

**Extended Phase 1 Habitat  
Survey of Central Park,  
Plymouth**



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## **NON-TECHNICAL SUMMARY**

Andrew McCarthy Associates Limited undertook an 'extended' Phase 1 Habitat Survey of the Central Park, Plymouth on 19 December 2006, with further survey to update and assess the botanical value of the site on 30 May 2007

The site comprised a large public park surrounded by urban habitats. Habitats within the site included amenity grassland, mature scattered trees, plantation woodland, scrub, standing water, hedgebanks, allotments, ornamental planting and various buildings and structures.

A number of mature trees are potentially suitable for roosting bats and the hedgebanks and grassland may be used by foraging and commuting bats. The desk study indicates that at least five species of bats have been recorded with 4km of the site. As all British bats are protected under European legislation and the presence of roosts may present a constraint to re-development; any development affecting a European protected species will require a licence from the appropriate authority (Natural England) before site works commence.

The hedgerows, scrub, and woodland provides habitat suitable to support the European protected species Dormouse, Should Dormouse be present, development affecting this species would require a development licence from Natural England prior to works. The woodland and hedgerows also afford excellent habitat for breeding passerine bird species. Any operations that may disturb nesting habitat, such as works affecting trees or shrubs, should be undertaken outside the breeding season, or checks for nesting birds should be undertaken immediately prior to removal of the habitat.

Suitable breeding and terrestrial habitat for Great crested newt (a European Protected Species) is present within the survey area. Consultation with Natural England has negated the requirements for further survey.

Suitable reptile habitat including scrub and hedgebanks is present across the site. Should this habitat be impacted by the proposals, a reptile presence/absence survey would be required. Large populations of reptiles may require trapping and translocation prior to development but this would require prior consultation with Natural England.

Botanical species of conservation concern including Bluebells and Primrose, a Devon Biodiversity Action Plan Species were present within the site, within the woodland and hedgebanks. These may require translocation if impacted by any development. Additionally, several of the hedgebanks may qualify as 'Important' under the Hedgerow Regulations 1997.

Recommendations are made for specialist survey of bats, dormouse and reptiles prior to determination of impacts and development of a mitigation strategy.

Suggestion to improve the ecological value of the park include altering management of the grasslands to allow a long sward to develop, planting flower-rich meadows, increasing the number of ponds within the park and erecting bat and bird boxes.

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**1. INTRODUCTION**

**Background**

- 1.1 Andrew McCarthy Associates Ltd was commissioned by Plymouth City Council to undertake an 'Extended' Phase 1 Habitat Survey of Central Park, Plymouth (central OS Grid Reference SX 088 275). In addition to the Phase 1 habitat mapping, the survey aimed to identify habitats that may support protected species and to search for evidence of such species. The results of the survey were used to recommend further surveys where necessary and to highlight opportunities to enhance the ecological value of the park.
- 1.2 Plymouth City Council proposes to develop some areas of Central Park, including development of a new recreational and leisure facility to replace the existing facilities located close to the football ground, improvements to the parkland spaces, such as new footpaths and a limited amount of new housing to the south of the park.

## 2. METHODS

### Desk Study

2.1 A number of organisations were contacted for archive data on protected sites and species within 2km of the Park boundary (4km for bats). These included:

- Devon Biodiversity Records Centre (DBRC)
- Devon Birds (formerly Devon Bird Watching & Preservation Society)
- Devon Bat Group
- Plymouth City Council Nature Conservation Officer

The results of the data search are summarised in Section 3.

### Field Survey

#### Extended Phase 1 Habitat Survey

2.2 An 'Extended' Phase 1 Habitat Survey, as described in the Handbook for Phase 1 Habitat Survey (JNCC, 1993) and IEA (1995) was undertaken at the site on 19 December 2006. This survey followed the same general approach as conventional Phase 1 methodology, but with greater emphasis being placed on recording evidence of protected species and species of conservation concern (including local Biodiversity Action Plan species), as well as identification of features and habitats capable of supporting such species.

2.3 Features and habitats requiring more detailed survey at specific times of year were identified, for example, habitats with potential botanical or for protected species interest, and, where deemed appropriate, further specialist surveys have been recommended together with seasonal survey constraints.

2.4 The site was revisited on 30 May 2007 in order to complete a botanical appraisal of the habitats at a more suitable time of year. This consisted of targeting areas of botanical interest including less improved and managed grassland, woodland and hedgebanks.

2.5 The results of the Phase 1 Habitat Survey are presented in the form of a colour-coded, digitised plan (Figure 1, Appendix 1), with 'Target Note' locations marked. Target Notes comprise more detailed information on selected features of ecological interest, for example species-rich hedgerows, mature trees worthy of retention and habitat of potential value to protected species (see Table 1, Appendix 2).

### Limitations

2.6 Regular cutting of areas of the grassland prevented a full botanical audit to occur however, it is unlikely that any species of conservation concern were missed.

### Quality Assurance and Environmental Management

2.7 All ecologists employed by Andrew McCarthy Associates Limited are members of, or are under application for, membership of the Institute of Ecology and Environmental Management (IEEM) and follow the Institute's code of professional conduct when undertaking ecological work.

### 3. RESULTS

#### Desk Study

##### Protected Sites

- 3.1 A number of statutory and non-statutory designated sites are present within 2km of the Central Park boundary. These are as follows:

##### *Statutory Protected Sites*

- Plymouth Sound & Estuaries SAC
- Richmond Walk SSSI

These sites are highly unlikely to be affected by the development proposals due to their relatively distant location from Central Park.

##### *Non-Statutory Designated Sites*

- 3.2 Ford Park Cemetery, adjacent to the survey area is included within the Plymouth Biodiversity Network. The Biodiversity Network includes statutory and non-statutory sites, as well as wildlife corridors, green space and areas that buffer or link the statutory sites, to form a network. Ford Park Cemetery is classified as a site that is useful green space. DBRC report that the site comprised semi-improved neutral grassland in 1994.

##### Protected Species

- 3.3 A number of protected species have been recorded in the vicinity of the site.

