

3.2.6. *Standing and Running Water*

There were several ponds and wet ditches within the site boundary. Many of the smaller ponds comprised seasonally wet scrapes.

Pond 3 (the Military Lake) was a permanent waterbody containing an island (Plate 4). The pond was approximately 230m in diameter. The banks were shallow and heavily poached by cattle and the majority of the banks were devoid of vegetation. A few dense stands of bulrush (*Typha latifolia*) were present around the pond margins. Aquatic vegetation was sparse, but blanket weed was noted. The invasive plant, Australian swamp stonecrop (*Crassula helmsii*), was also recorded in Pond 3.

Several species of birds were recorded using Pond 3, including mute swan (*Cygnus olor*), mallard (*Anas platyrhynchos*) and coot (*Fulica atra*). However, no birds were recorded on the other ponds and these are probably too small and temporal to support nesting birds. It is likely that the ponds provide habitat for amphibians, reptiles and invertebrates.



Plate 4. Pond 3 (the Military Lake)

Several wet ditches were present throughout the site. These were generally less than 1m in width, with steep banks and contained shallow water (less than 50cm in depth) at the time of survey. The ditches on the former Oakington Barrack site contained no aquatic vegetation and were associated with field boundaries. These ditches were heavily shaded by bramble and hawthorn hedgerows. Several mammal burrows were recorded on the banks of Ditch 1 (TN4). However, the lack of grazed lawns, latrines or other water vole signs makes it unlikely that these were used by water voles.

The wet ditches on the southern half of the site, outside of the Oakington Barracks site, were less shaded and contained great willowherb (*Epilobium hirsutum*), common reed (*Phragmites australis*), yellow iris (*Iris pseudacorus*) and bulrush (*Typha angustifolia*) (Plate 5).



Plate 5. Wet Ditch on Southern Half of Site

Plate 6. Oakington Brook

There were two brooks, which contain running water, on the southern half of the site. These are Longstanton Brook and Oakington Brook (Plate 6). The brooks were less than 1m wide, approximately 0.5m in depth and contained slow flowing water with little aquatic vegetation.

Ponds, lakes and standing water are listed on the Local BAP as habitats of importance in the area. Such habitats may support birds, water vole and otter, a variety of invertebrates and foraging bats.

3.2.7. Dense and Scattered Scrub

Numerous blocks of scrub were recorded throughout the site. The dominant plant species were bramble, hawthorn, blackthorn (*Prunus spinosa*), goat willow and elder (*Sambucus nigra*). Many of the scrub blocks were associated with hedgerows which together formed large, continuous blocks of dense vegetation. Several species of birds were recorded using the scrub including garden warbler (*Sylvia borin*) and yellowhammer, and these birds are likely to use this habitat for nesting. The scrub may also provide opportunities for common and widespread invertebrate species, small mammals and reptiles.

3.2.8. Tall Ruderal

Areas of tall ruderal were recorded across the site, but the largest blocks had established on land of the former barracks (Plate 7). These areas represent an early successional, transient plant community with a diverse range of plants interspersed with areas of bare ground. The dominant plant species are teasel (*Dipsacus fullonum*), bristly ox-tongue (*Picris echioides*), prickly sow thistle (*Sonchus asper*), curled dock (*Rumex crispus*) and creeping thistle (*Cirsium arvense*).

This habitat is likely to support a diverse range of nectar feeding invertebrates and the animals which feed on them, such as birds and reptiles. The plants would also provide seeds for granivorous birds during the winter.



Plate 7. Tall Ruderal and Bare Ground

3.2.9. Hedgerows

Mature species-poor hedgerows formed some of the field boundaries. The hedges were largely unmanaged and in some cases encroached the fields forming wide blocks which graded into scrub. The hedgerows were dominated by hawthorn, but some areas had a higher diversity and also contained dog rose (*Rosa canina*), elder, bramble, blackthorn and occasionally mature trees. Hedgerows are listed on the Local BAP as being an important habitat in the area.

The hedgerows may provide foraging and refuge opportunities for a range of wildlife including invertebrates, small mammals and reptiles. Furthermore, bats may use the hedgerows for commuting and foraging and the hedgerows are likely to support nesting birds.

3.2.10. Amenity Grassland

Several small areas of amenity grassland were present in the southern half of the site. These formed the lawns of residential housing and a roundabout. The grassland was regularly mown and dominated by the plant species perennial ryegrass, annual meadow grass *Poa annua*, daisy *Bellis perennis*, dandelion *Taraxacum* spp. and hoary plantain *Plantago media*.

