

West Thames Appraisals - Caversham Extended Phase 1 Survey

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1.0 Introduction

CH2M was commissioned by the Environment Agency to undertake an ecological appraisal to inform an investigation into the flood risk from the River Thames and Christchurch Ditch, which will lead into potential flood alleviation options. The study areas are in and near Caversham (SU 7233 7440), Reading, as part of West Thames Appraisals. Study areas are both north of the River Thames (figures 1-4, Appendix A) and south (figures 5-7, Appendix A). The West Thames Appraisals project is investigating the flood risk at various locations in the west of the Thames catchment.

The aim of this report is to provide a technical appraisal of the existing ecology of the study areas.

2.0 Methodology

2.1 Desk Study

The desk study was based upon a search of:

- The “*Multi-Agency Geographic Information for the Countryside*” website (MAGIC);
- Environmental Shapefiles Data (for protected and notable species, Local Nature Reserves, non-statutory designated sites and Wildlife Trust Reserves) received from the Environment Agency, who sourced them from the respective Biological Records Centres¹ (BRCs); and
- Ordnance survey mapping.

In order to identify national and local nature conservation designations and any ecological records which already exist for the study area, search areas were set, which were considered sufficient to cover the likely zone of influence of the proposed future development.

- 0.5 km from the site for all species records – 2 km for bat species
- 0.5 km for non-statutory
- 2.5 km for statutory designations
- 30 km for any Special Areas of Conservation (SAC) where the primary or qualifying feature are bats.

¹ These include: Thames Valley Environmental Records Centre, Surrey Biodiversity Information Centre, Hampshire Biodiversity Information Centre, Gloucestershire Centre of Environmental Records and Wiltshire and Swindon Biological Records Centre.

2.2 Field Survey

An extended Phase 1 Habitat survey of the study area was first undertaken by an experienced ecologist on 19th January 2017, with two follow up expansion surveys on the 1st September 2017 and the 11th January 2018. The field survey was conducted following the methodology given in the Handbook for Phase 1 Habitat Survey (JNCC, 2010). The field surveys are summarised within Appendix A – Figures 1-7 with Target Notes (TN) described within Appendix B.

The habitats were classified and mapped, and dominant plant species were recorded. Nomenclature for plant species follows that of Stace (2010). Note was taken of any signs of fauna and any evidence of, or potential for the presence of, protected animals recorded within and adjacent to the study area in accordance with the guidelines for Preliminary Ecological Appraisal (CIEEM, 2013).

2.3 Evaluation

The habitats and species evaluations are based on Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM, 2016). The level of value of specific ecological receptors is assigned using a geographic frame of reference, i.e. international value being most important, then national, regional, county, district, local and lastly, within the immediate zone of influence of the proposals only.

Value judgements are based on various characteristics that can be used to identify ecological resources or features likely to be important in terms of biodiversity. These include site designations (such as Sites of Special Scientific Interest (SSSI)), or for undesignated features, the size, conservation status (locally, nationally or internationally), and the quality of the ecological resource. In terms of the latter, 'quality' can refer to habitats (for instance if they are particularly diverse, or a good example of a specific habitat type), other features (such as wildlife corridors or mosaics of habitats) or species populations or assemblages.

2.4 Limitations

This report describes the findings of an extended Phase 1 Habitat survey carried out on the 19th January 2017, 1st September 2017 and the 11th January 2018. It should be noted that:

The report has been prepared under the express instructions and solely for the use of the client (Environment Agency) for the specified project. The findings of this report represent the professional opinion of experienced ecologists. CH2M does not provide legal advice and the advice of lawyers may also be required for a definitive legal response. All work carried out in preparing this report is based upon CH2M's current professional knowledge and understanding of current relevant UK standards and codes, technology and legislation. Changes in this legislation and guidance may occur at any time in the future, and cause any conclusions to become inappropriate or incorrect. CH2M does not accept responsibility for advising the client or other interested parties of the facts or implications of any such changes. This report has been prepared using factual information contained in maps and documents prepared by others. No responsibility can be accepted by CH2M for the accuracy of such information.

Populations of animals and plants are often transient in nature and a single survey visit can only provide a general indication of species present on site; the possibility exists that other species not recorded during the survey may be present on site.

The survey was carried out was carried out in January and September. January is considered to be a sub-optimal time of year for a Phase 1 Habitat survey. However, January may be considered to be optimal for some animal surveys such as water vole *Arvicola amphibius* and badger *Meles meles* due to the low vegetation cover, which can obscure evidence of species presence. The additional surveys in September 2017 and January 2018 were conducted in areas to the east and south of the original study area. Close inspection of the gravel pits and fields to the very east of the scheme (Appendix B – TN33, 35 & 37) was not possible due to access and safety constraints.

3.0 Baseline Conditions

3.1 Designated Sites

There were no SACs where the primary or qualifying feature are bats within 30 km of the study area.

There were no statutory designated sites or non-statutory sites within 2.5 km and 0.5 km respectively of the study area.

3.2 Habitats and Flora

The distribution of habitats present within the study areas are shown in Appendix A, with related photographs presented in Appendix B.

The Phase 1 Survey habitat types recorded across the three study areas are described below in alphabetical order and not in order of ecological importance:

3.2.1 Ditches, Watercourses, Open Water and Marginal Vegetation

The study area comprises of the River Thames, drains, open water and some areas of marginal vegetation. One drain runs along the northern boundary of Christchurch playing fields and Hills Meadow (TNs 3, 7 and 12). Towards the western end this dry channel is very overgrown with scrub and ruderal vegetation on both sides. By TN 7 the drain is approximately 1.5 m wide, sections of the drain are still dominated by bramble and ruderal vegetation, with less shaded sections supporting submerged and emergent vegetation. To the north of Hills Meadow the drain is approximately 3 m wide, and where heavily shaded by adjacent trees and scrub there is no aquatic vegetation. The drain has no potential for the presence of otter *Lutra lutra*, water vole or signal crayfish *Pacifastacus leniusculus*.

The River Thames runs south, through part of the study area and primarily consists of hard bank edges (TNs 40, 41, 48, 52, 54, 55, 61, 64, 65, 68, 69 and 70). Some soft banks might support locations where otter and water vole may be present, however the main water body probably will not. Areas where bank construction consists of concrete 'bags', provides small crevice's which might be utilised by aquatic invertebrates.

There are a number of disused gravel-pits, to the very east of the scheme. These are deep bodies of water, with vegetation planted around them (see below). The deep-water pools support locations where otter may be present, but also fresh water fish communities.

Marginal vegetation occurs on the edge of the waterbodies (TN 31) as well as in patches along the River Thames (TN 47 and 67). These areas provide opportunities for amphibians, birds, fish and reptiles. Further recommendations for survey and protection of fauna are included in Section 5.

3.2.2 Grassland: amenity and poor semi-improved

The majority of grassland within the study area is amenity grassland. Within Christchurch playing fields the grassland is predominated by perennial rye-grass *Lolium perenne*, with daisy *Bellis perennis* and dandelion *Taraxacum officinale* agg. The playing fields at the end of Amersham Road (TN 26) is also predominated by perennial rye-grass with clover *Trifolium sp.*, dandelion, dock *Rumex sp.* and greater plantain *Plantago major*. Along the southbank of the Thames, amenity grassland can be found either in large open patches, often associated with clearings close to buildings (TN 39 and 80), or in thin strips parallel to the waterway (TN 50, 54, 57 and 69). These areas were predominantly perennial rye-grass, with some small clumps of common nettle *Urtica dioica*. In one of the strips of grassland, emerging daffodils *Narcissus poeticus* were recorded.

Semi-improved grassland is found within Hills Meadow and in the field to the east of the study boundary. Species composition is low due to some form of modification, and may include perennial rye, creeping bent *Agrostis stolonifera* and false oat-grass *Arrhenatherum elatius*.

The field, located north of Nire Road was not surveyed (TN 37), due to access issues. Looking through the fence the habitat appeared to be poor semi-improved grassland, though without further surveys this cannot be confirmed.

See Section 5 for more information.

3.2.3 Hedgerows: species-poor

Three hedgerows were present within the study area to the north of the Thames; a hedge running alongside a drain bordering Christchurch playing fields, a boundary hedge to the east of the study area and a small boundary hedge within the amenity grassland. Hedgerows along the Southbank of the Thames were often found as boundary markers between properties (TN 45, 46, 73, 76 and 81). All hedges were species-poor.