##### *Bats*

- At least five species have been recorded within 4km including roosts sites of common pipistrelle *Pipistrellus pipistrellus*, greater horseshoe *Rhinolophus ferrumequinum* (hibernation roost) and lesser horseshoe *R. hipposideros* (hibernation roost), and incidental records of Daubenton's *Myotis Daubentonii* and serotine *Eptesicus serotinus*.

##### *Badger*

- There is one record of badger *Meles meles*, along the A38 within 2km of the site.

##### *Birds*

- A number of species of conservation concern have been recorded within 2km including specially protected species listed on Schedule 1 of the Wildlife and Countryside Act 1981, as amended, species listed in the UK Biodiversity Action Plan and on the UK Birds of Conservation Concern Red and Amber Lists (Gregory *et al.* 2002). Species of highest conservation concern included peregrine *Falco peregrinus*, skylark *Alauda arvensis*, fieldfare *Turdus pilaris*, song thrush *Turdus philomelos* (recorded within the survey area), willow warbler *Phylloscopus trochilus*, starling *Sturnus vulgaris*, linnet *Carduelis cannabina* and bullfinch *Pyrrhula pyrrhula* (recorded within the survey area).

*Amphibians*

- One rather old (1984) record of great crested newt *Triturus cristatus* (a European protected species) was returned from Eggbuckland School approximately 1.5km east of the site. However, after consultation with Natural England (J Diamond, pers. comm..) this species has been scoped out as it does not typically occur in West Devon, and the isolated geographical location of Central Park for the past 100 years further diminishes the chance of its occurrence here. Palmate newt *Triturus helveticus* and common frog *Rana temporaria* have both been recorded within Central Park, and common toad *Bufo bufo* was recorded approximately 1.5km to the east of the survey area.

*Reptiles*

- Slow worm *Anguis fragilis* has been recorded immediately adjacent to the survey boundary in Ford Park Cemetery (S Geary, pers. comm.) and common lizard *Lacerta vivipara* has been recorded within 2km of the site.

*Invertebrates*

- Great green bush cricket *Tettigonia viridissima*, a Devon Biodiversity Action Plan (DBAP) Priority Species has been recorded in Ford Park Cemetery, adjacent to the survey area.

*Plants*

- A number of Nationally scarce and Devon Notable species have been recorded within or adjacent to the survey area including mossy stonecrop *Crassula tillaea*, slender bird's-foot-trefoil *Lotus angustissimus*, whorled water-milfoil *Myriophyllum verticillatum*, corky-fruited water-dropwort *Oenanthe pimpinelloides*, yellow bartsia *Parentucellia viscosa* and red goosefoot *Chenopodium rubrum*.
- Bluebell *Hyacinthoides non-scripta* a species of recent national conservation concern were recorded at several locations, the closest approximately 1km north of the site and primrose *Primula vulgaris* (a Devon BAP Priority species) records include Scott Hospital, approximately 0.5km west of the site.

## Field Survey

### Landscape and habitats overview

- 3.4 The survey area comprised Central Park, a large public park (c.100 ha) surrounded by urban habitats, as shown in Figure 1.
- 3.5 The habitats within the site were generally semi-natural or ornamental, consisting of expanses of amenity grassland and a large number of scattered trees including large, mature, broad-leaved and coniferous specimens, and many saplings. Other habitats present included broad-leaved woodland, scrub, hedgebanks, allotments, ornamental planting, standing water, areas of hard-standing and various buildings and structures.

### *Grassland*

- 3.6 The majority of the survey area consisted of large areas amenity grassland of similar composition, age and origin with only common and widespread species present. Sward height varied from very short (where fields were used as sports pitches) to less intensively managed fields with taller swards where grasses had run to flower. Throughout the amenity grassland perennial rye-grass *Lolium perenne* was abundant but not dominant with other common grasses including cock's-foot *Dactylis glomerata*, Yorkshire fog *Holcus lanatus*, rough meadow-grass *Poa trivialis* and, to a lesser degree, creeping bent *Agrostis stolonifera* was also frequently recorded. A number of common forbs were present within the grassland including daisy *Bellis perennis*, field mouse-ear *Cerastium arvense*, ribwort plantain *Plantago lanceolata*, white clover *Trifolium repens*, creeping buttercup *Ranunculus repens*, yarrow *Achillea millefolium* and germander speedwell *Veronica chamaedrys*.
- 3.7 The relatively low species diversity and frequency of common and widespread species suggest that this habitat is of low nature conservation value.
- 3.8 In places (e.g. Target Note 37), along steeper banks surrounding the edge of the fields, an alternative sward had developed, which appeared slightly more diverse than the surrounding grassland. Additional species recorded included false oat-grass *Arrhenatherum elatius*, red fescue *Festuca rubra*, red campion *Silene dioica*, dove's-foot crane's-bill *Geranium molle*, common sorrel *Rumex acetosa*, curled dock *Rumex crispus*, common ragwort *Senecio jacobaea*, creeping thistle *Cirsium arvense*, cow parsley *Anthriscus sylvestris* and tufted vetch *Vicia cracca*.
- 3.9 A single, semi-improved field with moderate species richness was noted at the southern edge of the park (TN2). The field was isolated from, and the species composition marginally more diverse than, the amenity grassland covering the majority of the park. The origin of the field is unclear but it appeared to be distinct from the remainder of the park and may be self seeded following disturbance (possibly abandoned allotments). Perennial rye grass was less abundant than elsewhere on the site with other grasses including cock's-foot, soft-brome *Bromus hordeaceus* Yorkshire fog, false oat-grass, creeping bent and red fescue also prevalent within the sward. The herb species present also differed in abundance and variety from the remainder of the site with common vetch *Vicia sativa*, bedstraw *Galium* sp., hairy tare *Vicia hirsute*, ox-eye daisy *Leucanthemum vulgare* and cuckooflower *Cardamine pratensis* all present. However scrub was beginning to encroach around the edges.

- 3.10 This small grassland field was of moderate ecological interest relatively more species-rich than the bulk of the amenity grassland covering the remainder of the park.