3.2.11. Marshy Grassland

A small area of marshy grassland was recorded around Pond 1. The dominant plant species were hard rush (*Juncus inflexus*), soft rush (*Juncus effusus*), reed canary grass (*Phalaris arundinacea*), water pepper (*Persicaria hydropiper*) and horsetail (*Equisetum* sp.).

The marshy grassland is likely to provide habitat for amphibians, reptiles and invertebrates.

3.2.12. Buildings, Structures and Hard Standing

There were a total of 55 buildings on the site, including six buildings on the former Oakington Barracks site. Buildings 1 to 5 were brick built, flat-roofed buildings which formed part of the former barracks (Plate 8). Building 6 was a metal tower (Plate 9). Several pill boxes were also recorded on the former Oakington Barracks site (Plate 10). A few building had a low or moderate potential to support roosting bats, including Hazelwell Court (Plate 11). Large areas of hard standing in the form of roads, tracks and the footprints of the former army barrack buildings (which have been demolished) are also present.

The hardstanding offered no opportunities for wildlife. However, some of the buildings had the potential to support bats. Nesting birds were also recorded in several buildings.



Plate 8. Example of Flat-Roofed Building



Plate 9. Metal Tower



Plate 10. Example of Pill Box



Plate 11. Hazelwell Court; low bat potential

Table 2 presents a brief description of each building, along with its potential to support roosting bats. Building locations are shown on Figure 1. The majority of the buildings had negligible potential to support roosting bats; however a few had features, such as crevices in the roof or walls that could provide roost sites and these buildings have been assessed as having low potential to support roosting bats.

Table 2. Building Descriptions and Bat Roost Potential

Building (B)	Description	Bat Potential
Pill boxes	Brick or stone with no internal ledges or crevices	Negligible
1	Brick built, flat-roofed building	Negligible
2	Brick built, flat-roofed building, crevices in external walls	Low
3	Brick built, flat-roofed building, crevices in external walls	Low
4	Brick built, flat-roofed building, crevices in external walls	Low
5	Brick built, flat-roofed building, crevices in external walls	Low
6	Metal tower	Negligible
7	Wooden stable with flat roof	Negligible
8	Wooden shed with flat roof	Negligible
9	Single-storey building with corrugated roof	Negligible
10	Wooden building with flat roof	Negligible
11	Metal temporary buildings	Negligible
12	Single-storey, pitched roof warehouse of metal construction	Negligible
13	Derelict brick building with flat roof	Negligible
14	Metal shed	Negligible
15	Breezeblock building with pitched roof and wood cladding	Low
16	Metal shed	Negligible
17	Hazelwell Court. Occupied two-storey brick building with pitched roof with clay tiles. No obvious access to roof void.	Low
18	Portacabin	Negligible
19	Single-storey building with flat roof and wood cladding.	Low
20	Metal shed	Negligible
21	Pitched roof building with crevices under roof and cladding	Low
22	Metal shed with pitched roof	Negligible
23	Metal shed with pitched roof	Negligible
24	Metal shed with flat roof	Negligible
25	Occupied, two-storey house with pitched roof and clay tiles. No obvious access to roof void.	Low
26	Wooden shed with corrugated pitched roof	Low
27	Metal cabin	Negligible
28	Metal Cabin	Negligible
29	Wooden building with pitched roof and weather-boarding	Low
30	Single storey brick and breezeblock building with metal pitched roof	Low
31	Single storey metal building with pitched roof and weather-boarding. Holes noted in weather-boarding	Low
32	Single storey brick building with corrugated sloping roof	Negligible
33	Single storey shed with weather-boarding and pitched metal roof	Negligible
34	Single storey breezeblock shed with curved roof	Negligible
35	Metal silo	Negligible
36	Metal warehouse	Negligible
37	Brick built stables with pitched corrugated roof. Crevices under roof	Negligible
38	Single storey building with weather-boarding and corrugated pitched roof	Negligible
39	Concrete chimney	Negligible
40	Single storey building attached to B31. Metal sloping roof and weather-boarding, in good condition	Negligible
41	Single storey building attached to B30. Pitched metal roof.	Negligible
42	Single storey, ivy covered building with pitched metal roof in good condition. Ivy may provide roost sites for bats.	Low
43	Single storey building with metal sloping roof and weather-boarding.	Negligible
44	Single storey brick building with pitched roof	Negligible
45	Portacabin	Negligible
46	Single storey brick building with crevices under corrugated roof	Low
47	Metal shed with pitched roof	Negligible
48	Metal shelter	Negligible
49	Single-storey concrete building with flat roof. Swallow (<i>Hirundo rustica</i>)	Negligible