Hedgerows to the east (TN 21, 25 & 35) comprise of low species composition, primarily consisting of hawthorn *Crataegus monogyna* and willow *Salix sp.*, but with occasional alder *Alnus glutinosa*, horse chestnut *Aesculus hippocastanum* or oak *Quercus robur*, some of which were covered in ivy *Hedera helix*.

Between the residential area of Amersham Road and the ruderal field to the south, the hedgerow and trees are defunct. Small clusters of goat willow *Salix caprea* and hawthorn can be found along the boundary.

A boundary between Honey Meadow Close and the gravel pit (TN 35) was species poor. Consisting of hazel *Corylus avellana*, rowan *Sorbus aucuparia* and hawthorn. There was also ivy, both on other vegetation and free-standing.

Along the Southbank, the majority of the hedgerows consisted of laurel *Laurus nobilis* and/or hawthorn. One of the hedgerows (TN 73) was decorative and included introduced shrubs *Skimmia japonica*, American holly *Ilex opaca*, box *Buxus sempervirens* and midwinter fire *Cornus sanguinea*.

All of these hedgerows are potentially suitable for; birds, invertebrates, mammals and reptiles. The semi-mature/mature trees are potentially suitable for; bats, birds, invertebrates and mammals. Further recommendations for survey and protection of trees and fauna are included in Section 5.

3.2.4 Scrub: dense and scattered

Dense and scattered scrub habitat is present throughout the entire study area, alongside fence boundaries, drains and under trees. Scrub habitat includes blackthorn *Prunus spinosa*, hawthorn, bramble *Rubus fruticosus* agg. and field-rose *Rosa arvensis*.

Scrub has the potential for nesting birds. Further recommendations are given in Section 5.

3.2.5 Scattered Trees

There are numerous scattered trees throughout the study area. The majority are alongside drains, roads, in amenity grassland and field boundaries. Within Christchurch play area the majority of trees are mature pollarded crack willow *Salix fragilis*, with lombardy poplar *Populus nigra* 'Italica', beech *Fagus sylvatica* and rowan.

A line of mature Lombardy poplars form the eastern boundary of Christchurch playing field. These act as a substantial landscape feature. To the east of Hills Meadow are another area of mature Lombardy poplars, again acting as a landscape feature. Many of the mature trees, in particular the mature pollarded crack willow trees, support features suitable for roosting bats (TNs 1, 2, 4, 5, 8, 9 and 10).

Along the Southbank, ash *Fraxinus excelsior* and London plane *Platanus x hispanica* account for the majority of trees within this part of the survey area. These, especially the London plane, support features suitable for roosting bats (TNs 38, 51, 69, 72, 75, 77, 78 and 79).

The trees provide suitable habitat for breeding birds and roosting bats. Recommendations for these are given in Section 5.

3.2.6 Tall Ruderal Vegetation

This habitat was recorded in four areas; within Christchurch playing field along the drain (TN 3 and 7), running along the north-eastern boundary and alongside willow woodland (TN 15), a large area to the south of Amersham Road (TN 19), and a small patch to the east of the playing fields (TN 28). These areas may be prone to flooding when water levels are high as ruderal vegetation tends to be

present in areas of high nutrients. It was generally dominated by one or two species such as common nettle, creeping thistle *Cirsium arvense*, dock and willowherb *Epilobium* sp.

This habitat may be suitable for reptile species. Further recommendations for reptiles are made in Section 5.

3.2.7 Woodland: broad-leaved

Woodland was recorded adjacent to Mill Green (TN 14, 18), within the land adjacent to the gravel pits (TN 15, 20) and at the eastern end of the study area (TN 33, 36). The main species present is willow, with scrub species, however one area (TN 36) consisted of mature oak.

Between one of the waterbodies and the playing field is an area of planted woodland, consisting primarily of willow, with small scrub species in the understory.

These trees are potentially suitable for breeding birds and reptiles, in the understory. Further recommendations for these are made in Section 5.

3.3 Fauna

The faunal descriptions are ordered alphabetically below.

3.3.1 Amphibians

Desk study information from the BRCs, had 29 records of common toad *Bufo bufo* between 1996 and 2012.

No suitable habitats for breeding great crested newts were noted whilst on site.

No further assessment is needed for great crested newts.

3.3.2 Badgers

Six records of badgers were received from BRCs between 1998 – 2013, along the north side of the river, approximately 0.8 km to the study area.

No signs (setts, latrines, scratching posts, pathways and/or hairs) of badgers were recorded within the study area.

It is unlikely that badgers would be in close proximity to Christchurch playing fields as there is constant distance from members of the public and their pets, with no suitably sized connecting habitat where a badger sett might be located.

Hills Meadow is less disturbed, with gardens backing onto the study area very isolated towards their southern end, so the presence of badgers should not be ruled out. The grassland and scrub habitats provide suitable foraging areas for badgers. A number of collapsed holes were noted within Hills Meadow. These may have been previously used by rabbit, fox or badger.

The eastern end of the study area provides suitable sett building areas and foraging habitat for badgers, however as in all potential sett habitat, they must be above frequent flooding levels.

3.3.3 Bats

Desk study information from the BRCs had 101 records of the following bat species within the 2 km search area. These are:

Bat Species	Scientific Names	Number of Records	Year Range
Brown long-eared	<i>Plecotus auritus</i>	20	1993 - 2012
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	16	1985 - 2012
Daubenton's	<i>Myotis daubentonii</i>	32	1986 - 2011
Natterer's	<i>Myotis nattereri</i>	1	2011
Noctule	<i>Nyctalus noctula</i>	14	1985 - 2008

Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	16	2005 - 2012
Nathusius's pipistrelle	<i>Pipistrellus nathusii</i>	2	1997

No signs of bats, or bats themselves were noted whilst on site.

There were numerous mature trees (TNs 1, 2, 4, 5, 8, 9, 10, 20, 30, 33, 34, 36, 38, 51, 69, 72, 75, 77, 78 and 79), in particular mature pollarded crack willow and London plane, within the study area, which support features (holes, broken limbs, cracks and/or ivy on the trunk) which may be potentially suitable for roosting bats.

A derelict building (TN 11) within Christchurch playing fields which was previously a pavilion, has the potential to be suitable for roosting or hibernating bats.

It is likely that the trees either side of the drain will provide foraging and commuting habitat for bats. The pedestrian bridge, which crosses the River Thames (TN 63 and 64), has no potential for roosting bats.

Further recommendations for bats are made in Section 5.

3.3.4 Birds

Desk study information from BRCs had no recent records of protected bird species. Potential nesting, foraging and roosting habitat exists throughout the survey area in the scrub, trees and hedgerows. Along the Southbank of the Thames, a number of private gardens and hedgerows had house sparrows *Passer domesticus* calling from them. These are ideal nesting locations for this species.

Incidental sightings of birds were recorded during each Phase 1 survey. Of these, starling *Sturnus vulgaris* and house sparrow are listed on the Birds of Conservation Concern 4 (BoCC4) Red List², the IUNC Red List of threatened species³ as Least Concern and Section 41 of the NERC Act 2006 - Habitats and Species of Principal Importance in England. Barnacle geese *Branta leucopsis*, dunnoek *Prunella modularis*, black-headed gull *Chroicocephalus ridibundus*, mallard *Anas platyrhynchos* and mute swan *Cygnus olor* are listed on the Birds of Conservation Concern 4 (BoCC4) Amber List² and the IUCN Red List of threatened species³ as Least Concern. Robin *Erithacus rubecula* are listed as Least Concern and red kites *Milvus milvus* listed as Near Threatened on the IUCN Red List of threatened species³.

Further recommendations have been made for breeding birds in Section 5.

3.3.5 Dormice

Desk study information from BRCs had one record of hazel dormouse *Muscardinus avellanarius* within the 0.5 km search area, recorded in 1998.

No evidence for the presence of dormice such as eaten acorns or dormice nests was noted during this survey, and no suitable habitat was present within or immediately adjacent to the study area.

Therefore, dormice are not considered further as part of this technical note.

3.3.6 Fish

Desk study information from BRCs, showed six records of European eel *Anguilla anguilla* between 1995 and 2012.

Further recommendations for fish have been made in Section 5.