*Woodland*

- 3.11 No semi-natural woodland was present within the park. The oldest area of woodland was located in the valley along the eastern boundary of the park (TN3), which comprised scattered, mature pedunculate oak *Quercus robur* and beech *Fagus sylvatica* trees with smaller oak, beech and sycamore *Acer pseudoplatanus*. The understorey comprised *Rhododendron* sp., hazel *Corylus avellana*, hawthorn *Crataegus monogyna* and holly *Ilex aquifolium*. Further north along the east side of the valley, the woodland lacked the mature trees (although these continued along the valley floor) and it graded into dense semi-mature woodland consisting of beech and sycamore. In this area the dense tree growth prevented any ground flora from developing. At the northern end of the valley was an area of mature scots pine plantation (TN27).
- 3.12 Throughout this woodland area, the diversity of the ground flora was limited with ivy *Hedera helix* and bramble *Rubus fruticosus* agg. being abundant. Woodland flora species were identified in small numbers including the Devon BAP species primrose and species of recent national conservation concern bluebell and other typical woodland species including ramsons *Allium ursinum*, wood avens *Geum urbanum*, wood dock *Rumex sanguineus*, wood sage *Teucrium scorodonia*, lords-and-ladies *Arum maculatum* and wood speedwell *Veronica Montana*. Secondary growth of Japanese knotweed *Fallopia japonica* was also noted within the woodland along the eastern boundary of the site.
- 3.13 Elsewhere, a number of small patches of semi-mature broad-leaved woodland up to 30 years old were interspersed between larger areas of grassland and an area of mixed plantation consisting of ornamental trees was present around Pound's House (TN46).

*Scrub*

- 3.14 Dense, semi-natural scrub was present in small pockets across the park, particularly in areas where little or no management had been undertaken. Butterfly bush *Buddleia davidii*, presumably self seeded, had colonised the banks around the football stadium (TN24) and, along with bramble, this had also colonised a mound of spoil and area of disturbed ground adjacent to the stadium (TN20).
- 3.15 Further semi-natural scrub including elder *Sambucus nigra*, hawthorn and bramble was limited to areas behind fences and along boundaries, particularly allotment margins which had been left unmanaged. Other scrub present included a dense stand of bramble (TN31) with scattered saplings and linear scattered bramble smothering much of the fence separating the allotments from the Park.

*Scattered Trees*

- 3.16 One of the main features of Central Park was the number of mature trees and saplings growing within the grassland. Old parkland, with mature, broad-leaved and coniferous trees, supporting dead wood, occurs in the north of the site (TN44). Mature trees were of high ecological value. Further mature trees were located across the site (TN11, TN12, TN13, TN28, TN29, TN39, TN48, TN49 & TN50), all of which were of high ecological value within the park. A number of saplings had also been planted in this area.

*Hedgerows*

- 3.17 Two distinct forms of hedgerow were present. A network of mature hedgebanks was present across large sections of the park with mature shrubs and trees including pedunculate oak, hazel, hawthorn, blackthorn *Prunus spinosa*, elder, ash *Fraxinus excelsior* and elm *Ulmus* sp supported on earth banks up to 1.0m in height. The banks supported a ground flora comprising ramsons, cow parsley *Anthriscus sylvestris*, hart's-tongue fern *Phyllitis scolopendrium*, wood arum, rough chervil *Chaerophyllum temulum*, hedge bedstraw *Gallium mollugo*, herb-robert *Geranium robertianum*, wood avens, hedge woundwort *Stachys sylvatica*, navelwort *Umbilicus rupestris*, wood sage *Teucrium scorodonia* and in one hedgebank, wood meadow-grass *Poa nemoralis*. These features appeared to be old field boundaries, several hundred years old, certainly pre-dating the current park, and are of high ecological value.
- 3.18 Other hedges within the park were small, usually single species including beech and non-native species, such as garden privet *Ligustrum ovalifolium* and cherry laurel *Prunus laurocerasus*. Such hedges were of low ecological value.

*Wet ditches/ Running water*

- 3.19 Very little running water was present within the survey area. Two small springs or drains (TN21) were recorded surfacing close to each other over grassland, one of which formed a narrow channel for a short distance with occasional soft rush *Juncus effuses*. However, neither appeared to be a permanent feature, with water dissipating over the grassland a few metres from the source.

*Standing water*

- 3.20 Two ponds were recorded within the survey area. Of most ecological interest was a small pond (TN25), adjacent to an area of woodland, and surrounded by introduced shrubs and bamboo *Pleioblastus* sp. A willow *Salix* sp. tree overhung the pond and as a result there was a large accumulation of leaf litter and detritus within the pond. Common duckweed *Lemna minor* covered half of the pond's surface with what was possibly whorled water milfoil *Myriophyllum verticillatum*. (a sample was not available for closer inspection) emerging. The margins were well vegetated with reed-mace *Typha latifolia*, jointed rush *Juncus articulatus*, soft rush and willowherb *Epilobium* sp. Given that the surrounding environment has a paucity of standing water, this feature is considered to be of high ecological value.
- 3.21 A small concrete-lined formal pond was also noted, adjacent to the large house at the northern end of the park (TN45).

*Other habitats*

- 3.22 A number of allotments were present within the survey area. Although botanically this habitat typically has little intrinsic ecological value, the scrub and tall ruderal vegetation, which form around the margins, are of moderate ecological value. Other habitats found within the park include a variety of buildings from brick built houses to a concrete and steel stadium, non-native shrubs in ornamental beds and areas of hard standing including car parks, skate parks and play grounds.

Protected species

*Botanical species*

- 3.23 The Devon BAP species primrose and a species of recent national conservation concern, bluebell, were both recorded within the mature woodland forming the eastern boundary of the site.

*Bats*

- 3.24 The mature and semi-mature trees found in abundance across the park, including the areas of woodland and solitary trees, contained features of potentially high value to roosting bats including rot holes, split branches, Ivy cladding and peeling bark. The buildings within the survey area ranged from large brick built residential properties (e.g. Pound's House) with moderate to high potential for bat roosts through to industrial concrete and steel constructions (TN23) that provided negligible potential for bat roosts.
- 3.25 The grassland, whilst species-poor, was considered to be of moderate foraging value for bats, given the size of the resource and the limited amount of habitat in the surrounding area. The pond may be used by foraging bats and the woodland and species-rich hedgebanks may act as important foraging habitat and commuting corridors.

