus vulgaris</i>	terrestrial mammal		1936	many sightings. lanc & cheshire fauna committee annual report 23
SJ4185	Aigburth, gardens	Eurasian Red Squirrel	<i>Sciurus vulgaris</i>	terrestrial mammal		1936	Many sightings. Compiled by CJB from lanc. and Cheshire fauna committee annual report 23.
SJ4185	Aigburth, gardens	Eurasian Red Squirrel	<i>Sciurus vulgaris</i>	terrestrial mammal		1936	Many sightings. Compiled by CJB from Lanc. and Cheshire fauna committee annual report 23
SJ3984	Cressington Park, Liverpool (South), Merseyside	Noctule Bat	<i>Nyctalus noctula</i>	terrestrial mammal		01/07/1988	
SJ388853	Grassendale	Noctule Bat	<i>Nyctalus noctula</i>	terrestrial mammal		08/07/1987	
SJ388853	Grassendale, Liverpool L19, Merseyside	Noctule Bat	<i>Nyctalus noctula</i>	terrestrial mammal	1 Count	08/07/1987	
SJ3985	Liverpool, Riverbank Road	Pipistrellus	<i>Pipistrellus</i>	terrestrial mammal		04/06/1990	
SJ398864	Merseyside, Liverpool, Allerton (west)	Pipistrellus	<i>Pipistrellus</i>	terrestrial mammal	1 Count of in flight	30/04/1985	Found in School playground

SJ4185	Spriongwood Crematorium	Pipistrellus	<i>Pipistrellus</i>	terrestrial mammal		18/08/1989	
SJ4185	Merseyside, Liverpool, Allerton Springwood Crematorium	Pipistrellus	<i>Pipistrellus</i>	terrestrial mammal	1 Count of dead	18/08/1989	Dead bat found on path, specimen now in liverpool museum collection
SJ3985	Merseyside, Liverpool, Riverbank RD, ST. Austin's Primary School	Pipistrellus	<i>Pipistrellus</i>	terrestrial mammal	1 Count of Roosting	04/06/1990	Bat generally in good condition and released on 6.6.90
SJ4185	Church Hall, Allerton, Liverpool, L18, Merseyside	Pipistrellus	<i>Pipistrellus</i>	terrestrial mammal		1986	
SJ398864	Garston, Lancashire	Pipistrellus	<i>Pipistrellus</i>	terrestrial mammal		30/04/1985	Found in school playground. Field record. Compiled by AP
SJ398864	West Allerton	Pipistrellus	<i>Pipistrellus</i>	terrestrial mammal		30/04/1985	
SJ4082	Garston	West European Hedgehog	<i>Erinaceus europaeus</i>	terrestrial mammal		17/07/1984	nest in garden shed. mother, 6-8 babaies. males visiting
SJ4086	Allerton	West European Hedgehog	<i>Erinaceus europaeus</i>	terrestrial mammal		1976	1 seen
SJ3986	51 South Mossley Hill Road - garden	West European Hedgehog	<i>Erinaceus europaeus</i>	terrestrial mammal		07/06/1982	Visual record made at 10pm.
SJ4084	Garston	West European Hedgehog	<i>Erinaceus europaeus</i>	terrestrial mammal		14/07/1984	Found dead. Record from dead specimines at museum.
SJ3886	Elmswood Road, Mossley Hill	West European Hedgehog	<i>Erinaceus europaeus</i>	terrestrial mammal		November 1973	Road casualty
SJ3984	Cressington Park - in house garden	West European Hedgehog	<i>Erinaceus europaeus</i>	terrestrial mammal	3 Count of Adult	1981	Seen daily from April to November. Fed on bread and milk.
SJ406835	Garden of 52 York Way, Garston	West European Hedgehog	<i>Erinaceus europaeus</i>	terrestrial mammal		July 1983	seen several, including young

The following **NEGATIVE RECORDS** were found within the search area. Negative records show where particular species were actively searched for but no evidence of them was found. Negative records do not prove absence. Negative records may be contradicted by positive records.

GridRef	Location Name	Common Name	Scientific Name	Group	Abundance or Status	Date	Comment
SJ4185	Merseyside, Liverpool, Allerton, Allerton Hall	Pipistrellus	<i>Pipistrellus</i>	terrestrial mammal	0 Count of Roosting	1990	House possible roost, bats reported but none found on visit, exterior inspection only. Property for sale

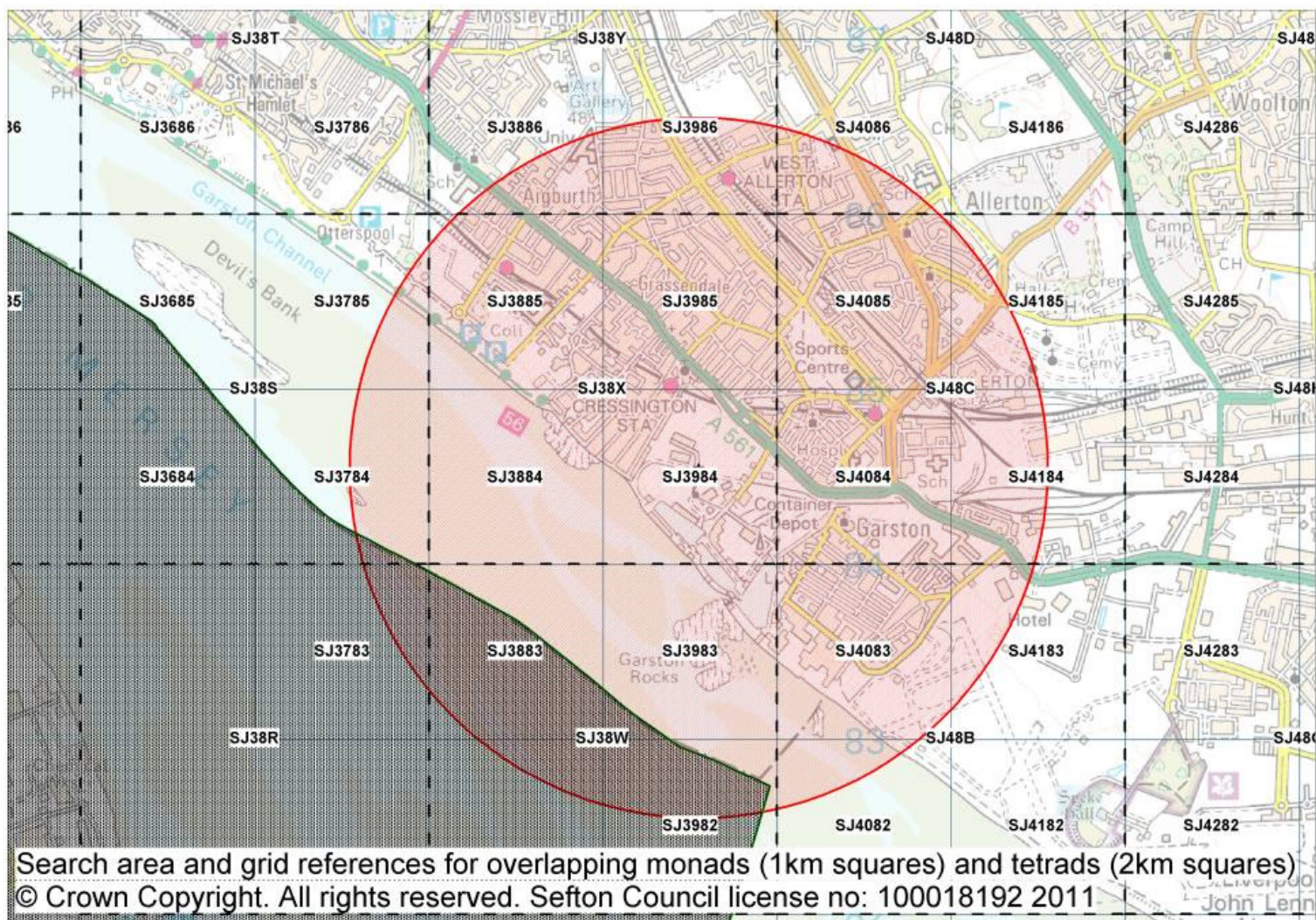
Appendix 3: Maps

The following page(s) include maps to illustrate some of the results of your data request. They should be viewed in the context of the results supplied in the main body of the report.

The Ordnance Survey mapping included in the maps provided by Merseyside BioBank under Sefton Council's licence from Ordnance Survey. These maps are provided to assist decision-makers in the effective and sustainable management of land, species and habitats. Ordnance Survey should be contacted directly if any of these maps are to be used in another document.