² <https://www.bto.org/science/monitoring/psob>

³ <http://www.iucnredlist.org/about/citing>

3.3.7 Invertebrates

Desk study information from BRCs, presented 42 records of stag beetle *Lucanus cervus* recorded between 2002 and 2010.

There are many mature trees within the study area, some with fallen limbs, and at TN 6 there is an entrance into the park with sections of tree trunk lying either side. These locations may provide suitable habitat for stag beetles within the study area.

Further recommendations for invertebrates have been made in Section 5.

3.3.8 Otters

Desk study information from the BRCs, had five records of otter recorded between 2009-2011, observed mainly in the River Thames, Kennet Canal to Sonning Bridge.

No incidental signs of otter were recorded during the survey. The River Thames would be suitable habitat for feeding otter in more undisturbed areas and may support sites suitable for otter holts that do not flood on a regular basis, however not within the study area.

Further recommendations for otters are made in Section 5.

3.3.9 Reptiles

Desk study information received from the BRCs, had 28 records of adder *Vipera berus* 1 km north of the study area, grass snake *Natrix natrix* recorded between 2000 and 2012 with the closest record at 0.5 km north of the study area, and records of common lizard *Zootoca vivipara* recorded between 2006 and 2010, with the closest 1.8 km to the west of the study area.

No signs of reptile species were identified during the survey. However, the ruderal vegetation/scrub areas at Hills Meadow, and the ruderal and marginal vegetation at TN 15, 19, 28, 32, 42, 47, 52, 62, 68, 76 and 81 were all considered to be suitable habitat for reptile species.

Further recommendations for reptiles are made in Section 5.

3.3.10 Water Voles

One record of water vole in Thames Valley Park from 2012 was noted from information received by BRCs. The record was recorded 1 km east of the options boundary.

No signs of water vole were identified during the survey. The River Thames may provide habitat for the presence of water vole, although bank protection is in place for the majority of river bank.

Further recommendations for water vole are made in Section 5.

3.3.11 Other Fauna

There were burrows located under a semi-mature willow, within ruderal vegetation (TN 22). These burrows are more likely rabbit *Oryctolagus cuniculus* (based on shape and size of entrances). Two roe deer *Capreolus capreolus* were also recorded (TN 17).

4.0 Legislation

4.1.1 Amphibians

Great crested newts *Triturus cristatus*, are fully protected by the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 (Habitat Regulations). Other amphibians are partially protected by the Wildlife and Countryside Act, 1981 (as amended). Great crested newt and common toad, are included under Section 41 of the NERC Act 2006 as a species of principal importance for conserving biodiversity in England.

4.1.2 Badgers

Badgers are protected by the Protection of Badgers Act (1992) and through their inclusion in Schedule 6 of the Wildlife and Countryside Act 1981 (as amended). Under the Protection of Badgers Act (1992) it is an offence to wilfully kill, injure, or take any badger; or to cruelly ill-treat badgers, or to dig for a badger; possess any dead badger or part of one; sell a live badger or offer one for sale, pos-

sess or controls a living, healthy badger; and intentionally or recklessly damage, destroy or obstruct access to a sett (tunnels and chambers), or disturb a badger whilst it is occupying a sett.

4.1.3 Bats

Bats receive protection principally under the Conservation of Habitats and Species Regulations 2017 (Habitat Regulations), with additional protection under the Wildlife and Countryside Act 1981 (as amended), with all bats and their places of refuge protected in the UK. Bat species barbastelle *Barbastella barbastellus*, Bechstein's *Myotis bechsteinii*, noctule *Nyctalus noctula*, soprano pipistrelle *Pipistrellus pygmaeus*, brown long-eared *Plecotus auritus*, greater horseshoe *Rhinolophus ferrumequinum* and lesser horseshoe bat *Rhinolophus hipposideros* are included under Section 41 of the NERC Act 2006 as a species of principal importance for conserving biodiversity in England.

4.1.4 Birds

All nesting birds and their nests are protected in the UK under the Wildlife and Countryside Act 1981 (as amended). Some species, including barn owl *Tyto alba* are further protected as listed under Schedule 1 of the same Act.⁴

4.1.5 Fish

Eels are protected under the following legislations:

- This is a UK BAP Priority Species (BAP species are now Species of Principal Importance/Priority Species).
- This is on the OSPAR list of threatened and/or declining species and habitats.
- Species of principal importance for the purpose of conservation of biodiversity under the Natural Environment and Rural Communities Act 2006
- Listed as Critically Endangered on the IUCN Red List

4.1.6 Invasive non-native species (INNS)

The Wildlife and Countryside Act 1981 contains measures to prevent the establishment of non-native species which may be detrimental to native wildlife. Schedule 9, for England and Wales, makes it an offence to release any of the named species (animals or plants), unless under license. This includes accidental capture, such as crayfish during works or surveying.

4.1.7 Invertebrates

The terrestrial areas within 0.5 km of the study areas contain records of stag beetles which are listed under the conservation (Natural Habitats) Regulations 1994 and the conservation of habitats and species regulations 2010, which provides designation of protected areas required within the natural range of the species. They are named within the Council of Europe Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention), Appendix III, which protects the exploitation of the listed animals through 'appropriate and necessary legislative and administrative measures'. The stag beetle is a priority UK BAP species.

4.1.8 Otters

Otters receive protection principally under the Conservation of Habitats and Species Regulations 2017 (Habitat Regulations), with additional protection under the Wildlife and Countryside Act 1981 (as amended). Otters and their resting places are fully protected, it is an offence to deliberately, capture, injure or kill them or to damage, destroy or obstruct their breeding or resting places. It is also an offence to disturb otters in their breeding or resting places. Otter are included under Section 41 of the NERC Act 2006 as a species of principal importance for conserving biodiversity in England.

4.1.9 Reptiles

Widespread reptiles receive partial protection in the UK under the Wildlife and Countryside Act 1981 (as amended). Reptiles likely to use the site (e.g. grass snake and slow-worm *Anguis fragilis*,) are protected against killing, injury and sale. Slow-worm, smooth snake *Coronella austriaca*, grass

⁴ <http://www.ukwildlife.com/index.php/wildlife-countryside-act-1981/schedule-1/>

snake, adder and common lizard are included under Section 41 of the NERC Act 2006 as a species of principal importance.

4.1.10 Water Voles

Water voles and their places of shelter or protection receive full protection under the provisions of Section 9 of the Wildlife and Countryside Act 1981 (as amended). They are also included under Section 41 of the NERC Act 2006 as a species of principal importance.

4.1.11 Other Fauna

The Wild Mammals (Protection) Act (1996) protects mammals (including rabbits and foxes) from certain forms of death or injury such as crushing and asphyxiation.

5.0 Discussion, Evaluation and Recommendations

5.1 Habitats and Flora

5.1.1 Tall Ruderal Vegetation

The ruderal vegetation within the study area provide connectivity functions, provides shelter and foraging opportunities for birds and reptiles. This habitat is considered to be of **Local** value for nature conservation.

5.1.2 Grassland: amenity and poor semi-improved

The areas of amenity and poor semi-improved grassland within the study areas are not species-rich, but provide some structural diversity and foraging opportunities for animals. These are considered to be of value within the **immediate zone of influence** only.

Where grasslands are retained or created within the study area, it is recommended that these are enhanced to develop species-rich swards using locally sourced seeds or plants.

5.1.3 Hedgerows, Dense and Scattered Scrub, and Trees

The hedgerows, scrub and trees within the study areas provide connectivity functions as well as providing shelter and foraging opportunities for animals including bats, and nesting opportunities for birds. These habitats (excluding mature trees) are considered to be of **Local** value for nature conservation.

Mature trees are an important habitat in themselves and are only replaceable in the long-term, so are considered to be of up to **District** value for nature conservation, although the ecological value may increase following bat surveys.

It is recommended that the design of the project avoids impacting semi-mature or mature trees where possible, but if any need to be removed, replanting should be undertaken. Retained trees close to working areas should be protected by protective fencing prior to the commencement of works to prevent encroachment of plant and accidental damage of the habitat, in line with BS 5837:2012 Trees in relation to design, demolition and construction.

The habitat is of value for breeding birds and bats and recommendations for these are given below.

5.1.4 Ditches and Watercourses

The drain that runs along the northern boundary of Christchurch playing fields and Hills Meadow offers limited potential for protected species as it remains overgrown and shaded for much of its length. However, it may provide connectivity functions as well as providing shelter and foraging opportunities for animals, so it is considered to offer habitat of **Local** value for nature conservation.