*Dormouse*

- 3.26 The hedgebanks and mature woodland along the eastern boundary provide suitable habitat with species including hazel and bramble, which provide important food sources for this species. However, the available habitat is relatively isolated with limited habitat links beyond the survey area, making it less likely that a relic population of dormouse could survive in the Park.

*Badger*

- 3.27 No evidence of badger was found during the survey and all diggings and holes were attributed to rabbit *Oryctolagus cuniculus* and fox *Vulpes vulpes*. The small areas of inaccessible, dense bramble scrub have the potential to conceal outlier setts.

*Birds*

- 3.28 A number of nationally widespread and locally abundant species were recorded on the site (see Table 2, Appendix 3). Most significant species recorded was bullfinch *Pyrrhula Pyrrhula* a UK Red-list species (Gregory *et al.* 2002), which was heard calling from dense scrub during the survey. The woodland, scrub, hedgerows and trees provide suitable nesting and foraging habitat for birds and the grassland and vegetable plots within the allotments provide further important foraging habitat. The park was considered an important resource for birds in the local area, particularly in an urban context.

*Reptiles*

- 3.30 The hedgebanks, areas of taller grassland and scrub, including allotments, provide suitable habitat for common reptile species, especially common lizard and slow worm.

4. WILDLIFE LEGISLATION AND RELEVANT POLICY

Legislation

**Table 1.** Relevant Legislation Protecting Wildlife

Species	Legal status
<i>European protected species</i>	
Bats (all species)	All British bats and their roosts are protected under Schedule 5 (section 9) of the Wildlife and Countryside Act 1981 (as amended) and also on Schedule 2 of the Conservation Regulations 1994 which defines European protected species. A Development licence would be required for any works that affecting either the animals or their roosts (resting places) (i.e. buildings/trees/caves/mines/cellars). Please note that roosts are protected whether bats are present or not.
Dormouse	Legally protected through their inclusion on Schedule 5 & 6 of the Wildlife and Countryside Act 1981 and under the Conservation Regulations 1994 as a European protected species. A Development licence is required for any development works that would affect animals or their resting places (i.e. grassland, rubble, scrub or woodland where they are known to be present).
<i>Nationally protected species</i>	
Birds	All birds, their nests and eggs are protected by law under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). and it is an offence, with certain exceptions to:  <ul style="list-style-type: none"> <li>- intentionally kill, injure or take any wild bird</li> <li>- intentionally take, damage or destroy the nest of any wild bird whilst it is in use or being built</li> <li>- intentionally take or destroy the egg of any wild bird</li> <li>- intentionally or recklessly disturb any wild bird listed on Schedule 1 (Part 1) while it is nest building, or at a nest containing eggs or young, or disturb the dependent young of such a bird.</li> </ul> <p>This often places seasonal constraints on timing of development works involving vegetation clearance.</p>
Common and widespread Reptiles: (Adder, Viviparous lizard; Grass snake and Slow worm)	Listed on Schedule 5 of the Wildlife and Countryside Act 1981 and protected only from intentional killing and injuring. It is the view of Natural England that the presence of these species on site would require the developer to take 'reasonable steps' to ensure inadvertent killing and injuring does not occurring during development works.
Badger	Badger and its setts are protected under Schedules 6 of the Wildlife and Countryside Act 1981, as amended by the Protection of Badgers Act 1992.

- 4.1 The Hedgerows Regulations 1997 were made under Section 97 of the Environment Act 1995 and enable the local planning authorities to protect important hedgerows by controlling their removal through a system of notification. The Regulations list criteria for determining important hedgerows from archaeological, historical, landscape or ecological perspectives.

Policy

- 4.2 Planning Policy Statement 9 (PPS9) and its accompanying document ODPM 06/2005 sets out Government Policy on Biodiversity and Nature Conservation and places a duty on planners to make material consideration to the effect of a development on legally protected species when considering planning applications. PPS9 also promotes sustainable development by ensuring that developments take account of the role and value of biodiversity and that it is conserved and enhanced within the development.
- 4.3 The UK Biodiversity Action Plan (UKBAP) (Anon, 1995) lists 'Urban' as a Priority Habitat and Song thrush as a Priority species. In addition, the Devon Local BAP (LBAP) list 'Cities, towns and villages' as a BAP Habitat and primrose as a Priority species. The reference section gives BAP website addresses.
- 4.4 Plymouth City Council is currently producing a Green Space Strategy (Plymouth City Council Website) which will form part of the Local Development Framework's evidence base. This document will detail policies that protect and enhance Plymouth's Green Spaces and includes promotion of biodiversity and nature conservation.

## 5. RECOMMENDATIONS

### Habitats

#### *Grasslands*

- 5.1 None of the grasslands are considered to be of conservation importance. The semi-improved field with moderate species richness on the southern edge of the park (TN2) was considered to be of different origin to the remainder of the survey area however all grassland species recorded were common and widespread. No further survey is recommended and the general grassland enhancement opportunities detailed below are relevant to the entire site.

#### *Species-rich Hedgebanks*

- 5.2 The species-rich hedgebanks found across the site represent valuable ecological habitat for a number of protected species and would qualify as important under the Hedgerow Regulations 1997. These features should be retained where possible and consideration given to their management and increasing their connectivity.

### Protected Species

#### *Bats*

- 5.3 In view of the European Protected Species status of bats and their roost sites, and the records of both building and tree dwelling species in the vicinity, any trees or buildings likely to be impacted by the proposals should be assessed by specialist survey at an appropriate time of year to check for bat roosts. Detailed tree inspections are ideally undertaken during spring-autumn, whilst tree works should be undertaken during March-April or September-October. Works impacting on a tree or building supporting a bat roost would require a European Protected Species (EPS) Licence from Natural England before works can legally commence.
- 5.4 Bat activity surveys should also be undertaken to identify important foraging and commuting routes within and across the site, e.g. important hedges. This will be necessary should hedges, trees or woodland lost or if artificial light and noise levels be increased by the development proposals. Bat activity and emergence surveys can be undertaken between May and September, with mid May to early August (the breeding season) being the most productive months in terms of identifying important habitats for bats in the Park.