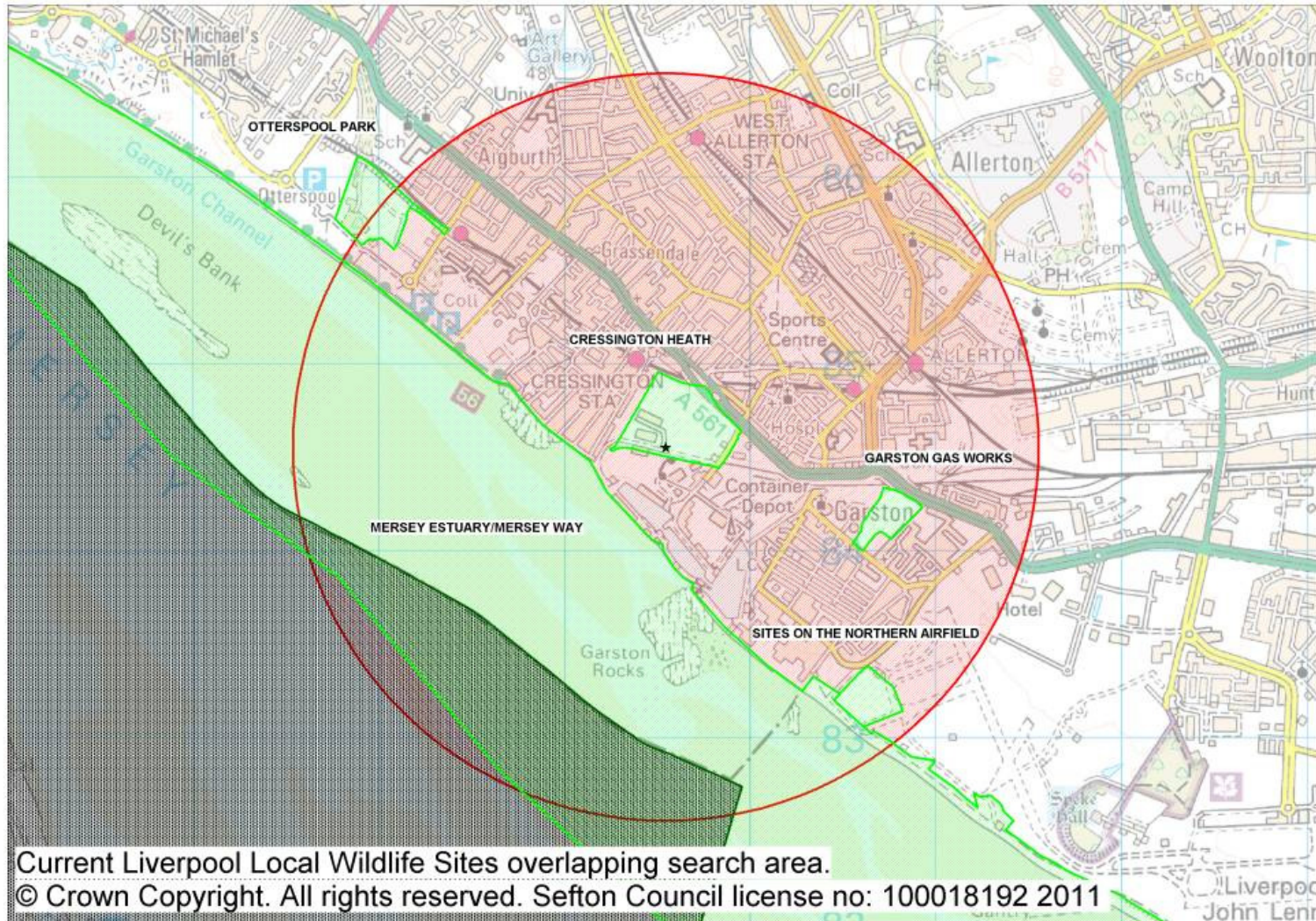
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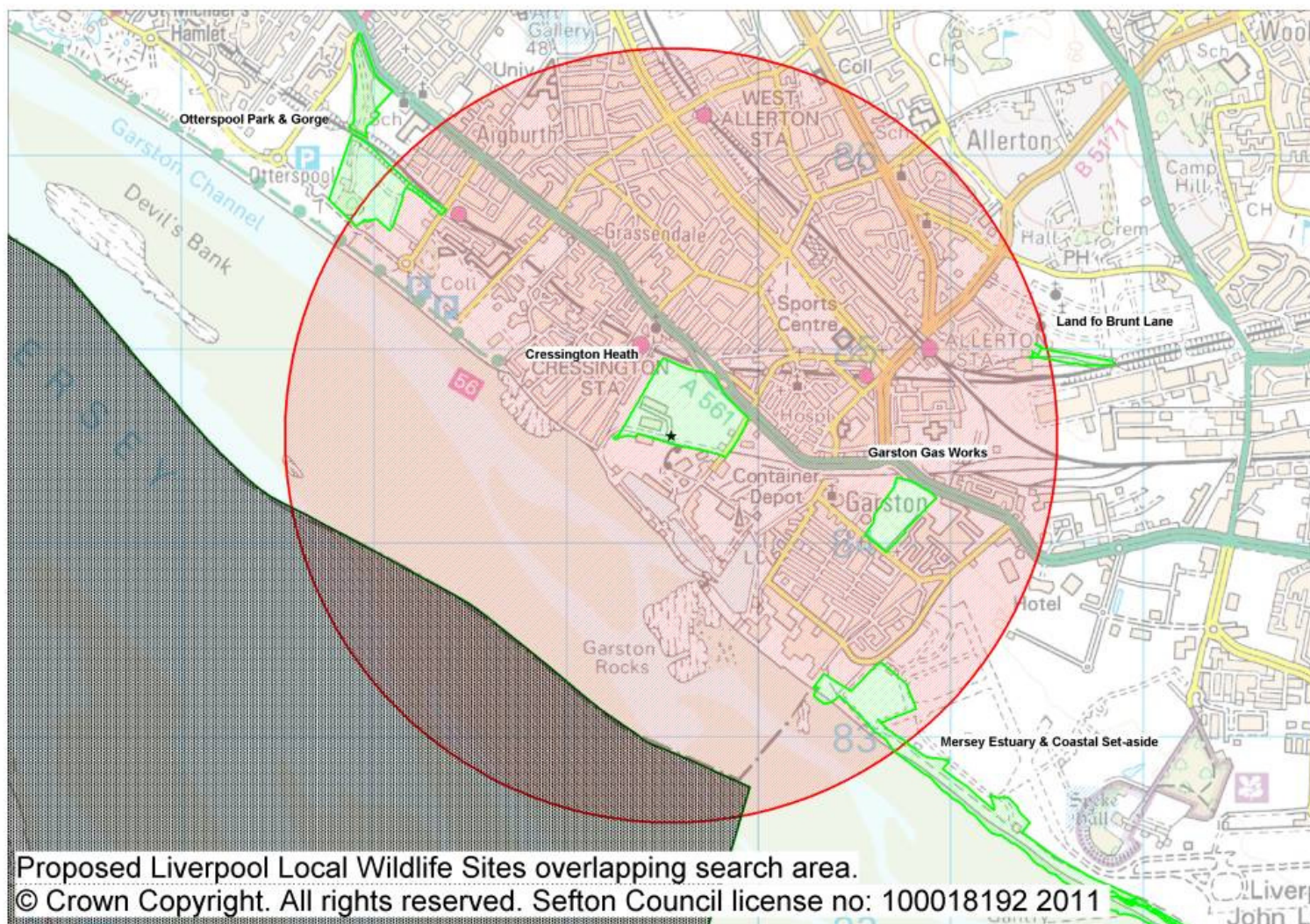
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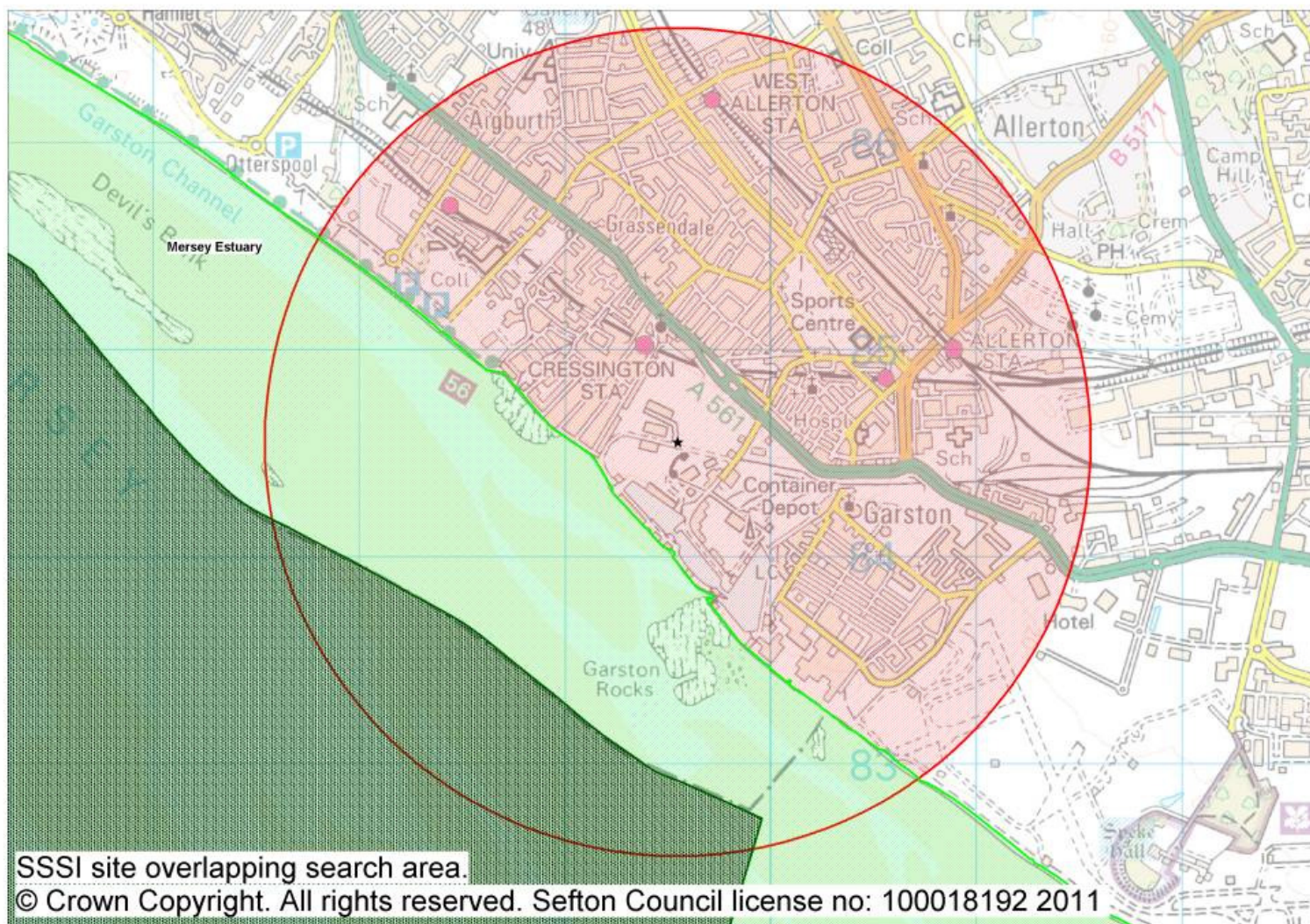
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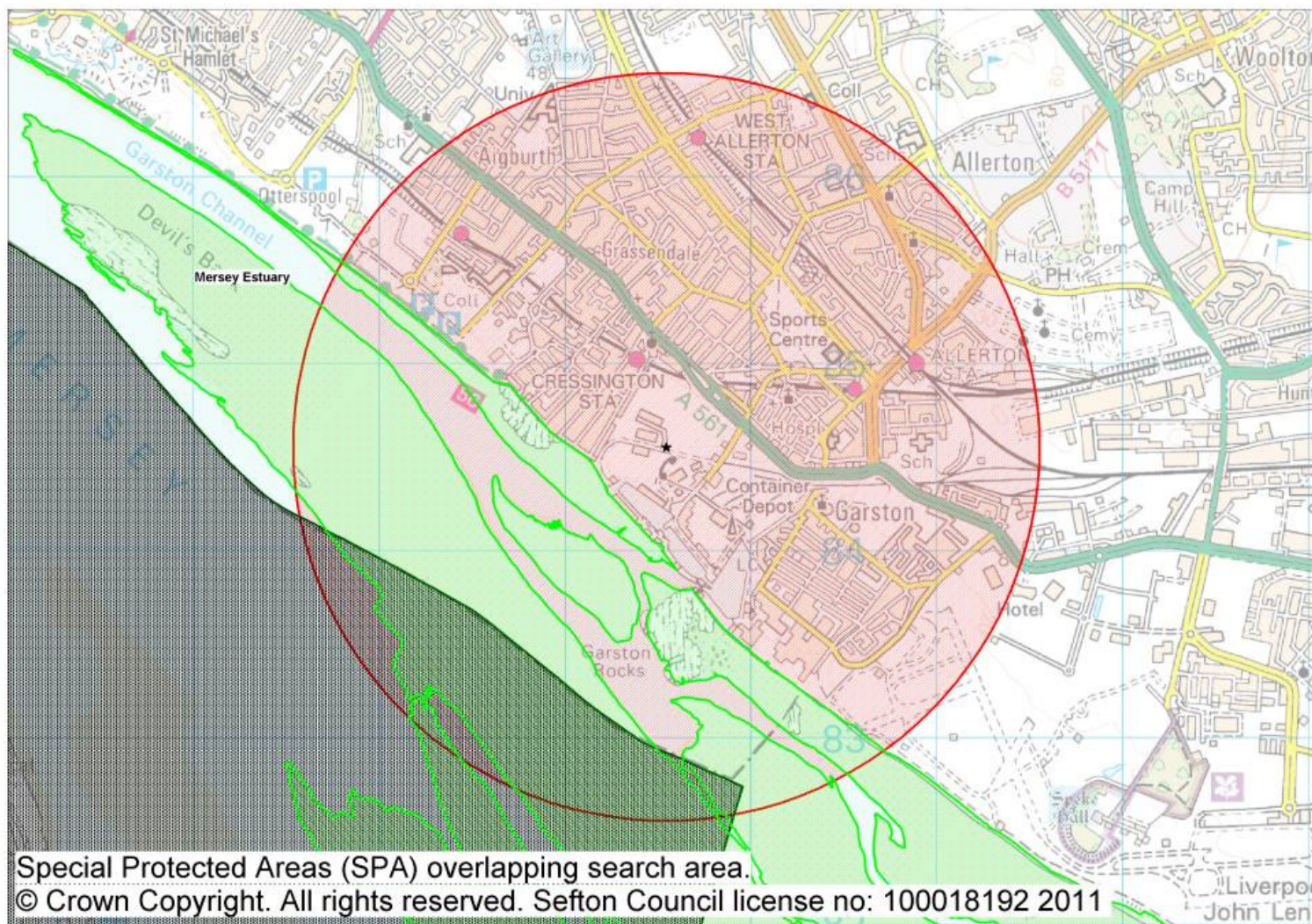