The River Thames may support locations where otter and water vole may be present. However, the Phase 1 survey did not include a protected species targeted survey. It is considered that the River Thames is of **Regional** ecological value.

5.1.5 Woodland: broad-leaved

The woodland within the study area are not species-rich or mature. However, they do provide structural diversity and foraging opportunities for animals, so this habitat is considered to be of **Local** value for nature conservation.

5.2 Fauna

5.2.1 Amphibians

Though the survey area did not appear to present any suitable locations for great crested newts, there are many records of other amphibian species within the area. Their presence should be assumed at all suitable waterbodies and care be taken to avoid harm during construction, if these areas are to be effected.

5.2.2 Badgers

Although no signs of badger were found during any of the extended Phase 1 Habitat Surveys. It is recommended that an ecologist with extensive badger experience conduct a further in-depth badger survey to map potential setts within the survey area, especially the fields located to the east of the scheme and areas which borders the scrub habitat of the gravel pits. This map of setts will need to be conducted whilst engineering options are being considered as sett location may provide further design challenges.

5.2.3 Bats

The hedgerows and scattered trees along drains are likely to be used by foraging/commuting bats and it is therefore advisable that the project design seeks to employ a sensitive directional lighting strategy during construction. It is also recommended that the design of the projects avoids impacting semi-mature or mature trees and hedgerows where possible, due to their potential for roosting bats, or as foraging/commuting corridors for bats.

It is recommended that if any trees with bat roost potential are required for removal or structures impacted, they should be inspected by a suitably qualified ecologist for bat roost signs. Bat potential trees are usually mature trees, which have cracks or broken branches and may be ivy covered, which could be used for shelter. If bat activity surveys are required, three visits covering dusk and dawn periods should be undertaken between May and September. Winter surveys may also be deemed necessary if hibernation features are identified within structures. All surveys should be undertaken in accordance with Bat Surveys, Good Practice Guidelines (Bat Conservation Trust, 2012).

As ecological mitigation bat boxes could be erected on retained trees.

5.2.4 Birds

The site supports features that are likely to be used by breeding birds and have potential to be of importance to overwintering, roosting and nesting birds.

Should key habitats such as scrub and semi-mature trees be impacted, breeding bird surveys may be required and consideration will need to be given to nesting birds. It is recommended that any vegetation removal should be scheduled to occur outside of the breeding bird season (March-August). If it is not possible to do this, then a check for nesting birds should be undertaken by an experienced ecologist within 24 hours of the works commencing. Should nesting/ breeding birds be found then the nest should be protected by an appropriate buffer zone around the structure or tree and works should be postponed until fledging has been confirmed by an ecologist. In addition, areas of potential breeding bird habitat outside the works footprint, should be fenced off to prevent accidental damage and/or disturbance.

The project design should also include provision for the replacement of lost vegetation and nest boxes to mitigate potential habitat loss.

5.2.5 Fish

The river has potential to support protected fish species and consultation with the Environment Agency's Fisheries Officer is recommended to identify which species may be present and whether further survey work is required.

5.2.6 Invasive non-native species (INNS) - Signal crayfish

This species has been previously recorded within the River Thames, however not within the BRC for this report. Though unlikely to be trapped during the works, a detailed method statement will need to be prepared well in advance of programming for the management of invasive non-native species. The method used would depend on species, area affected, the surrounding habitats and the time available for treatment.

5.2.7 Invertebrates

The site supports features (sections of tree trunk, dead tree limbs) that may be of importance for invertebrate species, in particular stag beetles.

If these areas are to receive any significant disturbance resulting in the loss of these habitats, then it is recommended that an appropriate survey is undertaken (if possible).

As ecological mitigation, tree stumps could be left in situ and log pile habitat created.

5.2.8 Otters

The River Thames is known to support otters, however they are unlikely to use any habitat within the study area for sheltering and breeding due to the amount of disturbance and lack of suitable habitats. Any disturbance to the river will need to take otters into account.

Due to the mobile nature of otters, mitigation during the construction works should be considered to minimise the potential for species to fall into open trenches and excavations. All excavations left open overnight should be covered with boarding and fenced securely or left with an escape route in the event of an otter falling into them.

5.2.9 Reptiles

There is a potential for the study area to support reptile species within ruderal and scrub habitat.

It is recommended that a reptile survey is undertaken in these areas if they are to be impacted, in April-May or September, to inform a reptile mitigation strategy to prevent killing or injury to reptiles during construction.

A reptile survey would entail placing artificial refugia, comprising 50 centimetres (cm) x 50 cm of roofing felt along survey transects. Guidance recommends that five to ten refuges are used per hectare (Froglife, 1999). It is recommended that the refugia are left for a minimum period of seven days in order to 'bed-in', thus providing an opportunity for reptiles within the survey area to locate and use them, followed by a minimum of seven visits to determine presence/absence.

If reptiles are present, a mitigation strategy should be implemented. If sensitive areas are to be impacted then care is to be taken so that structures such as log piles are not disturbed; these structures should also be avoided during vegetation clearance. Vegetation clearance should be undertaken at least one week before construction works commence and the arising removed. If vegetation clearance is planned within the reptile hibernation period (November to March), the vegetation should be removed in October to avoid injury to hibernating animals. Please note seasonal constraints relating to nesting birds may conflict with these methods of working for reptiles and should be taken into account when planning vegetation clearance.

As ecological mitigation, hibernacula could be installed such as log or rock piles. These would need to be located where they would not be disturbed in the future by the public or future developments.

5.2.10 Water Voles

The River Thames provides suitable habitat for water vole. If the banks of the River Thames or the water quality is to be impacted, it is recommended that a water vole survey is undertaken to determine presence/absence. Surveys should be based on the presence of characteristic signs (faeces, latrines, feeding stations, burrows and footprints) and be undertaken between April and October.

If water voles are found then a mitigation method statement will need to be produced to ensure that any habitat used by them is protected during construction and that the site will be able to support a viable population once development is complete.

5.2.11 Other Fauna

Any excavation works to areas with dens or holes present, could cause mammals within the tunnel system to asphyxiate. Where possible, such excavations should be undertaken through hand-digging and any mammals uncovered allowed to freely escape. Alternatively, a professional ecologist can advise on methods to remove such species within the law.

5.3 Conclusion

It is considered that further surveys need to be undertaken and detailed design information received before any conclusion can be made on the ecological impacts of the proposed flood alleviation options and if it is in accordance with relevant legislation. However, the recommended measures set out above would aim to avoid, reduce or mitigate any potential impacts to habitats and species.

Below a list with the potential surveys that are required:

- **Badger:** A survey of habitat which might support sett building areas, above the flood line, needs to be completed by a suitably experienced ecologist before any works are to commence;
- **Bats:** If any trees with potential for bats or the derelict building is to be impacted, a bat tree survey will need to be carried out, followed by a bat activity survey. Bat activity surveys consist of three visits covering dusk and dawn periods between May and September. Winter surveys may also be deemed necessary if hibernation features are identified within structures;
- **Birds:** If any scrub or trees need removing within the breeding bird season (March-August), then a check for nesting birds should be undertaken by an experienced ecologist within 24 hours of the works commencing. If an active nest is found, mitigation will include retaining the vegetation until the young have fledged;
- **Invertebrates:** An invertebrate survey is required if there is to be any significant disturbance resulting in the loss of dead wood. Mitigation will need to be developed for stag beetles, if they are found to be present;
- **Plants:** Further botanical surveys may be necessary to cover unsurveyed areas and assess site's diversity during vegetation season. Specifically the northern part of the site where additional surveys are necessary to fully assess their ecological value and help to choose the most suitable mitigation measures;
- **Reptiles:** A reptile survey will be required if ruderal and scrub habitats are impacted. If the presence of reptiles is confirmed, a reptile mitigation strategy will be developed for construction;
- **Signal Crayfish:** A detailed method statement will need to be produced, before works commence, on the management of this invasive species in preparation for accidental capture. Generally, if the species are encountered they will need to be controlled during the works to prevent them spreading further along the waterways; and
- **Water Voles:** A water vole survey to determine presence/absence may be required if the river banks or water quality of the River Thames are to be impacted.