#### *Dormouse*

- 5.5 Given the presence of suitable habitats within the survey area, it is recommended that a dormouse (nut search) survey is undertaken. Suitable habitats containing hazel including the woodland and mature hedges should be searched for characteristically gnawed hazelnuts.
- 5.6 Should dormouse prove to be present, an EPS Licence from Natural England would be required prior to any works that would damage or disturb hedge or scrub habitats.

*Badger*

- 5.7 Whilst no setts were recorded during the survey, badger is a highly dynamic species and new setts can be excavated in a short amount of time. Given the suitable foraging and sett digging habitat within the survey area, it is recommended that a badger survey of all land within 30m of the development footprint, including any land to be used for ancillary works, is undertaken prior to development.
- 5.8 Should an active badger sett be found, works within 30m which may cause disturbance (such as heavy machinery) will require careful mitigation under the terms of a licence from Natural England.

*Breeding Birds*

- 5.9 In view of the habitats present on site, the bird assemblage is likely to be composed mainly of common species with fairly widespread distributions nationally. In view of this, no specialist survey is recommended.
- 5.10 As a general precaution, it is recommended that any operations that may disturb nesting habitat, such as works affecting trees, hedges, woodland and shrubberies, should be undertaken outside the breeding season, generally taken to run from March to August inclusive for most species. If this is not possible, a check for nesting birds should be undertaken immediately prior to removal of such habitats. However, if the latter approach is adopted it may result in delays of several weeks to any habitat clearance works should nesting birds be encountered, and at very least an exclusion zone up to a suitable distance around any active nests would be required to prevent excessive disturbance until the young birds had fledged.

*Reptiles*

- 5.12 Suitable reptile habitats in the park and allotments, including grassland, hedgebanks and scrub, that will be impacted by the proposals should be subject to a reptile presence/absence survey. This involves placing artificial 'heat refuges' in suitable habitat and undertaking seven repeat checks of these refuges during April-May or August-early October. Large populations of reptiles may require trapping and translocation prior to development but this would require prior consultation with Natural England.

**Opportunities for Ecological Enhancement**

- 5.13 Plymouth City Council have incorporated statutory and non-statutory designated sites of nature importance together with green spaces, wildlife corridors and areas buffering the statutory sites to create the Plymouth Biodiversity Network with the aim of conserving and increasing nature conservation interest. This includes Ford Park Cemetery, adjacent to Central Park, therefore enhancement of the survey area can provide ecological benefits and help strengthen the biodiversity protection within Plymouth.
- 5.14 Ecological enhancement of the park can take many forms including revision of the existing management regime, creation of new habitats and partitioning of the park to provide areas of refuge for wildlife. As a result of some of these changes and in addition to the ecological benefits, there is the potential to enhance the overall ecological value of the park with new features, education and the involvement of local community groups.

*Grassland*

- 5.15 The grassland present across the Park appears to be mainly species-poor and currently of low ecological value. Due to the size of this resource within the park, targeted management of this habitat can provide a large benefit to nature conservation including an increase in the intrinsic value of the habitat (a more species diverse and natural habitat) and benefit to other taxa including invertebrates, bats, birds and reptiles, which may depend on high quality grassland habitat. Given the relatively greater botanical and invertebrate (e.g. butterflies) diversity in the neighbouring Ford Park Cemetery (S Geary, pers. comm.), it may be possible to encourage invertebrates to naturally populate the park from the Cemetery by sensitive grassland management.
- 5.16 At its simplest, a reduction in the frequency of grass cutting would result in a longer more diverse sward developing and enable more plants to set seed. Whilst this is obviously not possible across the entire site, developing 'set-aside' areas where grass is cut once or twice annually (e.g. March and August), or where a percentage of the grassland is cut on an alternating or rolling basis, would lead to an improvement. This would be best done at a number of areas across the site such as field corners or lightly used fields forming ecological 'stepping stones'. In addition, a great ecological benefit would arise from leaving larger uncut margins of grassland adjacent to the hedgebanks.
- 5.17 Species-rich grasslands and wild flower meadows could also be created in a short timeframe by performing a topsoil scrape and re-seeding the subsoil with a suitable seed mix. With minimal management this would allow for controlled development of desirable habitats not currently found within the park. With the addition of interpretation boards, benches and new footpaths, the benefits can be recreational as well as ecological.

*Standing Water*

- 5.18 Water bodies within the park are currently limited to two small ponds. Birds, bats, amphibians and aquatic invertebrates would all benefit from an increase in the amount of standing water. A number of new ponds could be created with a variety of sizes and depths. These features could be incorporated into habitat matrices involving the creation of new grasslands to develop seasonally wet and marshy areas which would increase the habitat diversity. Boardwalks and platforms along the edge of waterbodies would also provide opportunities an environmental education resource within the park.

*Scrub*

- 5.19 Planting of native scrub species including hawthorn, blackthorn and bramble, and allowing current areas of scrub to develop may provide an increased food source for many animals.

*Trees*

- 5.20 Mature trees are valuable habitats for wildlife. Unnecessary removal of dead wood should be avoided (within Health & Safety constraints) to benefit wood boring invertebrates, cavity nesting birds and roosting bats.

*Artificial Habitats*

- 5.21 The erection of appropriate design bat and bird boxes would provide additional roosting and breeding locations within the park

*Landscaping*

- 5.22 Designating sections of the park for wildlife, excluding public or limiting the activities through the use of natural fencing or planting to discourage people would provide refuges for wildlife within a heavily disturbed environment. Finally, all future soft landscaping should involve locally sourced native species rather than introduced, ornament species, which often have little or no ecological value to native wildlife.