	nest site	
50	Single storey brick building in field. Flat bituminous roof in poor condition. Crevices between ceiling and roof and behind barge boards.	Low
51	Single storey brick building with flat concrete roof. Hole in wall. Damp interior.	Negligible
52	Single storey brick building with pitched tiled roof. Few potential access points for bats.	Low
53	Wood slat, single storey building with flat roof. Possible roost sites between slats and under roof. Linked to hedgerows and scrub.	Moderate
54	Collection of conjoined wood and breeze block barns with flat roofs in poor state of repair. Multiple access point into structures. Linked to hedgerows and scrub	Moderate
55	Hay barn with open sides and corrugated roof.	Negligible

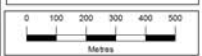
3.2.13. Other Habitats

A number of barn owl boxes have been installed across the site which offers nesting opportunities for barn owl and other species of birds. Furthermore, a stack of hay bales (TN5) may also be used by nesting barn owl.

Piles of logs and stones were noted across the site and these would provide refugia and hibernation sites for reptiles and amphibians.



- Key:**
- Site Boundary
 - Target Area
 - Broad-leaved Scattered Trees (A3.1)
 - ✕ Scrub, Scattered (A2.2)
 - Defunct hedge, Species poor (L2.2.2)
 - Dry ditch (L2.4)
 - ||||| Fences (L2.4)
 - ||||| Hedge and trees, Species poor (L2.3.2)
 - Intact hedge, Species poor (L2.1.2)
 - Running water (L2)
 - To Update
 - Woodland, Broad-leaved, Semi-natural (A1.1.1)
 - Buildings (L3.4)
 - Avian (L1.1)
 - Horticulture
 - Marshy grassland (B1)
 - Neutral grassland, Semi-improved (B2.2)
 - Other, Tall natural (C3.1)
 - Scattered trees, Mixed (A3.3)
 - Scrub, Continuous (A2.1)
 - Amenity grassland (L1.2)
 - Improved grassland (B4)
 - Woodland, Broad-leaved, Plantation (A1.1.2)
 - Woodland, Coniferous, Mixed (A1.2.2)
 - Woodland, Mixed, Plantation (A1.3.2)
 - Bare ground (L4)
 - Standing water (L5)
 - Introduced shrub (L1.4)
 - Scrub, Scattered (A2.2)
 - Semi-improved grassland (B1)
 - Epimeris/strict perennial (L1.3)



The Phase 1 Habitat Map
 Project: Northstowe
 Client: Homes and Communities Agency

URS	13/000	01/08/2012	01/08/2012
URS	13/000	01/08/2012	01/08/2012
URS	13/000	01/08/2012	01/08/2012

4. RARE, NOTABLE AND PROTECTED SPECIES

4.1. Bats

The site provides a range of foraging and commuting habitat for bats including pasture, plantation, hedgerows and waterbodies and a number of species have been recorded on the site and within 5km.

Buildings 2 to 5, 15, 17, 19, 21, 25, 26, 29, 30, 31, 42, 46, 50, 52, 53 and 54 had some features of value to roosting bats and are therefore defined as having a low or moderate potential to support roosting bats in accordance with the Bat Conservation Trust criteria (Ref. 2). However, the pill boxes which occurred throughout the site were unsuitable for bats as the structures allowed light penetration and contained no internal voids or structures for bats to use.

Numerous trees within and adjacent to the site had dense ivy, natural holes, woodpecker holes or cracks/splits in major limbs which may provide roosting opportunities for crevice dwelling bats.

4.2. Badgers

An active badger sett, numerous snuffle holes and a latrine were recorded on the site and the site would provide extensive foraging and sett building opportunities for badgers. Previous badger surveys have revealed high levels of badger activity on the site.

4.3. Reptiles

The scrub, tall ruderal, grassland and aquatic habitats could provide opportunities for foraging and basking reptiles. Piles of rubble and logs, which were noted across the site could provide refugia and hibernation sites for reptiles. Previous studies have recorded common species of reptiles on or near to the site.

4.4. Amphibians

The aquatic and terrestrial habitats on the site would provide foraging and breeding opportunities for amphibians, including great crested newts. Low numbers of great crested newts have been recorded on the site during previous surveys.

4.5. Breeding Birds

The habitats on site have the potential to provide foraging and nesting habitats for a broad range of birds including those listed on Schedule 1 of the WCA.

There are records of barn owl breeding on the site and its immediate surrounds. Whilst the structures which the barn owls were using to nest at the site of the former Oakington Barracks have been removed, several other buildings remain. Furthermore, barn owl nest boxes have been instated around the site a stack of hay bales may also provide nesting opportunities for barn owl. The grassland and marginal habitats would provide ideal foraging habitat for barn owl.