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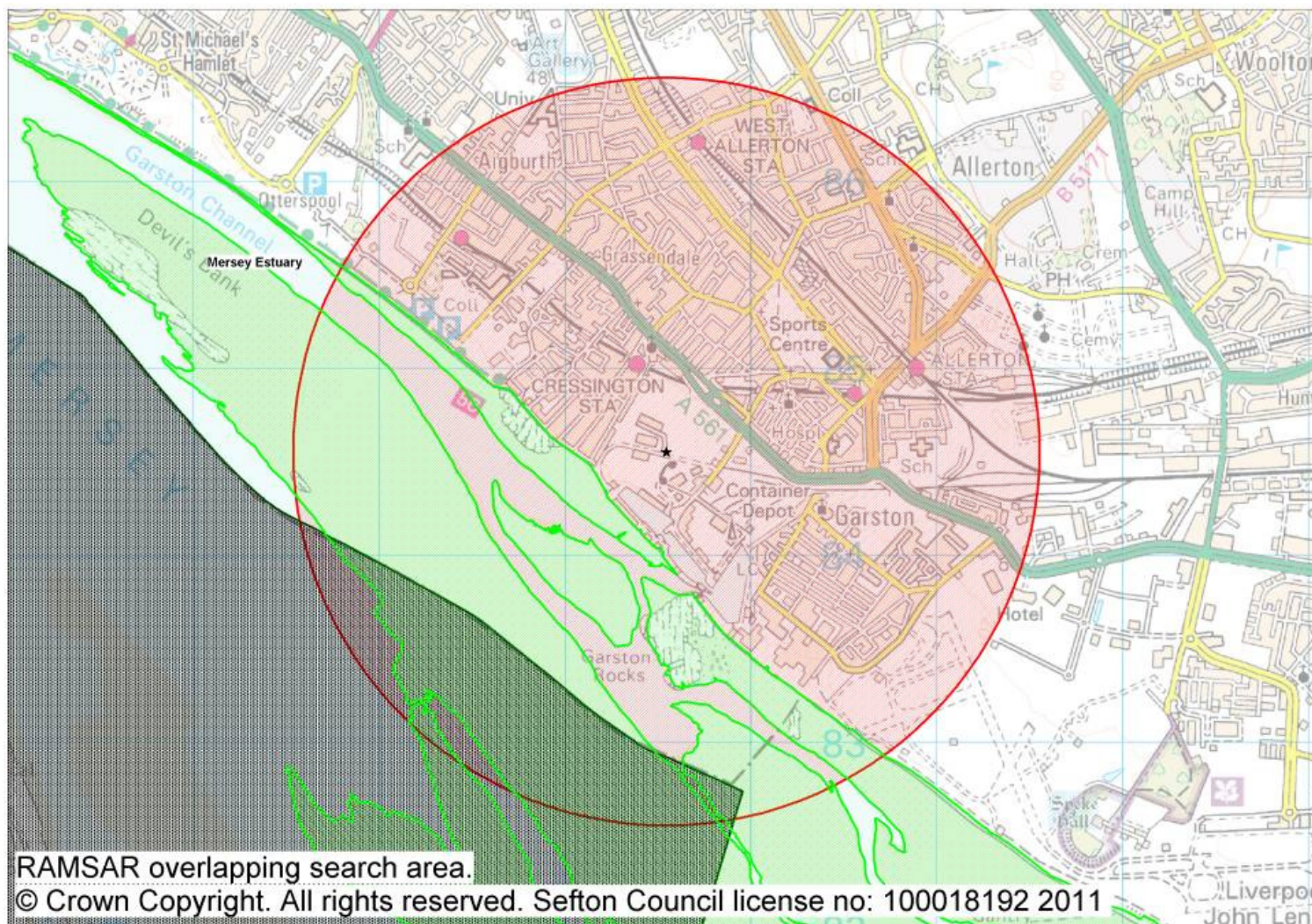
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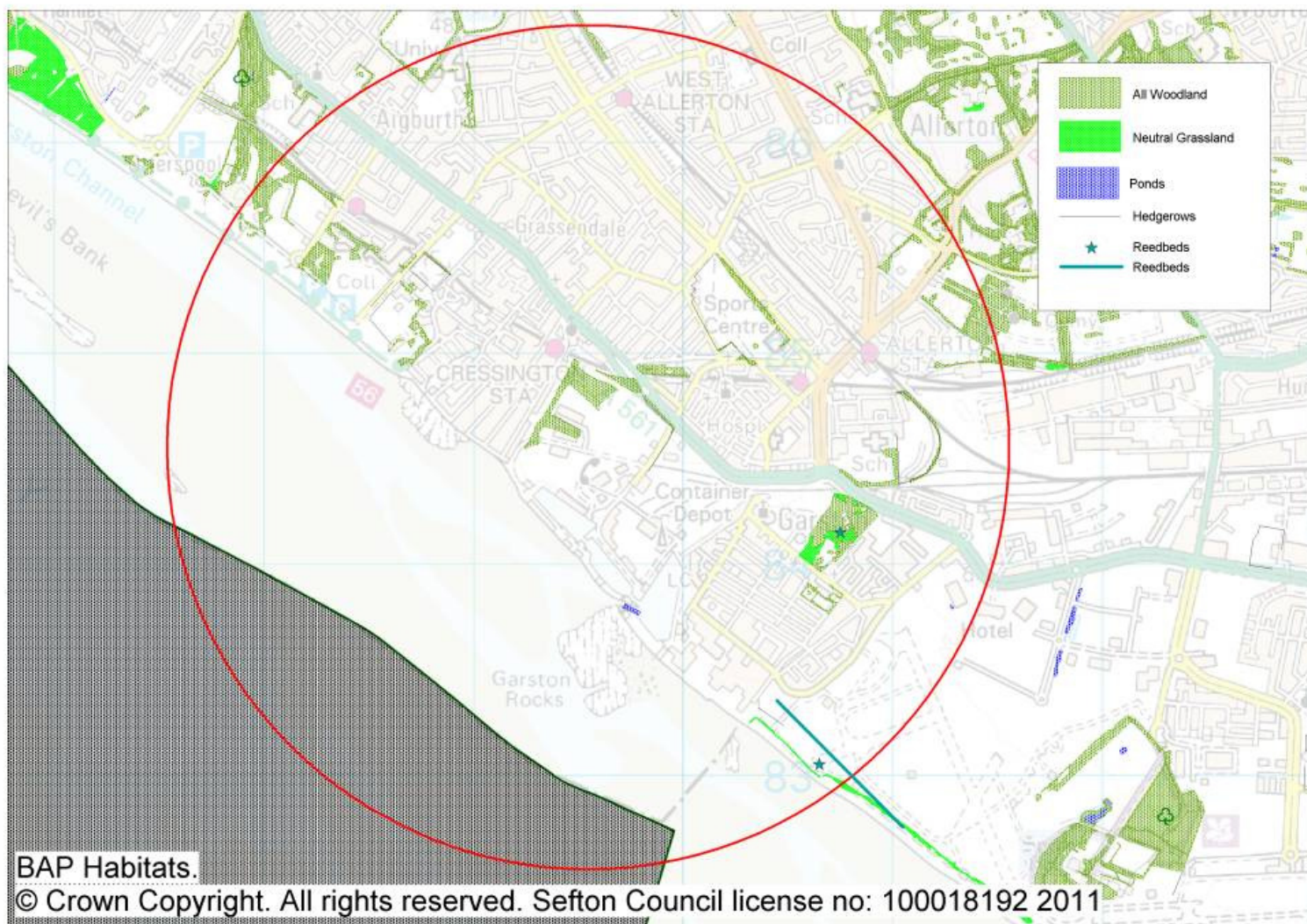
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APPENDIX TWO: NVC SURVEY