**Table 2:** Recommended seasons for protected species surveys and possible constraints on development

<b>Species</b>	<b>Survey Period</b>	<b>Possible Design Measures<sup>1</sup></b>
Bats	Internal building inspection: no timing constraints  Two emergence/foraging surveys: May to September (weather depending) with at least one survey between Mid May and early August (breeding season)	Avoid removal of mature trees  Incorporate bat access points within the roof voids of the proposed new building and/or creation of bat loft within associated proposed building.  Install bat boxes on trees
Badger	No timing constraints	Dependent on further survey findings
Breeding birds	No survey necessary	Ensure habitats (trees/scrub) containing nests are not cut down between March and August.  Install bird boxes on trees
Reptiles	Seven survey visits between April and July or August and September	Creation of a wildlife area which includes rough grassland/ native scrub mosaic  Creation of hibernaculum

<sup>1</sup> These design measures are an illustration of the type of possible actions and should not be viewed as exhaustive

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**APPENDICES**

Appendix 1	Figure 1: Extended Phase 1 Habitat Survey
Appendix 2	Table 3: Extended Phase 1 Habitat Survey Target Notes
Appendix 3	Table 4: Bird species list recorded December 2006
Appendix 4	Table 5: Botanical species list recorded – updated May 2007

**Appendix 1**



**Appendix 2**

**Table 3:** Extended Phase 1 Habitat Survey Target Notes

Target Note	Habitat	Description	Protected Species Potential
1	Dense Scrub	Hawthorn, Elder, Garden privet and Bramble growing on 10m wide bank on southern edge of the park.	Breeding Birds Reptiles
2	Semi-Improved Grassland	Grassland field on the edge of the park with species composition different to the remainder of the park. Origin unclear but possibly self seeded. Perennial rye grass is abundant but Cock's foot, Yorkshire fog, Creeping bent and Red fescue also present. Herbs include Common vetch, Bedstraw sp, Ribwort plantain, Dove's-foot cranesbills, Yarrow, Curled dock, Dandelion, Groundsel, Daisy, and Creeping buttercup. The field did not appear to undergo intensive cutting/management as seen in the rest of the park. Moderate Species Richness.	Reptiles
3	Broadleaved Plantation Woodland	Wooded Valley running along the east of the park adjacent to Ford Park Cemetery. Includes areas of mature woodland with Pedunculate oak and Beech trees and Holly, Hawthorn, Rhododendron bushes and Oak and Beech saplings where the ground flora is sparse and dominated by Ivy and Bramble. The woodland becomes denser to the north with semi-mature closely planted trees of a similar age. The bottom of the valley contains large mature trees including Oak, Ash and Beech.	Breeding Birds Bats Reptiles Dormouse
4	Tree	Very large (1.5m dbh) Pedunculate Oak adjacent to footpath. Large cavity in trunk at 2m and further splits in higher branches	Very High Bat
5	Species poor hedgerow	1m high beech hedge	
6	Tall Ruderal & Defunct Hedgerow	Stinging Nettle, Hogweed, and Dock covering bank with defunct hedgerow	
7	Broadleaved Plantation	Young plantation covering bank. Trees include Ash, Pedunculate Oak, Silver Birch and dead English elm. Ground flora dominated by Ivy.	Breeding Birds
8	Species poor hedgerow	Flailed hedge including Laurel	
9	Species poor hedgerow	Flailed beech hedge. 1m tall.	
10	Scattered Trees	Number of mature broadleaved trees on golf course.	Moderate Bat
11	Scattered Trees	8 Large mature Pedunculate Oak, many with Ivy cladding	Moderate – Very High Bat
12	Scattered Trees	2 Large Ash trees with a number of splits and rot holes located on the end of hedge bank.	Moderate – High Bat
13	Scattered Trees	Large dead Ash tree (1m dbh) with Ivy cladding.	Moderate – High Bat
14	Species poor hedgerow	Flailed hedge including Laurel	

Target Note	Habitat	Description	Protected Species Potential
15	Buildings	Complex of c. 1980 buildings including public leisure centre of concrete construction and surrounding hard-standing and introduced, ornamental shrubs including Cotoneaster <i>Cotoneaster</i> sp.	Low Bat
16	Buildings	Residential Dwelling and a number of brick outbuildings surrounded by scrub and derelict land with Ash trees.	Moderate – High Bat
17	Species-rich Hedgebank	Hedgebank with mature shrubs and three standard Pedunculate oak.	Moderate – High Bat Dormouse Breeding Birds Reptiles
18	Scattered Trees	Saplings planted in amenity grassland. Grassland appears less managed and a longer sward had developed but species poor. Potential for improving ecological interest.	Breeding Birds Reptiles
19	Species-rich Hedgebank	Hedgebanks including Hawthorn, Elder, Hazel and Elm on both sides of narrow footpath. Little ground flora.	Breeding Birds Reptiles
20	Dense & Scattered Scrub	Area of spoil and rubble fenced off from park and colonised by Buddleia and Bramble. Spoil pile approx. 30m long and 10m wide at apex and adjacent flat area.	Breeding Birds Reptiles
21	Running Water	Two small springs/ drains surfacing in grassland, one of which forms narrow channel for a short distance lined with Soft rush. Unclear how natural or permanent the features are.	
22	Introduced Shrub	Tall, dense ornamental beds of shrubs including Rhododendron sp. set in Amenity grassland.	Breeding Bird
23	Building/ Structure	Football stadium. Metal and concrete construction .	Negligible Bat
24	Dense scrub	Buddleia and Bramble scrub on banks surrounding Football stadium. Patches of Winter Heliotrope <i>Petasites fragrans</i> also present.	Breeding Birds Reptiles
25	Standing Water	Pond fenced off and surrounded by Willow, introduced shrubs and Bamboo. Pond surface approx 50% covered with Common duckweed and edges well vegetated with marginal species including Reed-mace Jointed rush, Soft rush and Rosebay willowherb. High ecological value	Breeding Birds Great Crested Newt Reptiles
26	Scattered trees/ Plantation	Mature broadleaved trees including Pedunculate oak and Flowering cherry <i>Prunus</i> sp. Sparse ground flora consisting of Ivy, Ground elder Aegopodium podagraria and Winter heliotrope. Small scrub covered bank between trees and stadium	Moderate – High Bat Breeding Bird
27	Coniferous Plantation	Area of semi-mature Scots pine plantation over bare earth. Joins on to adjacent Broadleaved plantation in valley.	Moderate Bat Breeding Birds
28	Scattered Trees	6 Large Pedunculatale oaks with rot holes and splits	Moderate – High Bat Potential