4.6. Other Mammals

During the Phase 1 survey the following mammals were recorded, muntjac deer (*Muntiacus reevesi*), stoat (*Mustela erminea*), rabbit (*Oryctolagus cuniculus*), brown hare. Given the variety of semi-natural habitats present, it is also likely that fox (*Vulpes vulpes*), hedgehog (*Erinaceus europaeus*), grey squirrel (*Sciurus carolinensis*), shrew (*Sorex araneus*) and short-tailed vole (*Microtus agrestis*) use the site.

4.7. Invertebrates

Aquatic habitats on the site have the potential to support invertebrate assemblages of conservation importance and several species of Nationally Scarce beetles are known to occur in the area. The semi-improved grassland, tall ruderal and mosaic habitats (particularly where associated with woodland edge, hedgerows and scrub) have the potential to support species of butterfly which may be of conservation importance.

4.8. Plants and Habitats

There was only one species of invasive plant recorded on site, this was Australian swamp stonecrop. This was recorded at various locations along the edges of Pond 3 (the Military Lake).

There were no rare or scarce plant species recorded on site during the Phase 1 survey.

Hedgerows as well as ponds are both habitats within the Cambridgeshire Biodiversity Action Plan (CBAP). There is a range of habitats occurring on site though they are highly modified; the majority consists of arable, improved grassland and broad-leaved plantation. Taken together the habitats on site have the potential to support a wide range of species.

5. RECOMMENDATIONS FOR FURTHER SURVEYS

5.1. Bats

Whilst high levels of bat activity were recorded on the site during previous surveys, the removal of many of the bat roosts is likely to have resulted in a change to patterns of bat activity. A bat activity survey should be undertaken at the site in line with the current BCT guidelines which were issued in 2012. This would include transect surveys of the entire site during June, July, August and September to determine what species of bats use the site and to identify the most valuable habitats for bats. These surveys would be supported by five nights of static bat detector surveys each month to collect information on bat activity at key locations around the site.

A number of buildings and trees on site were identified as having the potential to support roosting bats and bat roosts were identified at Brookfield Farm in 2007. Whilst no evidence of roosting bats was actually found during the 2012 survey, it is recommended that if these trees or structures are to be impacted by the development, then further studies, including inspections of lofts spaces of those buildings which were not accessed and nocturnal bat emergence/ return surveys should be conducted.

5.2. Badgers

A badger survey should be undertaken at the site and of suitable habitat within 30m of the site boundary. All badger setts should be recorded along with an assessment of their status. Furthermore, all positive signs of badgers such as latrines, snuffle holes and paths should be mapped to determine the level of badger activity at the site and identify the most important habitats for badgers.

5.3. Reptiles

A reptile survey should be undertaken at the site to determine which species of reptiles use the site and in what numbers. The reptile survey will also highlight which areas of the site are of greatest value to reptiles. The reptile survey should use artificial refugia to locate reptiles in suitable habitats in accordance with current guidelines (Ref. 11).

5.4. Great Crested Newts

A survey for great crested newts should be undertaken to determine whether this species is present on the site. The great crested newt presence/absence survey would be carried out over four nights and consistent with Natural England guidelines (2001), three search techniques will be used on each visit; if great crested newts are found during the survey a further two nights of surveys will be required to meet current guidelines on assessing population size.

5.5. Breeding Birds

An update breeding bird survey should be undertaken to determine which species of birds use the site in the breeding season and which areas of the site are of greatest importance to them using the common bird census methodology.

Furthermore, the barn owl boxes and other structures which may offer suitable nest sites for barn owls should be checked for the presence of breeding barn owls.

5.6. Invertebrates

Surveys of aquatic invertebrates and terrestrial invertebrates should be undertaken in all suitable habitats across the site. This will include specific transect surveys for butterflies and a survey of the aquatic habitats using the National Pond Survey Methodology (Ref. 12).

6. REFERENCES

- Ref. 1 Joint Nature Conservation Committee (JNCC) (1993) 'Handbook for Phase 1 Habitat Survey: A Technique for Environmental Audit, revised reprint 2003.' JNCC. Peterborough
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- Ref. 3 United Nations (1992) 'Convention on Biological Diversity'
- Ref. 4 UK Biodiversity Standing Committee (2007) 'UK Biodiversity Action Plan Priority Species and Habitats' Available at: <http://www.ukbap.org.uk/NewPriorityList.aspx>.
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