APPENDIX TWO: NVC SURVEY – DETAILED RESULTS AND ANALYSES

General

Survey took place on 18th July 2011 in wet and overcast conditions. The site was investigated using elements of both Phase 1 Habitat Survey (Phase 1) and National Vegetation Classification (NVC) methods, with particular emphasis being placed on the established grasslands and developing woodland.

Habitats

In Phase 1 Habitat Survey terms the site can be characterised as naturally regenerated broad-leaved woodland surrounded by a weedy version of modified neutral grassland with patches of both native and introduced scrub and small stands of tall ruderal herb.

The vegetation on site today is relatively recent in origin, establishing only after the extensive nineteenth century dockside and railway development here contracted to meet more modern commercial needs and practices. There are no signs of any active vegetation management here although the site has been greatly modified, mainly by tipping. The flat grassland of target note T02 area is the least tipped area, although there are some piles of sandstone from demolished buildings in evidence. There has been extensive tipping within the large area of scrub/woodland (target note T04 area) with mounds of demolition rubble, piles of road planings and other materials throughout the site. The scrub/woodland has developed through and on these piles. The most recent tipping has been within northern end of the western grassland strip (T05) where a brown granular material spreads over part of this area and into the north-western fringes of the T04 woodland. Other recent disturbance has been the creation of a low earth bank through area T01 and the tall bank (T03) raised along the eastern edge of the site, parallel to the boundary with the adjacent housing.

Woodland NVC

The largest habitat block is the T04 scrub woodland, sampled by five quadrats on 18th July 2011. These quadrats were selected to record vegetation samples representing, as much as possible, areas of homogeneous woodland habitat. These samples take the form of quadrats measuring 2 x 2m, nested within a 10 x 10m area of canopy. Within each quadrat all plant species present were recorded and an index of their relative cover abundance estimated, using the Domin scale of 1-10 (where 1 = few individuals, 2 = several localised individuals, 3 = individuals scattered throughout sample, 4 = 4 - 10%, 5 = 11 - 25%, 6 = 26 - 33%, 7 = 34 - 50%, 8 = 51 - 75%, 9 = 76 - 90% and 10 = 91 - 100% cover). Quadrat positions were mapped using a hand-held Garmin Etrex, with the point recorded on the map representing the south-western corner of each 2 x 2m sample.

Data from each of the 2 x 2m quadrats were analysed by sending the raw sample information from Plant Entry System v 2 (Michell, 2003) automatically to TABLEFIT Version 1.0 (Hill, 1996). This allows for comparison of the local vegetation data with the national dataset compiled for NVC-defined community types. The goodness-of-fit ratings generated by TABLEFIT give a guide to the similarity between local samples and nationally defined vegetation community types. The ratings indicating goodness of fit are as follows: 0 - 49 = "very poor", 50 - 59 = "poor", 60 - 69 = "fair", 70 - 79 = "good", 80 - 100 "very good".

Details of the 5 woodland quadrats recorded during the July 2011 fieldwork are presented as Appendix # of this report. Raw quadrat data is given, along with results of TABLEFIT analysis. The frequencies of each species within the quadrat dataset have been calculated to help match the locally "constant" species with those in the published NVC floristic tables. The results of TABLEFIT analysis are not accepted at face value, the community descriptions and floristic tables published in *Volume 1 of British Plant Communities: Woodlands and Scrub*, Rodwell, J. S. (1991) were consulted as well as field notes on community identification. Locations of the quadrats are mapped on drawing G3001.00#.

Progress through the woodland is generally difficult due to the combination of dense areas of bramble scrub and unstable mounds of tipped rubble and other materials. samples were spaced through as much of the woodland as possible with four quadrats (Q5, Q6, Q9 and Q10) in the main body of scrub/Woodland and Q7 in the southern extension. No typical woodland groundflora associations were recorded, mainly shade-affected and sparse mesotrophic grassland with varying amounts of bramble growth.

Despite the lack of any oak in the canopy TABLEFIT analysis of the five amalgamated samples indicates that the closest match to any nationally defined woodland type is to W16a, the oak sub-community of oak-birch-wavy hairgrass (*Quercus* spp.- *Betula* spp.- *Deschampsia flexuosa*) woodland, however the level of fit is very poor (see Appendix #) and equal to that of W24b, the false oat-grass-hogweed (*Arrhenatherum elatius*-*Heracleum sphondylium*) sub-community of bramble and Yorkshire fog underscrub (*Rubus fruticosus*-*Holcus lanatus*), reflecting the youth of this canopy developing over previously mesotrophic grassland. Looked at individually TABLEFIT analysis of two of the five quadrats (Q5 and Q9) indicates that the closest match is to W16a, but again at only very low levels of fit. The other three quadrats each indicate a low level of fit to W24 bramble scrub, reflecting the frequency of this species throughout the scrub/woodland.

Nationally W16 is a relatively species-poor woodland community generally occurring over acidic or very acidic ground conditions. In W16 generally oak and birch are the most frequent trees, either growing together or as a single-species canopy. In the soft and mainly neutral conditions at Garston W16a sub-community, dominated by oak, would be the W16 type expected to establish here; however it is doubtful if this community would indeed develop here if allowed to continue to establish. In reality the only real similarity between the site's woodland and W16a is the predominance of silver birch (*Betula pendula*); this is a typical pioneer species whose wind-blown seeds, along with those of willow species, are amongst the earliest to arrive at any site suitable for colonisation. In the NVC floristic table for W16a nationally there are only three constant species: silver birch, wavy hairgrass and bracken (*Pteridium aquilinum*). The local scrub woodland also has silver birch as a constant species, but along with four other species: bramble, false oat-grass, rough-stalked feather-moss (*Brachythecium rutabulum*) and red fescue (*Festuca rubra*). Given the neutral conditions in this part of the Garston site and the origin of the scrub/woodland development over a mesotrophic sward is not surprising that the vegetation does not closely resemble W16 nationally and that wavy hairgrass instead of being constant is totally absent and the other nationally constant species, bracken, is rare within the site. If allowed to grow to maturity it is most likely that some form of W10, oak-bracken-bramble woodland would eventually develop here.