Target Note	Habitat	Description	Protected Species Potential
29	Scattered Trees	Rows of mature Flowering cherry trees flanking footpath through centre of park. Several contain splits and rot holes	Low – Moderate Bat
30	Scattered Trees	Mature trees	Moderate Bat Potential
31	Dense Scrub	Dense Bramble on bank with scattered saplings.	Breeding Birds Reptiles
32	Species-rich hedge	Hedge/ Scrub on stone wall including elder, ash, hawthorn, English elm (dead) Maple sp. becomes denser and wider to the east where wall disappears. Un-mown margin and wall crevices contain Ivy, Navelwort, Stinging nettle, Hogweed, Alexanders <i>Smyrnium olusatrum</i> , Bramble, Herb Robert <i>Geranium robertianum</i> and Red campion.	Breeding Bird Reptile Dormouse
33	Bare ground	Recently cleared – appears to be building site	
34	Broadleaved Plantation	Small copse of semi-mature trees on bank adjacent to playing fields. Species include Ash, Sycamore and Hazel with Bramble dominant at ground level.	Breeding Birds
35	Broadleaved Plantation	Raised mound surrounded by amenity grassland with young/ semi-mature trees (majority Ash). Ground flora sparse with public disturbance. Banks covered in Ivy and Winter Heliotrope.	Breeding Birds
36	Scrub/ Hedgerow/ Wall	Elder, Rose sp. and Bramble growing over wall	Breeding Birds Reptiles
37	Amenity Grassland	Banked edges to sports pitches with longer sward with slightly increased species richness in comparison with surrounding grassland. Species include Perennial rye-grass, Red fescue, Ribwort plantain, Yarrow and Red campion.	
38	Amenity Grassland	Grass bank similar in composition to TN37	
39	Scattered Trees	Large Pine tree	Moderate – High Bat
40	Dense Scrub	Fenced off area in corner of park with Hawthorn, Bramble, Elder and Ivy. No management.	Breeding Birds Reptiles Badger?
41	Dense scrub	Elder, Bramble and Elm on bank forming boundary of park. Grades into taller woodland with dead Elm. Ground flora dominated by Ivy and large rabbit warren in bank.	Breeding Birds Reptiles
42	Species Rich hedgerow	Narrow footpath with unmanaged hedgebanks on both sides. Banks covered with Ivy, False wood brome <i>Brachypodium sylvaticum</i> and Navelwort with occasional Harts-tongue fern	Breeding Birds Reptiles Dormouse
43	Building	c1950 Brick and Concrete building. Possibly electricity Sub-station.	Moderate Bat Potential
43	Parkland	Old parkland with large mature trees (broadleaved and coniferous) including standing dead trees and newly planted saplings.	Moderate – High Bat Breeding Birds

Target Note	Habitat	Description	Protected Species Potential
44	Flower beds, Introduced Shrub & Standing Water	Ornamental garden and formal pond.	
45	Mixed Plantation	Mature ornamental trees surrounding house	Moderate Bat
46	Building	'Pounds House' a Large former residential building c1900 (approx) with smaller adjacent cottage. Both brick built with slate/ tile roofs.	Moderate – High Bat
47	Scattered Trees	Large Mature Yew	High Bat
48	Scattered Trees	Large Pine and Willow trees with several splits and cavities in branches	High Bat
49	Scattered Trees	Includes 3 large conifers	Moderate Bat
50	Dense Scrub	Semi-natural scrub including Hawthorn, Bramble Elder and Ash around boundaries of Allotments	Breeding Birds Reptiles
51	Grassland	Area of lower ground with impeded drainage and standing water. Abundant Stinging nettles and Rosebay willowherb	

**Appendix 3**

**Table 4** List of birds recorded on site on 19 December 2006

Species	<i>Scientific name</i>	Bird of Conservation Concern List (Gregory <i>et al</i> 2002)
Magpie	<i>Pica Pica</i>	
Pied Wagtail	<i>Motacilla alba</i>	
Robin	<i>Erithacus rubecula</i>	
Herring Gull	<i>Larus argentatus</i>	
Black headed Gull	<i>Larus ridibundus</i>	Amber
Goldfinch	<i>Carduelis carduelis</i>	
Blackbird	<i>Turdus merula</i>	
Bluetit	<i>Parus caeruleus</i>	
Wood pigeon	<i>Columba palumbus</i>	
Bullfinch	<i>Pyrrhula pyrrhula</i>	Red
Long-tailed tit	<i>Aegithalos candatus</i>	
Wren	<i>Troglodytes troglodytes</i>	