It is also recommended to discuss the preferred option with Natural England at an early stage.

6.0 References

CIEEM (2016) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal*. 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.

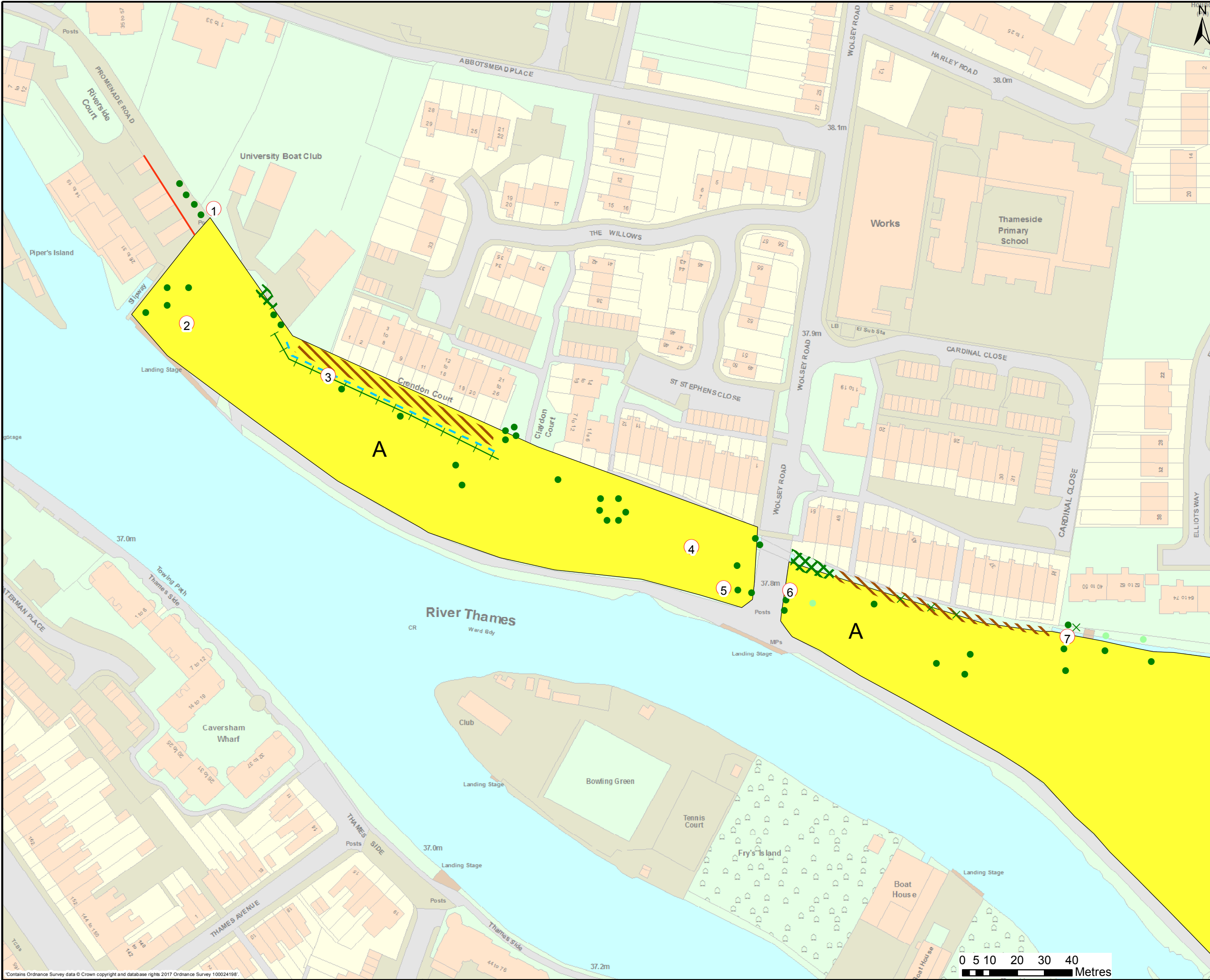
CIEEM (2013) *Guidelines for Preliminary Ecological Appraisal*. Chartered Institute of Ecology and Environmental Management, Winchester.

JNCC (2010) *Handbook for Phase I Habitat Survey: a Technique for Environmental Audit*, reprinted 2010. Joint Nature Conservation Committee, Peterborough.

Stace C (2010) *New Flora of the British Isles*. Third Edition. Cambridge University Press

Environmental Shapefiles Data, Environment Agency, 2017.

Appendix A - Figures 1-7 Phase 1 Habitat Maps



Key Plan:

Legend:

- Target Note, Target Note
- A2.2, Scrub - scattered
- A3.1, Broadleaved Parkland/scattered trees
- A3.2, Coniferous Parkland/scattered trees
- J2.3.2, Hedge with trees - species-poor
- J2.5, Wall
- J2.6, Dry ditch
- A2.1, Scrub - dense/continuous
- C3.1, Other tall herb and fern - ruderal
- A J1.2, Cultivated/disturbed land - amenity grassland

Rev	By	Chkd	Apprd	Date	Description

Client

Environment Agency

Burderop Park, Swindon, SN4 0OD
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Project

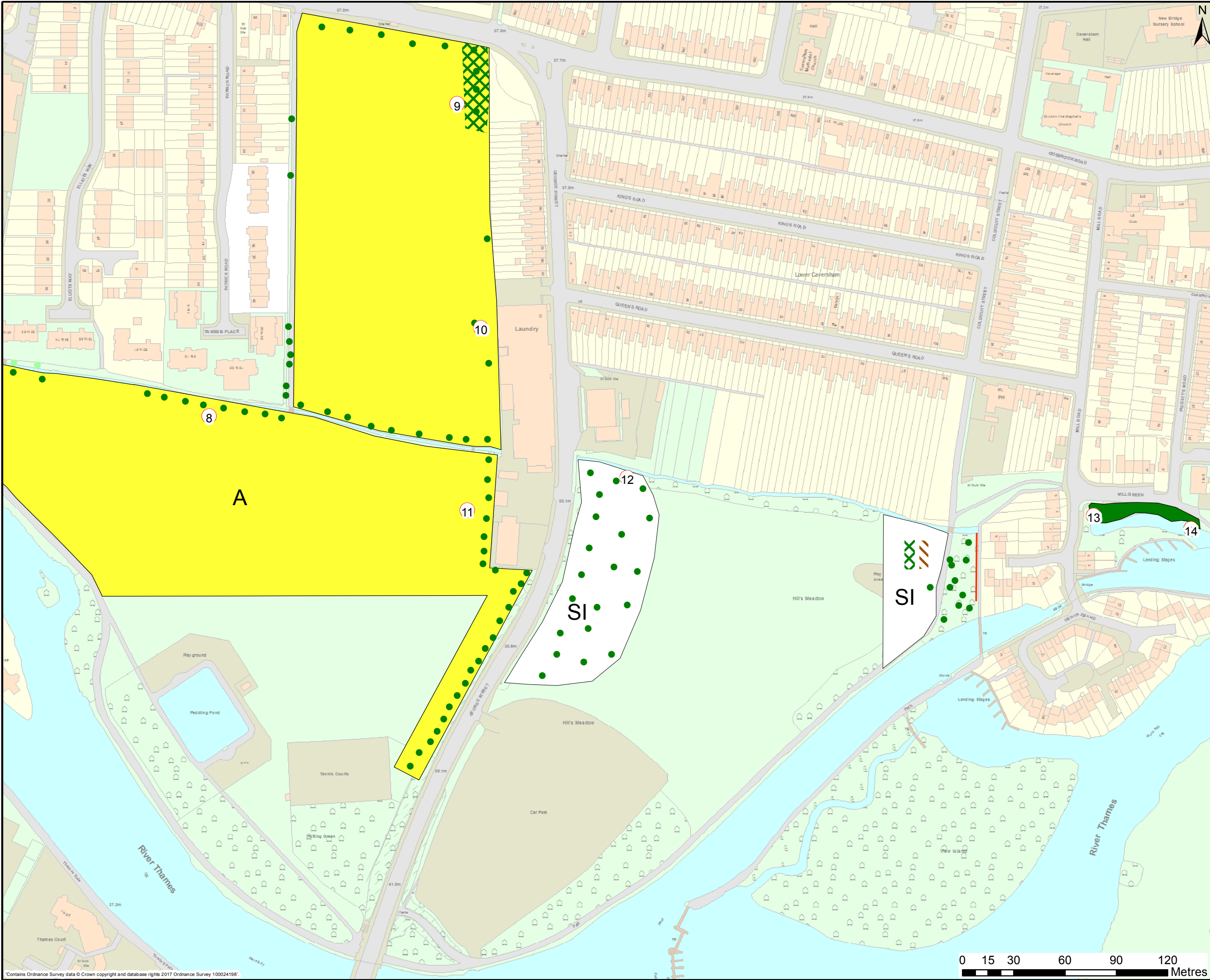
THAMES APPRAISALS PACKAGE

Drawing

Caversham - Figure 1
Phase 1 Habitat Mapping

Drawn by: Ruby Simmons	Date: 21/02/2017
Checked by: Pete Sillard	Date: 21/02/2017
Approved by: Peter Skelch	Date: 21/02/2017
Drawing No: ENV000112C-CH2-000-000-DR-EN-0001	Revision: C.01