Grassland NVC

Along the southern and western sides the main scrub/woodland block is edged by disturbed and often weedy mesotrophic grassland swards. In the south-eastern part of the site the flat area of least-disturbed sward (T02) is sampled by four quadrats (Q1, Q2, Q3, Q4), along the southern edge there is a narrow strip of sward (T01) whilst to the west there is a broader strip (T05) with a steep bank sloping down towards the concrete roadway along the western site boundary. This broad strip has areas of scrub and tall ruderal herbs but generally supports a dense mesotrophic sward. In the north-western corner Q8 samples this sward, to the north of an area of recent tipping. As with the woodland samples these quadrats attempt to record areas of homogeneous vegetation. The same standard NVC methods have been followed, recording samples 2 x 2m in extent.

From the five quadrats from two of the grassland swards the frequencies of each species within each community have been calculated to help match the locally constant plant species with those in the published NVC floristic tables. The results of TABLEFIT analysis have been compared with the national community descriptions and floristic tables published in *Volume 3 of British Plant Communities: Grasslands and montane communities*, Rodwell, J. S. (1992). Details of the five grassland plots recorded during on 18th July 2011 are presented in Appendix #, along with results of TABLEFIT analysis.

When the data from the five quadrats are amalgamated and the species and constancy details are analysed by TABLEFIT the results indicate that the vegetation community that the local swards most resemble is MC9c, the yarrow (*Achillea millefolium*) sub-community of red fescue-Yorkshire fog maritime grassland. Even though the site is close to the Mersey frontage this is most likely to be a spurious result, in common with many inland swards nationally keying out as this type. The existence of inland swards characterised by red fescue, Yorkshire fog and sweet vernal-grass (*Anthoxanthum odoratum*) was recognised in the Review of Coverage of the National Vegetation Classification (Rodwell J. S. *et al*, JNCC Report 302, July 2000). In this report an extra mesotrophic grassland community was described as being widely distributed throughout inland Britain. This sward is further described:

'Often species-poor and rank these swards have frequent red fescue, Yorkshire fog, sweet vernal-grass, smooth-stalked meadowgrass (*Poa pratensis*), cock's-foot (*Dactylis glomerata*), white clover (*Trifolium repens*), ribwort plantain (*Plantago lanceolata*), and mosses such as *Pseudoscleropodium purum* and *Rhytidiadelphus squarrosus*, but with little or no perennial ryegrass (*Lolium perenne*) and relatively few of the taller dicotyledons associated with meadows....This kind of grassland grades into younger stands of MG1 false oatgrass mesotrophic grassland....Of little intrinsic floristic value, this grassland is an important element of marginal agricultural landscapes in western Britain.'

Large parts of the sward recorded on site match this description very well, however no re-analysis of data for this type nationally has yet been published and there is no floristic table available for comparison.

However, the local sward is quite mixed and of the five quadrats two of them more resemble MG1a type rather than the recently (2000) described sward when analysed individually by TABLEFIT. MG1a is the red fescue sub-community of false oatgrass mesotrophic grassland and both Q3 and Q8 made a fair fit to this type. These two

quadrats sampled denser areas of sward, Q3 in the south-western corner of T02 area and Q8 in the northern part of T05. Nationally MG1a sub-community has only two constant species; false oatgrass and cock's-foot, the locally recorded sward (including quadrats Q1, Q2 and Q4) has three constants from this sample: red fescue, common bent and false oat-grass, but there is a great deal of overlap with 15 of the species recorded nationally from MG1a being included in the list of 21 species recorded from the five local quadrats. Despite the similarities it can be seen that the lack of cock's-foot and the high frequency of both red fescue and common bent make for a notable difference from MG1a for most of the sward. It is very likely that the sward would, given time, develop into MG1 type, if not overtaken by scrub/woodland development before then.

Along the eastern side of the site there are strips of bramble dominated vegetation and also dense development of buddleia and willow scrub. Parts of this can be described as W24 bramble-Yorkshire fog underscrub, but much of this disturbed strip supports vegetation not matching any recognised NVC types. Within this eastern banked area (T04) there is also much tall ruderal herb and weedy MG grassland swards. The most frequent ruderal vegetation type is OV24 type, nettle-goosegrass (*Urtica dioica*-*Galium aparine*) tall herb. In the western part of the site there is also some patchy W23 gorse (*Ulex europaeus*)-bramble scrub, amongst the T05 grassland.

Discussion

Overall the vegetation of this site is not remarkable with no species or habitats present that have any high ecological value in national or regional terms. However this site is relatively undisturbed and contains niches for small mammals, birds and invertebrates to find breeding and feeding sites, with much shelter in the scrub/woodland and a large seed source in the grassland swards.

Two plant species (wood reed-grass (*Calamagrostis epigijos*) and soft shield-fern (*Polystichum setiferum*)) are relatively scarce in the Liverpool context. However, neither of these species is nationally scarce nor has any national conservation designation.

Cressington Heath: Target Notes Report, 18 July 2011.

Target Note T01

Southern grassland strip separated from remainder of site by a low bank parallel to road along southern edge of site. The bank has more disturbed vegetation with a greater proportion of ruderal species than the roadside strip. Generally dominated by a mixed red fescue and common couch sward this strip has some scattered woody regeneration and a range of ruderal species. Along the kerb-line there are some elements of coastal vegetation surviving, with both sea-beet and reflexed saltmarsh grass growing along the gutter. These species are also found on the southern edge of the road.

<i>Festuca rubra</i>	Red Fescue	D
<i>Elytrigia repens</i>	Common Couch	A
<i>Artemisia vulgaris</i>	Mugwort	F
<i>Cirsium arvense</i>	Creeping Thistle	F
<i>Rubus fruticosus</i> agg.	Bramble	F
<i>Achillea millefolium</i>	Yarrow	O
<i>Anthriscus sylvestris</i>	Cow Parsley	O
<i>Chamerion angustifolium</i>	Rosebay Willowherb	O
<i>Linaria vulgaris</i>	Common Toadflax	O
<i>Silene latifolia</i>	White Campion	O
<i>Aster</i> sp.	Michaelmas-daisy species	R
<i>Beta vulgaris</i> ssp. <i>maritima</i>	Sea Beet	R
<i>Betula pendula</i>	Silver Birch	R
<i>Buddleja davidii</i>	Buddleia	R
<i>Centaurea nigra</i>	Knapweed	R
<i>Chenopodium rubrum</i>	Red Goosefoot	R
<i>Cirsium vulgare</i>	Spear Thistle	R
<i>Conyza canadensis</i>	Canadian Fleabane	R
<i>Epilobium hirsutum</i>	Great Willowherb	R
<i>Hypericum perforatum</i>	Perforate St John's-wort	R
<i>Hypochaeris radicata</i>	Common Cat's-ear	R
<i>Lactuca serriola</i>	Prickly Lettuce	R
<i>Plantago lanceolata</i>	Ribwort Plantain	R
<i>Puccinellia distans</i>	Reflexed Saltmarsh-grass	R
<i>Pyrus domestica</i>	Pear	R
<i>Reseda lutea</i>	Wild Mignonette	R
<i>Rumex crispus</i>	Curled Dock	R
<i>Senecio jacobaea</i>	Ragwort	R
<i>Senecio squalidus</i>	Oxford Ragwort	R
<i>Sonchus arvensis</i>	Perennial Sow-thistle	R
<i>Sonchus asper</i>	Prickly Sow-thistle	R
<i>Stachys sylvatica</i>	Hedge Woundwort	R
<i>Verbascum thapsus</i>	Common Mullein	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare (within the target note area).

Target Note T02

In the south-eastern part of the site, where scrub/woodland has not yet established and where it has not been affected by the construction of the embankment along the whole of the eastern site edge, a flat grassland area survives. This area has escaped most of the tipping that has taken place over much of the rest of the area and the established grassland sward has some scattered anthills.

To the south, the southern grassland strip is separated by a low bank running approximately east-west.

There is no current management and woody vegetation is gradually establishing within and around the edges of this mainly dense sward.

<i>Festuca rubra</i>	Red Fescue	D
<i>Achillea millefolium</i>	Yarrow	F
<i>Agrostis capillaris</i>	Common Bent	F
<i>Arrhenatherum elatius</i>	False Oat-grass	F
<i>Elytrigia repens</i>	Common Couch	F
<i>Centaurea nigra</i>	Knapweed	O
<i>Cerastium fontanum</i>	Common Mouse-ear	O
<i>Chamerion angustifolium</i>	Rosebay Willowherb	O
<i>Dactylis glomerata</i>	Cock's-foot	O
<i>Holcus lanatus</i>	Yorkshire-fog	O
<i>Hypericum perforatum</i>	Perforate St John's-wort	O
<i>Linaria vulgaris</i>	Common Toadflax	O
<i>Lolium perenne</i>	Ryegrass	O
<i>Lotus corniculatus</i>	Bird's-foot Trefoil	O
<i>Plantago lanceolata</i>	Ribwort Plantain	O
<i>Poa pratensis</i>	Smooth Meadow-grass	O
<i>Rubus fruticosus agg.</i>	Bramble	O
<i>Rumex crispus</i>	Curled Dock	O
<i>Vicia hirsuta</i>	Hairy Tare	O
<i>Vicia sativa</i>	Common Vetch	O
<i>Anthriscus sylvestris</i>	Cow Parsley	R
<i>Aster sp.</i>	Michaelmas-daisy species	R
<i>Centaureum erythraea</i>	Common Centaury	R
<i>Cirsium arvense</i>	Creeping Thistle	R
<i>Erigeron acer</i>	Blue Fleabane	R
<i>Hieracium sp.</i>	Hawkweed species	R
<i>Malva sylvestris</i>	Common Mallow	R
<i>Medicago lupulina</i>	Black Medick	R
<i>Quercus robur</i>	English Oak	R
<i>Rosa canina agg.</i>	Dog Rose	R
<i>Senecio jacobaea</i>	Ragwort	R
<i>Silene vulgaris</i>	Bladder Campion	R
<i>Tanacetum vulgare</i>	Tansy	R
<i>Tragopogon pratensis</i>	Goat's-beard	R
<i>Verbascum thapsus</i>	Common Mullein	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare (within the target note area).