**Appendix 4**

**Table 5.** Botanical species list recorded during December 2006 and May 2007 visits

**Comment [S1]:** Table number wrong, include tables in text?

Species		DAFOR rating
<i>Acer pseudoplatanus</i>	Sycamore	F
<i>Corylus avellana</i>	Hazel	O
<i>Crataegus monogyna</i>	Hawthorn	O
<i>Fagus sylvatica</i>	Beech	LA
<i>Fagus sylvatica var.</i>	Copper beech	R
<i>Fallopia japonica</i>	Japanese knotweed	LF
<i>Fraxinus excelsior</i>	Ash	F
<i>Malus sp.</i>	Apple	O
<i>Pinus sp.</i>	Pine	LD
<i>Prunus spinosa</i>	Blackthorn	F
<i>Quercus robur</i>	Pedunculate oak	O
<i>Rhododendron ponticum</i>	Rhododendron	LA
<i>Ribes nigrum</i>	Black currant	R
<i>Rubus fruticosus agg.</i>	Bramble	F
<i>Salix ssp capraea</i>	Goat willow	R
<i>Sambucus nigra</i>	Elder	F
<i>Tilia x europaea</i>	Lime	R
<i>Ulmus sp.</i>	Elm sp.	O
<i>Achillea millefolium</i>	Yarrow	LF
<i>Aegopodium podagraria</i>	Ground elder	LA
<i>Alliaria petiolata</i>	Garlic mustard	O
<i>Allium schoenoprasum</i>	Chives	LF
<i>Allium ursinum</i>	Ramsons	LF
<i>Anthriscus sylvestris</i>	Cow parsley	F
<i>Artemisa vulgaris</i>	Mugwort	R
<i>Arum maculatum</i>	Lords-and-ladies	R
<i>Ballota nigra</i>	Black horehound	O
<i>Bellis perennis</i>	Daisy	A
<i>Callitriche sp.</i>	Water starwort	R
<i>Caltha palustris</i>	Marsh marigold	R
<i>Cardamine hirsuta</i>	Hairy bitter-cress	O
<i>Cardamine pratensis</i>	Cuckooflower	R
<i>Centaurea nigra</i>	Common knapweed	R
<i>Cerastium arvense</i>	Field mouse-ear	F
<i>Chaerophyllum temulum</i>	Rough chervil	O
<i>Cirsium arvense</i>	Creeping thistle	O
<i>Clematis vitalba</i>	Traveller's-joy	LD
<i>Conium maculatum</i>	Hemlock	R
<i>Cymbalaria muralis</i>	Ivy-leaved toadflax	R
<i>Epilobium hirsutum</i>	Great willowherb	O
<i>Fumaria officinalis</i>	Common fumitory	R
<i>Galium aparine</i>	Cleavers	LF
<i>Gallium mollugo</i>	Hedge bedstraw	O
<i>Geranium dissectum</i>	Cut-leaved crane's-bill	O
<i>Geranium molle</i>	Dove's-foot crane's-bill	O
<i>Geranium robertianum</i>	Herb-robert	O
<i>Geum urbanum</i>	Wood avens	LF
<i>Glechoma hederacea</i>	Ground-ivy	O
<i>Hedera helix</i>	Ivy	LA
<i>Heracleum sphondylium</i>	Hogweed	O
<i>Hyacinthoides hispanica</i>	Spanish bluebell	LF

Species		DAFOR rating
<i>Hyacinthoides non-scripta</i>	Bluebell	R
<i>Iris pseudacorus</i>	Yellow Iris	LF
<i>Lemna minor</i>	Common duckweed	LA
<i>Leontodon hispidus</i>	Rough hawkbit	LF
<i>Leucanthemum vulgare</i>	Ox-eye daisy	LF
<i>Lycopus europaeus</i>	Gypsywort	R
<i>Malva sylvestris</i>	Common mallow	R
<i>Medicago lupulina</i>	Black medick	O
<i>Melampyrum pratense</i>	Common cow-wheat	R
<i>Parietaria judaica</i>	Pellitory-of-the-wall	R
<i>Petasites hybridus</i>	Butterbur	LA
<i>Plantago lanceolata</i>	Ribwort plantain	F
<i>Plantago major</i>	Greater plantain	O
<i>Polygonum aviculare</i>	Knotgrass	O
<i>Primula vulgaris</i>	Primrose	R
<i>Ranunculus ficaria</i>	Lesser celandine	R
<i>Ranunculus repens</i>	Creeping buttercup	F
<i>Rumex acetosa</i>	Common sorrel	F
<i>Rumex crispus</i>	Curled dock	F
<i>Rumex hydrolapathum</i>	Water-dock	R
<i>Rumex obtusifolius</i>	Broad-leaved dock	O
<i>Rumex sanguineus</i>	Wood dock	R
<i>Senecio jacobaea</i>	Common ragwort	R
<i>Silene dioica</i>	Red campion	F
<i>Solanum dulcamara</i>	Bittersweet	R
<i>Sonchus asper</i>	Prickly sow-thistle	O
<i>Stachys sylvatica</i>	Hedge woundwort	O
<i>Stellaria holostea</i>	Greater stitchwort	O
<i>Stellaria media</i>	Common chickweed	O
<i>Symphytum sp</i>	Comfrey	R
<i>Taraxacum officinale agg.</i>	Dandelion	O
<i>Teucrium scorodonia</i>	Wood sage	O
<i>Trifolium pratense</i>	Red clover	O
<i>Trifolium repens</i>	White clover	O
<i>Tripleurospermum inodorum</i>	Scentless mayweed	O
<i>Umbilicus rupestris</i>	Navelwort	LF
<i>Urtica dioica</i>	Common nettle	F
<i>Veronica beccabunga</i>	Brooklime	R
<i>Veronica chamaedrys</i>	Germander speedwell	O
<i>Veronica montana</i>	Wood speedwell	R
<i>Vicia cracca</i>	Tufted vetch	O
<i>Vicia hirsuta</i>	Hairy tare	LF
<i>Vicia sativa ssp sativa</i>	Common vetch	LF
<i>Viola sp.</i>	Violet	R
<i>Agrostis stolonifera</i>	Creeping bent	O
<i>Anisantha sterilis</i>	Barren brome	O
<i>Arrhenatherum elatius var.</i>	False oat-grass	LF
<i>Brachypodium sylvaticum</i>	False brome	R
<i>Bromus hordeaceus</i>	Soft-brome	R
<i>Dactylis glomerata</i>	Cock's-foot	F
<i>Festuca rubra</i>	Red fescue	R
<i>Holcus lanatus</i>	Yorkshire fog	F
<i>Hordeum murinum</i>	Wall barley	R

**Species**

**DAFOR rating**

<i>Lolium perenne</i>	Perennial rye-grass	A
<i>Poa annua</i>	Annual meadow-grass	LF
<i>Poa nemoralis</i>	Wood meadow-grass	R
<i>Poa pratensis</i>	Smooth meadow-grass	LF
<i>Poa trivialis</i>	Rough meadow-grass	O
<i>Juncus effusus</i>	Soft-rush	LF
<i>Juncus effusus var.</i>	Soft-rush	D
<i>Typha latifolia</i>	Bulrush	LA
<i>Dryopteris affinis</i>	Scaly male-fern	R
<i>Phyllitis scolopendrium</i>	Hart's tongue	R
<i>Pteridium aquilinum</i>	Bracken	LA