Drawing Scale: 1:1,250 (A3)



Key Plan:



Legend:

- Target Note, Target Note
- A3.1, Broadleaved Parkland/scattered trees
- A3.2, Coniferous Parkland/scattered trees
- J2.5, Wall
- A1.1.1, Broadleaved woodland - semi-natural
- A2.1, Scrub - dense/continuous
- B6, Poor semi-improved grassland
- C3.1, Other tall herb and fern - ruderal
- J1.2, Cultivated/disturbed land - amenity grassland

Rev	By	Chk	Appr	Date	Description



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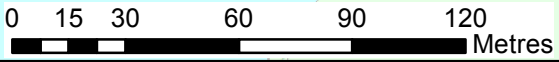


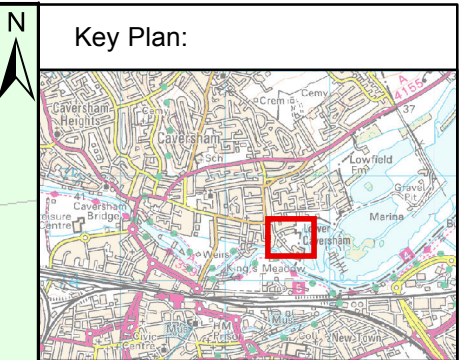
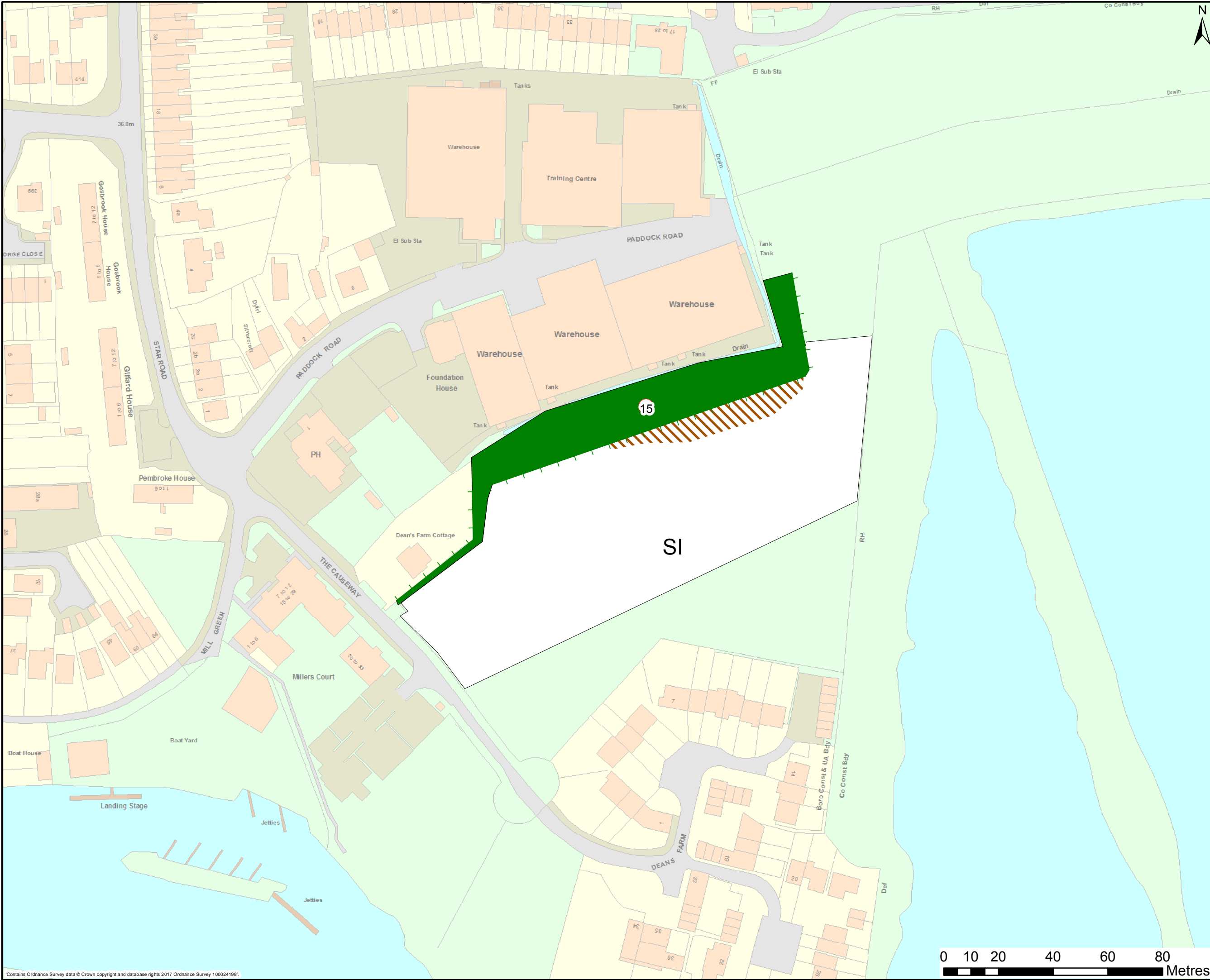
THAMES APPRAISALS PACKAGE

Caversham - Figure 2
Phase 1 Habitat Mapping

Drawn by: Ruby Simmons	Date: 21/02/2017
Checked by: Pete Sillard	Date: 21/02/2017
Approved by: Peter Skelch	Date: 21/02/2017
Drawing No: ENV0000112C-CH2-000-000-DR-EN-0002	Revision: C.01

Drawing Scale: 1:2,000 (A3)





- Legend:**
- Target Note, Target Note
 - J2.3.2, Hedge with trees - species-poor
 - A1.1.1, Broadleaved woodland - semi-natural
 - B6, Poor semi-improved grassland
 - C3.1, Other tall herb and fern - ruderal