Target Note T03

Along the eastern edge of the site, parallel with the boundary of the new housing to the east, a tall and steep-sided earth bank has been raised. Large parts of this are dominated by dense scrub, with much bramble and buddleia, the remainder is mainly a mix of tall coarse herbs and grasses, with nettles, couch, rosebay willowherb and ragwort. The valley between the eastern slope and the fenceline to the houses is mainly buddleia dominated and both this and the bank itself are totally impassable due to the density of unmanaged vegetation growth.

<i>Buddleja davidii</i>	Buddleia	A
<i>Rubus fruticosus agg.</i>	Bramble	A
<i>Urtica dioica</i>	Nettle	A
<i>Arrhenatherum elatius</i>	False Oat-grass	F
<i>Chamerion angustifolium</i>	Rosebay Willowherb	F
<i>Elytrigia repens</i>	Common Couch	F
<i>Holcus lanatus</i>	Yorkshire-fog	F

<i>Artemisia vulgaris</i>	Mugwort	O
<i>Calystegia silvatica</i>	Large Bindweed	O
<i>Cirsium vulgare</i>	Spear Thistle	O
<i>Heracleum sphondylium</i>	Hogweed	O
<i>Lathyrus pratensis</i>	Meadow Vetchling	O
<i>Senecio jacobaea</i>	Ragwort	O
<i>Salix cinerea</i>	Common Sallow	R
<i>Verbascum thapsus</i>	Common Mullein	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare (within the target note area).

Target Note T04

Most of the site is occupied by naturally regenerated scrub/woodland, dominated by silver birch. There is also frequent goat willow but other woody species are generally quite scarce, apart from the much lower growing bramble and buddleia.

Canopy cover is relatively recent over much of this area so no typical woodland groundflora community has yet developed. A few typical woodland species are present, such as wood avens, herb-Robert, wild strawberry and some ferns and mosses, but generally the flora below the canopy is shaded T02-type grassland.

There are some gaps in the canopy but all those reached were full of dense bramble with tall grass and herbs and appeared to be temporary features before the surrounding canopy develops and grows over them.

Large parts of the scrub/woodland in the north and east are impenetrable due to dense growth of bramble, coupled with frequent tipping of building rubble and road planings leading to uneven and unstable surfaces over much of the area.

<i>Betula pendula</i>	Silver Birch	D
<i>Rubus fruticosus agg.</i>	Bramble	A
<i>Brachythecium rutabulum</i>	Rough-stalked Feather-moss	F
<i>Buddleja davidii</i>	Buddleia	F
<i>Kindbergia praelonga</i>	Common Feather-moss	F
<i>Salix caprea</i>	Goat Willow	F
<i>Acer pseudoplatanus</i>	Sycamore	O
<i>Agrostis capillaris</i>	Common Bent	O
<i>Chamerion angustifolium</i>	Rosebay Willowherb	O
<i>Crataegus monogyna</i>	Hawthorn	O
<i>Dactylis glomerata</i>	Cock's-foot	O
<i>Equisetum arvense</i>	Field Horsetail	O
<i>Festuca rubra</i>	Red Fescue	O
<i>Galium aparine</i>	Cleavers	O
<i>Geranium robertianum</i>	Herb-Robert	O
<i>Sambucus nigra</i>	Elder	O
<i>Urtica dioica</i>	Nettle	O
<i>Anthriscus sylvestris</i>	Cow Parsley	R
<i>Calamagrostis epigejos</i>	Wood Small-reed	R
<i>Centaurea nigra</i>	Knapweed	R
<i>Dryopteris filix-mas</i>	Male-fern	R
<i>Epilobium montanum</i>	Broad-leaved Willowherb	R
<i>Fragaria vesca</i>	Wild Strawberry	R
<i>Fraxinus excelsior</i>	Ash	R
<i>Geum urbanum</i>	Wood Avens	R
<i>Hedera helix</i>	Ivy	R
<i>Heracleum sphondylium</i>	Hogweed	R
<i>Laburnum anagyroides</i>	Laburnum	R

<i>Lathyrus pratensis</i>	Meadow Vetchling	R
<i>Malus domestica</i>	Apple	R
<i>Polystichum setiferum</i>	Soft Shield-fern	R
<i>Potentilla reptans</i>	Creeping Cinquefoil	R
<i>Prunus avium</i>	Wild Cherry	R
<i>Pteridium aquilinum</i>	Bracken	R
<i>Pyrus domestica</i>	Pear	R
<i>Quercus robur</i>	English Oak	R
<i>Ribes rubrum</i>	Redcurrant	R
<i>Rosa canina</i> agg.	Dog Rose	R
<i>Rosa rugosa</i>	Japanese Rose	R
<i>Salix cinerea</i>	Common Sallow	R
<i>Senecio jacobaea</i>	Ragwort	R
<i>Solidago gigantea</i>	Early Goldenrod	R
<i>Sorbus aucuparia</i>	Mountain Ash	R
<i>Sorbus aucuparia</i>	Rowan	R
<i>Stachys sylvatica</i>	Hedge Woundwort	R
<i>Tussilago farfara</i>	Colt's-foot	R
<i>Ulex europaeus</i>	Gorse	R
<i>Ulmus glabra</i>	Wych Elm	R
<i>Vicia cracca</i>	Tufted Vetch	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare (within the target note area).

Target Note CHT05

Along the western side of the site, between the edge of the scrub/woodland and the concrete internal circulation road, there is a broad area of mixed neutral tall grass/herb with some scrub regeneration and some disturbed areas. This area has denser scrub development than the T02 established grassland and is marked by a tall bank sloping down westwards to the concrete access road.

The north-western part of the site is flatter and also more recently disturbed by tipping and passage of vehicles.

All of this part of the site has a high proportion of perennial and annual ruderal species, marking both past and recent disturbance.

<i>Arrhenatherum elatius</i>	False Oat-grass	A
<i>Rubus fruticosus</i> agg.	Bramble	A
<i>Ulex europaeus</i>	Gorse	A
<i>Festuca rubra</i>	Red Fescue	F
<i>Holcus lanatus</i>	Yorkshire-fog	F
<i>Plantago lanceolata</i>	Ribwort Plantain	F
<i>Achillea millefolium</i>	Yarrow	O
<i>Agrostis capillaris</i>	Common Bent	O
<i>Agrostis stolonifera</i>	Creeping Bent	O
<i>Artemisia vulgaris</i>	Mugwort	O
<i>Buddleja davidii</i>	Buddleia	O
<i>Capsella bursa-pastoris</i>	Shepherd's-purse	O
<i>Cerastium fontanum</i>	Common Mouse-ear	O
<i>Cirsium arvense</i>	Creeping Thistle	O
<i>Dactylis glomerata</i>	Cock's-foot	O
<i>Epilobium hirsutum</i>	Great Willowherb	O
<i>Galium aparine</i>	Cleavers	O
<i>Heracleum sphondylium</i>	Hogweed	O
<i>Hypericum perforatum</i>	Perforate St John's-wort	O
<i>Lactuca serriola</i>	Prickly Lettuce	O
<i>Linaria vulgaris</i>	Common Toadflax	O

<i>Lolium perenne</i>	Ryegrass	O
<i>Medicago lupulina</i>	Black Medick	O
<i>Melilotus altissimus</i>	Tall Melilot	O
<i>Reseda lutea</i>	Wild Mignonette	O
<i>Reseda luteola</i>	Weld	O
<i>Rumex crispus</i>	Curled Dock	O
<i>Senecio jacobaea</i>	Ragwort	O
<i>Silene latifolia</i>	White Campion	O
<i>Sisymbrium officinale</i>	Hedge Mustard	O
<i>Sonchus asper</i>	Prickly Sow-thistle	O
<i>Stachys sylvatica</i>	Hedge Woundwort	O
<i>Urtica dioica</i>	Nettle	O
<i>Acer pseudoplatanus</i>	Sycamore	R
<i>Atriplex prostrata</i>	Spear-leaved Orache	R
<i>Beta vulgaris ssp. maritima</i>	Sea Beet	R
<i>Brassica napus</i>	Rape	R
<i>Centaurea nigra</i>	Knapweed	R
<i>Chenopodium album</i>	Fat-hen	R
<i>Cirsium vulgare</i>	Spear Thistle	R
<i>Coronopus didymus</i>	Lesser Swine-cress	R
<i>Cotoneaster simonsii</i>	Himalayan Cotoneaster	R
<i>Dipsacus fullonum</i>	Teasel	R
<i>Fraxinus excelsior</i>	Ash	R
<i>Geranium molle</i>	Dove's-foot Cranesbill	R
<i>Matricaria discoidea</i>	Pineapple-weed	R
<i>Oenothera glazioviana</i>	Large-flowered Evening-primrose	R
<i>Papaver rhoeas</i>	Common Poppy	R
<i>Persicaria amphibia</i>	Amphibious Bistort	R
<i>Polygonum aviculare</i>	Knotgrass	R
<i>Pyrus domestica</i>	Pear	R
<i>Rumex obtusifolius</i>	Broad-leaved Dock	R
<i>Salix caprea</i>	Goat Willow	R
<i>Salix cinerea</i>	Common Sallow	R
<i>Silene vulgaris</i>	Bladder Campion	R
<i>Solidago gigantea</i>	Early Goldenrod	R
<i>Thlaspi arvense</i>	Field Pennycress	R
<i>Triticum aestivum</i>	Wheat	R
<i>Trifolium pratense</i>	Red Clover	R
<i>Tripleurospermum inodorum</i>	Scentless Mayweed	R
<i>Vicia cracca</i>	Tufted Vetch	R

D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare (within the target note area).

Target Note T06

To the west of the western concrete access road a similar disturbed neutral grass/herb mix to T05 area grows around the edges of the concrete access roads into and between the large sheds. This low mixed sward fringes tall areas of scrub dominated by a mix of buddleia and goat willow.

No plant species list recorded for this target note area.

Woodland:

Tablefit Output and Results Report

Species	Local Frequency	NVC W16a
<i>Betula pendula</i>	V	V
<i>Rubus fruticosus</i> agg.	V	II
<i>Arrhenatherum elatius</i>	IV	-
Bare Ground	IV	-
<i>Brachythecium rutabulum</i>	IV	-
<i>Festuca rubra</i>	IV	I
<i>Agrostis capillaris</i>	III	I
<i>Buddleja davidii</i>	III	-
<i>Galium aparine</i>	III	-
<i>Salix caprea</i>	III	-
<i>Acer pseudoplatanus</i>	II	I
<i>Dactylis glomerata</i>	II	-
<i>Epilobium montanum</i>	II	-
<i>Anthriscus sylvestris</i>	I	-
<i>Chamerion angustifolium</i>	I	I
<i>Crataegus monogyna</i>	I	I
<i>Fraxinus excelsior</i>	I	-
<i>Geranium robertianum</i>	I	-
<i>Heracleum sphondylium</i>	I	-
<i>Holcus lanatus</i>	I	II
<i>Malus domestica</i>	I	-
<i>Potentilla reptans</i>	I	-
<i>Pteridium aquilinum</i>	I	IV
<i>Salix cinerea</i>	I	-
<i>Sambucus nigra</i>	I	-

TableFit Output

W16a 34 | 50 24 51 74| Que spp-Bet spp-Des fle Quercus robur
 W24b 34 | 44 56 55 34| Rub fr-Hol la underscb Arr ela-Her sph
 W24 32 | 63 56 28 28| Rub fr-Hol la underscb
 MG 1a 24 | 63 44 11 24| Arrhenatherum elatius Festuca rubra

Grassland:

Tablefit Output and Results Report

Site	Local Frequency	NVC MG1a
Festuca rubra	V	III
Agrostis capillaris	IV	I
Arrhenatherum elatius	IV	V
Holcus lanatus	III	II
Lotus corniculatus	III	I
Achillea millefolium	II	II
Dactylis glomerata	II	IV
Elytrigia repens	II	II
Plantago lanceolata	II	III
Rubus fruticosus agg.	II	II
Tragopogon pratensis	II	-
Vicia hirsuta	II	-
Chamerion angustifolium	I	I
Hypericum perforatum	I	I
Linaria vulgaris	I	-
Medicago lupulina	I	-
Persicaria amphibia	I	-
Quercus robur	I	-
Senecio jacobaea	I	I
Trifolium pratense	I	I
Vicia sativa	I	II

TableFit Output

MC 9c 48 | 41 60 64 81| Fest rubra-Holcu lanat Achill millef
 SM16d 48 | 42 21 96 72| Juncus gerardii Festuca rubra
 W24b 44 | 37 57 60 86| Rub fr-Hol la underscb Arr ela-Her sph
 MC 8a 44 | 46 20 89 65| Fest rubra-Armer marit Typical

Cressington Heath Development phase 2: whole-site plant species list, 18 July 2011.

<i>Acer pseudoplatanus</i>	Sycamore
<i>Achillea millefolium</i>	Yarrow
<i>Agrostis capillaris</i>	Common Bent
<i>Anthriscus sylvestris</i>	Cow Parsley
<i>Arrhenatherum elatius</i>	False Oat-grass
<i>Artemisia vulgaris</i>	Mugwort
<i>Aster sp.</i>	Michaelmas-daisy species
<i>Atriplex prostrata</i>	Spear-leaved Orache
<i>Beta vulgaris ssp. maritima</i>	Sea Beet
<i>Betula pendula</i>	Silver Birch
<i>Brachythecium rutabulum</i>	Rough-stalked Feather-moss
<i>Brassica napus</i>	Rape
<i>Buddleja davidii</i>	Buddleia
<i>Calamagrostis epigejos</i>	Wood Small-reed
<i>Calystegia silvatica</i>	Large Bindweed
<i>Capsella bursa-pastoris</i>	Shepherd's-purse
<i>Centaurea nigra</i>	Knapweed
<i>Centaureum erythraea</i>	Common Centaury
<i>Cerastium fontanum</i>	Common Mouse-ear
<i>Chamerion angustifolium</i>	Rosebay Willowherb
<i>Chenopodium album</i>	Fat-hen
<i>Chenopodium rubrum</i>	Red Goosefoot
<i>Cirsium arvense</i>	Creeping Thistle
<i>Cirsium vulgare</i>	Spear Thistle
<i>Conyza canadensis</i>	Canadian Fleabane
<i>Coronopus didymus</i>	Lesser Swine-cress
<i>Cotoneaster simonsii</i>	Himalayan Cotoneaster
<i>Crataegus monogyna</i>	Hawthorn
<i>Dactylis glomerata</i>	Cock's-foot
<i>Dipsacus fullonum</i>	Teasel
<i>Dryopteris filix-mas</i>	Male-fern
<i>Elytrigia repens</i>	Common Couch
<i>Epilobium hirsutum</i>	Great Willowherb
<i>Epilobium montanum</i>	Broad-leaved Willowherb
<i>Equisetum arvense</i>	Field Horsetail
<i>Erigeron acer</i>	Blue Fleabane
<i>Festuca rubra</i>	Red Fescue
<i>Fragaria vesca</i>	Wild Strawberry
<i>Fraxinus excelsior</i>	Ash
<i>Galium aparine</i>	Cleavers
<i>Geranium molle</i>	Dove's-foot Cranesbill
<i>Geranium robertianum</i>	Herb-Robert
<i>Geum urbanum</i>	Wood Avens
<i>Hedera helix</i>	Ivy
<i>Heracleum sphondylium</i>	Hogweed
<i>Hieracium sp.</i>	Hawkweed species
<i>Holcus lanatus</i>	Yorkshire-fog
<i>Hypericum perforatum</i>	Perforate St John's-wort

<i>Hypochaeris radicata</i>	Common Cat's-ear
<i>Kindbergia praelonga</i>	Common Feather-moss
<i>Laburnum anagyroides</i>	Laburnum
<i>Lactuca serriola</i>	Prickly Lettuce
<i>Lathyrus pratensis</i>	Meadow Vetchling
<i>Linaria vulgaris</i>	Common Toadflax
<i>Lolium perenne</i>	Ryegrass
<i>Lotus corniculatus</i>	Bird's-foot Trefoil
<i>Malus domestica</i>	Apple
<i>Malva sylvestris</i>	Common Mallow
<i>Matricaria discoidea</i>	Pineapple-weed
<i>Medicago lupulina</i>	Black Medick
<i>Melilotus altissimus</i>	Tall Melilot
<i>Oenothera glazioviana</i>	Large-flowered Evening-primrose
<i>Papaver rhoeas</i>	Common Poppy
<i>Persicaria amphibia</i>	Amphibious Bistort
<i>Plantago lanceolata</i>	Ribwort Plantain
<i>Poa pratensis</i>	Smooth Meadow-grass
<i>Polygonum aviculare</i>	Knotgrass
<i>Polystichum setiferum</i>	Soft Shield-fern
<i>Potentilla reptans</i>	Creeping Cinquefoil
<i>Prunus avium</i>	Wild Cherry
<i>Pteridium aquilinum</i>	Bracken
<i>Puccinellia distans</i>	Reflexed Saltmarsh-grass
<i>Pyrus domestica</i>	Pear
<i>Quercus robur</i>	English Oak
<i>Reseda lutea</i>	Wild Mignonette
<i>Reseda luteola</i>	Weld
<i>Ribes rubrum</i>	Redcurrant
<i>Rosa canina</i> agg.	Dog Rose
<i>Rosa rugosa</i>	Japanese Rose
<i>Rubus fruticosus</i> agg.	Bramble
<i>Rumex crispus</i>	Curled Dock
<i>Rumex obtusifolius</i>	Broad-leaved Dock
<i>Salix caprea</i>	Goat Willow
<i>Salix cinerea</i>	Common Sallow
<i>Sambucus nigra</i>	Elder
<i>Senecio jacobaea</i>	Ragwort
<i>Senecio squalidus</i>	Oxford Ragwort
<i>Silene latifolia</i>	White Campion
<i>Silene vulgaris</i>	Bladder Campion
<i>Sisymbrium officinale</i>	Hedge Mustard
<i>Solidago gigantea</i>	Early Goldenrod
<i>Sonchus arvensis</i>	Perennial Sow-thistle
<i>Sonchus asper</i>	Prickly Sow-thistle
<i>Sorbus aucuparia</i>	Rowan
<i>Stachys sylvatica</i>	Hedge Woundwort
<i>Tanacetum vulgare</i>	Tansy
<i>Thlaspi arvense</i>	Field Pennycress
<i>Tragopogon pratensis</i>	Goat's-beard
<i>Tricicum aestivum</i>	Wheat
<i>Trifolium pratense</i>	Red Clover
<i>Tripleurospermum inodorum</i>	Scentless Mayweed

<i>Tussilago farfara</i>	Colt's-foot
<i>Ulex europaeus</i>	Gorse
<i>Ulmus glabra</i>	Wych Elm
<i>Urtica dioica</i>	Nettle
<i>Verbascum thapsus</i>	Common Mullein
<i>Vicia cracca</i>	Tufted Vetch
<i>Vicia hirsuta</i>	Hairy Tare
<i>Vicia sativa</i>	Common Vetch

Cressington Heath: Quadrats, 18 July 2011

Q01

<i>Festuca rubra</i>	7
<i>Elytrigia repens</i>	5
<i>Achillea millefolium</i>	4
<i>Lotus corniculatus</i>	4
<i>Plantago lanceolata</i>	4
<i>Agrostis capillaris</i>	3
<i>Arrhenatherum elatius</i>	3
<i>Holcus lanatus</i>	3
<i>Hypericum perforatum</i>	2
<i>Linaria vulgaris</i>	2
<i>Chamerion angustifolium</i>	1
<i>Rubus fruticosus</i> agg.	1
<i>Senecio jacobaea</i>	1
<i>Tragopogon pratensis</i>	1
<i>Vicia sativa</i>	1

MC 9c 66 | 63 51 94 78| Fest rubra-Holcu lanat Achill millef
 MC 9d 49 | 54 38 75 64| Fest rubra-Holcu lanat Primul vulgar
 MC 9 48 | 70 44 57 67| Fest rubra-Holcu lanat
 SD 8a 47 | 61 37 64 68| Fest rubra-Galium verum Typical
 MG 5b 44 | 44 61 52 85| Cynos cris-Centaur nigr Galium verum

Q02

<i>Festuca rubra</i>	7
<i>Agrostis capillaris</i>	5
<i>Achillea millefolium</i>	4
<i>Vicia hirsuta</i>	4
<i>Dactylis glomerata</i>	2
<i>Lotus corniculatus</i>	2

MC 9c 58 | 46 94 73 81| Fest rubra-Holcu lanat Achill millef
 MC11 51 | 57 65 66 55| Fest rubra-Daucus carot
 U 4b 45 | 37 84 55 83| Fes ovi-Agr cap-Gal sax Hol lan-Tri rep
 MC11c 42 | 42 74 52 60| Fest rubra-Daucus carot Sanguis minor
 SM16d 42 | 42 30 96 51| Juncus gerardii Festuca rubra

Q03

<i>Elytrigia repens</i>	4
<i>Festuca rubra</i>	7
<i>Arrhenatherum elatius</i>	6
<i>Vicia hirsuta</i>	3
<i>Quercus robur</i>	1

MG 1a 67 | 50 73 87 90| Arrhenatherum elatius Festuca rubra
 MG 1 50 | 32 66 74 79| Arrhenatherum elatius
 W24b 47 | 24 63 74 93| Rub fr-Hol la underscb Arr ela-Her sph
 SM16d 44 | 42 36 96 52| Juncus gerardii Festuca rubra
 SM28 43 | 52 57 47 68| Elym repens salt-marsh

Q04

Festuca rubra	8
Agrostis capillaris	5
Dactylis glomerata	3
Lotus corniculatus	3
Arrhenatherum elatius	2
Holcus lanatus	2
Rubus fruticosus agg.	1
Tragopogon pratensis	1

MC 9c 59 | 46 70 76 91| Fest rubra-Holcu lanat Achill millef
 MC11 56 | 57 48 74 79| Fest rubra-Daucus carot
 W24b 51 | 51 83 54 80| Rub fr-Hol la underscb Arr ela-Her sph
 MC 9d 48 | 44 57 64 77| Fest rubra-Holcu lanat Primul vulgar
 MC 8d 48 | 64 51 51 71| Fest rubra-Armer marit Holcus lanatus

Q05

Betula pendula, Canopy	8
Salix caprea, Canopy	5
Festuca rubra	4
Agrostis capillaris	3
Brachythecium rutabulum	3
Rubus fruticosus agg.	3
Geranium robertianum	2
Fraxinus excelsior	1

W16a 31 | 42 23 51 64| Que spp-Bet spp-Des fle Quercus robur
 W16 19 | 38 20 32 53| Que spp-Bet spp-Des fle
 W23a 17 | 40 44 18 22| Ulex euro-Rub fr scrub Anthox odorat
 W10a 17 | 40 32 18 46| Que rob-Pte aqu-Rub fru Typical
 W24b 17 | 24 35 51 22| Rub fr-Hol la underscb Arr ela-Her sph

Q06

Betula pendula, Canopy	8
Festuca rubra	7
Agrostis capillaris	5
Acer pseudoplatanus, Canopy	4
Arrhenatherum elatius	4
Rubus fruticosus agg.	4
Brachythecium rutabulum	2
Dactylis glomerata	2
Galium aparine	2
Holcus lanatus	2
Potentilla reptans	2

W24b 58 | 62 67 97 50| Rub fr-Hol la underscb Arr ela-Her sph
 W24 44 | 79 66 38 31| Rub fr-Hol la underscb
 MG 1a 42 | 85 53 39 37| Arrhenatherum elatius Festuca rubra
 MG 1 37 | 69 60 31 31| Arrhenatherum elatius
 W24a 33 | 69 58 28 18| Rub fr-Hol la underscb Cir arv-Cir vul

Q07

Betula pendula, Canopy	7
Agrostis capillaris	6
Festuca rubra	6
Arrhenatherum elatius	4
Rubus fruticosus agg.	4
Salix caprea, Canopy	4
Anthriscus sylvestris	1
Buddleja davidii, Understorey	1

W24b 43 | 38 55 93 45| Rub fr-Hol la underscb Arr ela-Her sph
 MG 1a 31 | 58 46 37 35| Arrhenatherum elatius Festuca rubra
 U 1f 31 | 38 28 98 33| Fes ovi-Agr cap-Rum acl Hypoch radicata
 W23a 28 | 40 44 39 48| Ulex euro-Rub fr scrub Anthox odorat
 W24 27 | 49 49 33 29| Rub fr-Hol la underscb

Q08

Festuca rubra	7
Agrostis capillaris	6
Arrhenatherum elatius	6
Holcus lanatus	3
Persicaria amphibia	3
Medicago lupulina	2
Plantago lanceolata	2
Trifolium pratense	2

MG 1a 63 | 65 59 88 67| Arrhenatherum elatius Festuca rubra
 MG 1 56 | 54 70 77 61| Arrhenatherum elatius
 U 1f 52 | 62 52 98 44| Fes ovi-Agr cap-Rum acl Hypoch radicata
 U 4b 48 | 43 73 62 69| Fes ovi-Agr cap-Gal sax Hol lan-Tri rep
 MC 9e 47 | 47 65 59 68| Fest rubra-Holcu lanat Anthox odorat

Q09

Betula pendula, Canopy	9
Rubus fruticosus agg.	5
Buddleja davidii, Understorey	4
Pteridium aquilinum	4
Brachythecium rutabulum	3
Arrhenatherum elatius	2
Dactylis glomerata	2
Epilobium montanum	2
Festuca rubra	2
Acer pseudoplatanus,	1
Crataegus monogyna,	1
Galium aparine	1
Malus domestica, Understorey	1

W16a 45 | 69 24 65 82| Que spp-Bet spp-Des fle Quercus robur
 W10a 41 | 72 38 43 74| Que rob-Pte aqu-Rub fru Typical
 W24 36 | 72 48 47 26| Rub fr-Hol la underscb
 W10 33 | 63 32 41 58| Que rob-Pte aqu-Rub fru
 W10d 32 | 66 23 45 64| Que rob-Pte aqu-Rub fru Holcus lanatus

Q10

Betula pendula, Canopy	8
Brachythecium rutabulum	6
Rubus fruticosus agg.	4
Salix caprea, Canopy	4
Buddleja davidii, Understorey	3
Arrhenatherum elatius	2
Chamerion angustifolium	2
Epilobium montanum	2
Galium aparine	2
Heracleum sphondylium	2
Betula pendula, Understorey	1
Salix cinerea	1
Sambucus nigra	1

DRAWING G3001.001 (21/7/11)



Survey by Peter Gately MIEEM
18/07/2011

Key

NVC Community

- Developing W16 woodland
- W24
- W23
- Buddleia / Willow scrub
- MG Grassland
- Tall herb OV communities
- Bare ground
- Tree
- Scrub
- Quadrat
- Target Notes (TN1 - TN6)

Bpe Betula pendula
Ce Calamagrostis epigejos
Cm Crataegus monogyna
Py Pysus sp(p)
Rosc Rosa canina
Sxc Salix caprea
Sxci Salix cinerea



Topographical base provided by client



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Project:

Cressington Heath Phase 2

Title:

National Vegetation
Classification Map

Map No.

G3001.001

Scale:

1:1,000 @ A4

Date:

21/07/11

Drawn:

AP

Checked:

FBH

Approved:

FBH