Rev	By	Chkd	Apprd	Date	Description

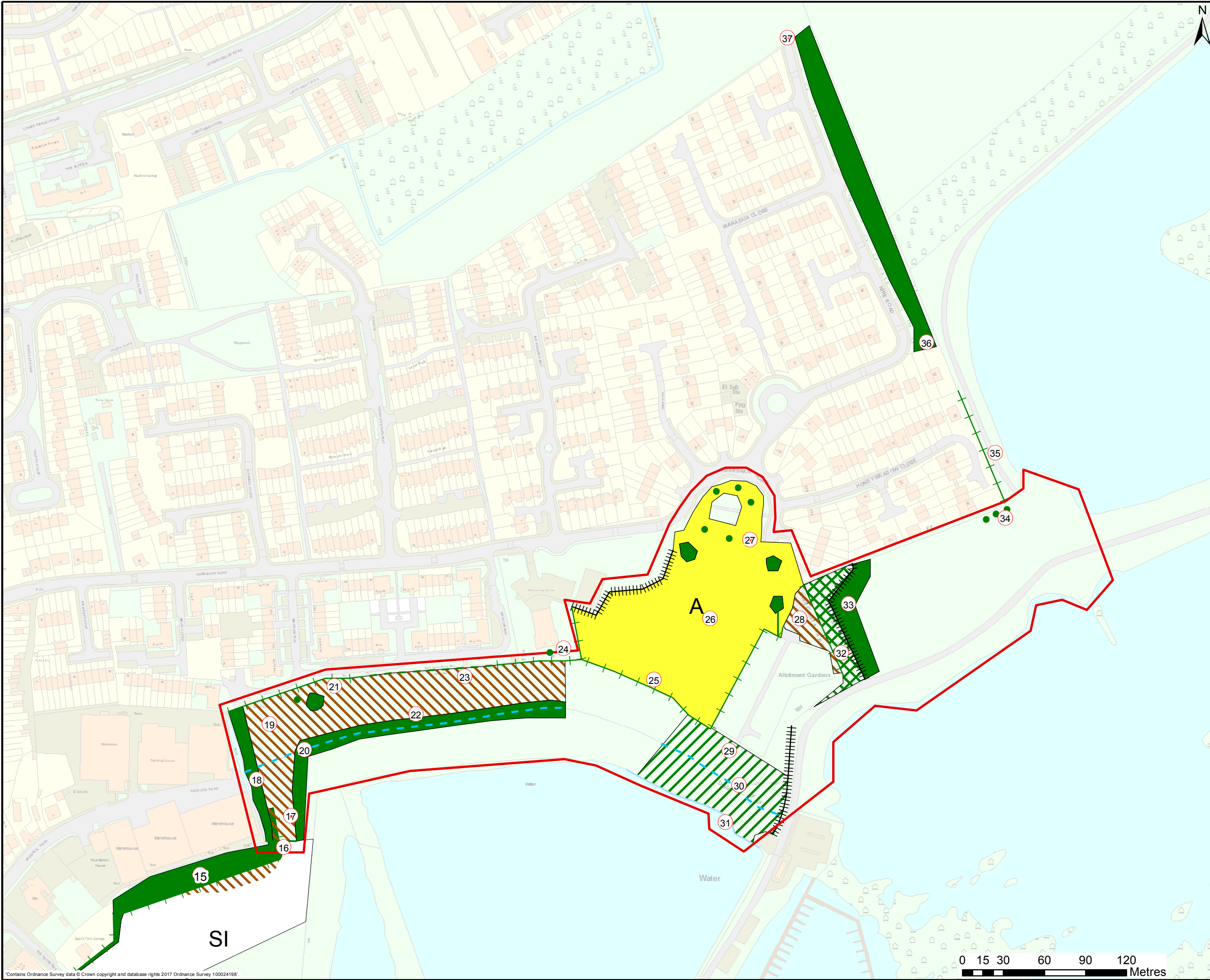


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Caversham - Figure 3
Phase 1 Habitat Mapping

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Checked by: Pete Sillard	Date: 20/02/2017
Approved by: Peter Skelch	Date: 20/02/2017
Drawing No: ENV0000112C-CH2-000-000-DR-EN-0003	Revision: C.01

Drawing Scale: 1:1,250 (A3)



Key Plan:

Legend:

- Extended P1 Study Area
- Target Note
- A3.1, Broadleaved Parkland/scattered trees
- F2.1, Marginal and inundation - marginal vegetation
- J2.1.2, Intact hedge - species-poor
- - - J2.2.2, Defunct hedge - species-poor
- + + + J2.3.2, Hedge with trees - species-poor
- ||||| J2.4, Fence
- - - J2.6, Dry ditch
- A1.1.1, Broadleaved woodland - semi-natural
- A1.1.2, Broadleaved woodland - plantation
- A2.1, Scrub - dense/continuous
- C3.1, Other tall herb and fern - ruderal
- J1.2, Cultivated/disturbed land - amenity grassland

Rev	By	Chkd	Apprd	Date	Description

Client

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Drawing

Caversham - Figure 4
Phase 1 Habitat Mapping

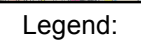
Drawn by:	Date:
Ruby Simmons	11/09/2017

Checked by:	Date:
Pete Sillard	11/09/2017

Approved by:	Date:
Peter Skelch	11/09/2017

Drawing No.	Revision
ENV0000112C-CH2-000-000-DR-EN-0004	C.01

Drawing Scale: 1:2,500 (A3)



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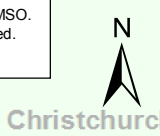
Drawing

Caversham SouthBank
Figure 5
Phase 1 Habitat Mapping

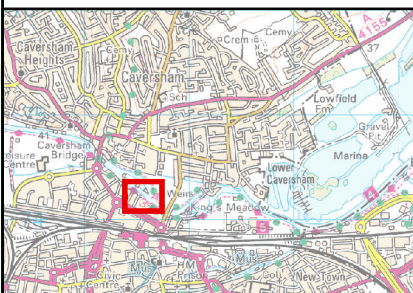
Drawing Scale: 1:1,000 (A3)



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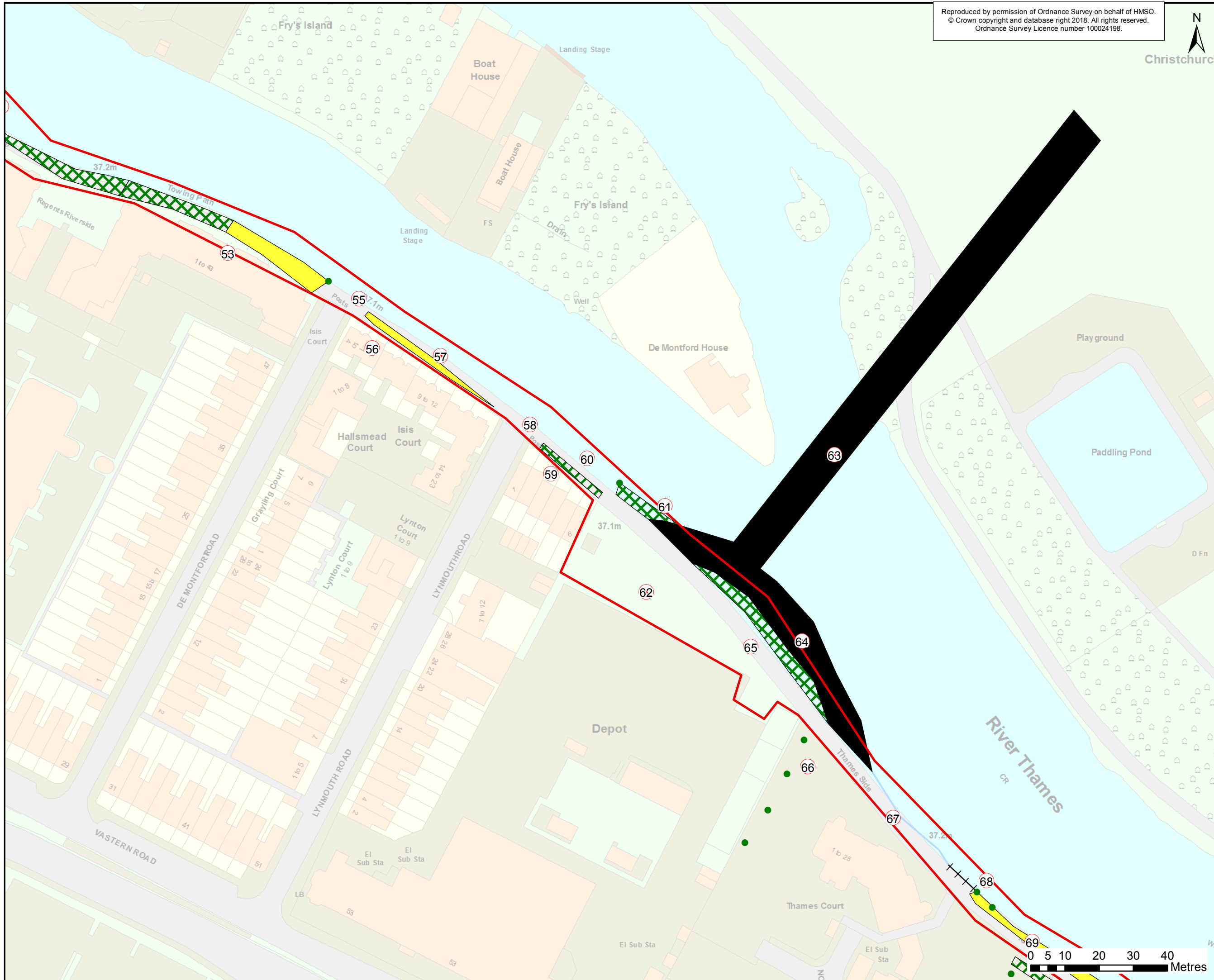


Key Plan:



Legend:

- Caversham SouthBank Study Area
- Target Note
- A3.1, Broadleaved Parkland/scattered trees
- F2.1, Marginal and inundation - marginal vegetation
- J2.4, Fence
- A2.1, Scrub - dense/continuous
- J1.2, Cultivated/disturbed land - amenity grassland
- J3.6, Buildings



Rev	By	Chkd	Apprd	Date	Description



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Caversham SouthBank
Figure 6
Phase 1 Habitat Mapping

Drawn by: Ruby Simmons	Date: 27/03/2018
Checked by: Richard Smedley	Date: 27/03/2018
Approved by: Peter Skelch	Date: 27/03/2018
Drawing No: ENV0000112C-CH2-000-000-DR-EN-0007	Revision: C.01

Drawing Scale: 1:1,000 (A3)

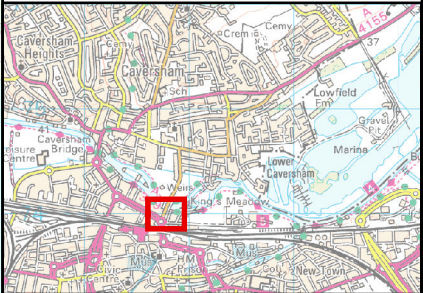
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Key Plan:



Legend:

- Caversham SouthBank Study Area
- Target Note
- A3.1, Broadleaved Parkland/scattered trees
- F2.1, Marginal and inundation - marginal vegetation
- J2.2.2, Defunct hedge - species-poor
- J2.4, Fence
- A2.1, Scrub - dense/continuous
- J1.2, Cultivated/disturbed land - amenity grassland
- J3.6, Buildings
- J5, Other habitat

Rev	By	Chkd	Apprd	Date	Description



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Caversham SouthBank
Figure 7
Phase 1 Habitat Mapping

Drawn by: Ruby Simmons	Date: 27/03/2018
Checked by: Richard Smedley	Date: 27/03/2018
Approved by: Peter Skelch	Date: 27/03/2018
Drawing No: ENV0000112C-CH2-000-000-DR-EN-0008	Revision: C.01

Drawing Scale: 1:1,000 (A3)

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Drawing

Caversham SouthBank
Figure 8
Phase 1 Habitat Mapping
Overview

Source: www.ck12.org Date: 07/03/2018

Checked by: B. L. J. C. M. Date: 27/03/2018

Checked by: Richard Smedley Date: 27/03/2018

Approved by: Peter Glatch Date: 27/03/2018

Approved by: Peter Skutch	Entered: 3/27/2004 10:10
Discussion	Discussion

Drawing No. Revision
 EN100001100 QUC 000 000 BB EN 0000 0 01

ENV0000112C-CH2-000-000-DR-EN-0009 | C.01

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Drawing Scale: 1:8,000 (A3)

Appendix B - Photographs

Target Note	Description	Photographs
The following Target Notes and Photographs were taken in January (TN 1-15)		
1	A pollarded crack willow tree which supports features which may be potentially suitable for roosting bats.	
2	Two mature trees with holes in their trunks and branches, which may be potentially suitable for roosting bats.	
3	A very overgrown drain with scrub and ruderal vegetation both sides and a thick layer of leaf litter.	

Target Note	Description	Photographs
4	Two trees which are densely covered in ivy and so may be potentially suitable for roosting bats.	
5	A weeping willow tree which supports features which may be potentially suitable for roosting bats.	
6	Sections of tree trunk lay either side of this entrance way.	No Photograph
7	A wet drain with steep banks dominated by bramble and ruderal vegetation. Some sections have a dense covering of leaf litter, while other less shaded sections further east support submerged and emergent vegetation.	

Target Note	Description	Photographs
8	Along this drain are several mature pollarded crack willow trees which support good features, which may be potentially suitable for roosting bats.	 
9	A row of mature trees which support good features, which may be potentially suitable for roosting bats.	
10	These trees support features which may be potentially suitable for roosting bats.	

Target Note	Description	Photographs
11	This derelict building, which was a pavilion, has the potential to be suitable for roosting or hibernating bats.	
12	A drain approximately 3m wide, heavily shaded by adjacent trees and scrub, with no aquatic vegetation.	
13	A mammal path which leads behind dense vegetation.	
14	An ash tree which supports a number of features which may be potentially suitable for roosting bats.	
15	A strip of woodland dominated by willow running alongside a wet drain. The channel is heavily shaded with no vegetation.	

Target Note	Description	Photographs
The following Target Notes and Photographs were taken in September (TN 16-33)		
16	Small species poor hedgerow as a field boundary. Suitable for birds and reptiles. Photo taken 1st September 2017	
17	Small area of scrub in the understory of the willow trees. Suitable for birds and reptiles. Photo taken 1st September 2017	
18	Woodland to the west of the ruderal field. Suitable for birds and potentially bats. Photo taken 1st September 2017	
19	Tall, dense ruderal, mostly comprising of nettles. Suitable for birds and reptiles. Photo taken 1st September 2017	

Target Note	Description	Photographs
20	Small area of woodland, to the south, as a boundary with the disused gravel pit. Suitable for birds and potentially bats. Photo taken 1st September 2017	
21	Trees and hedgerow as a boundary between properties on Amersham road and the site of the proposed scheme. Tall, semi-mature trees with shrubs and some ivy. Suitable for birds and potentially bats. Photo taken 1st September 2017	
22	A small burrow found under a willow tree, just north of the field boundary. It is most likely a rabbit burrow. Photo taken 1st September 2017	
23	Defunct hedgerow and trees. Suitable for birds and potentially bats.	No Photograph

Target Note	Description	Photographs
24	A few taller, mature, willow trees. To the east of these trees, and slightly behind, was a large, mature oak with ivy. Suitable for bats and birds. Photo taken 1st September 2017	
25	The field boundary (at the far end) which divides the amenity grassland from the disused gravel pit. Suitable for bats, birds, invertebrates and reptiles. Photo taken 1st September 2017	
26	Amenity grassland with small patches of well-developed scrub and trees. Suitable for bats, birds, invertebrates, mammals and reptiles. Photo taken 1st September 2017	

Target Note	Description	Photographs
27	Scattered trees throughout the amenity grassland, along with the tall established areas of scrub and trees. These currently hold little value to wildlife, but should be retained to develop and act as suitable habitat in the future. Photo taken 1st September	
28	Area of dense scrub. Appears to be the remains of a fence-line within this part of the scheme. It was unclear, from within the field, the extent of this fence and what it might have been. Suitable for bats, birds, invertebrates, mammals and reptiles. Photo taken 1st September 2017	
29	One area where old, rusted, fenceposts can be seen through the vegetation. This gave some access to the plantation behind, close to the gravel pits. Photo taken 1st September 2017	

Target Note	Description	Photographs
30	Plantation of willow. Understory was very low, consisting of creeping, scrub species. Suitable for birds, invertebrates, mammals and reptiles. Photo taken 1st September 2017	
31	A small opening towards the marginal vegetation on the edge of the waterbody. Suitable for amphibians, birds, invertebrates, mammals and reptiles. Photo taken 1st September 2017	
32	Area of scrub between a line of trees, bordering the amenity grassland, and a fence of the gravel pit. Suitable for bats, birds, invertebrates, mammals and reptiles. Photo taken 1st September 2017	

Target Note	Description	Photographs
33	Area of woodland (on the other side of the fence), comprising of mostly willow. Suitable for bats and birds. Photo taken 1st September 2017	
34	Tall mature trees located between the gravel pits and the end of Honey Meadow Close. These tall, mature trees, some with ivy, are suitable for bats and birds. Photo taken 1st September 2017	
35	Species poor hedgerow separating the gravel pits with species poor hedgerow and trees. Suitable for bats, birds, invertebrates, mammals and reptiles. Photo taken 1st September 2017	

Target Note	Description	Photographs
36	Area of mature broadleaf woodland, all with ivy. A small amount of bramble and nettles in the understory. Suitable for bats, birds, invertebrates, mammals and reptiles. Photo taken 1st September 2017	
37	The end of Nire Road. The fence intersects the street from a field on the other side. No survey of the field was allowed due to access reasons, though looking through the fence, the habitat seemed to be poor semi-improved grassland. Photo taken 1st September 2017	

The following Target Notes and Photographs were taken in January 2018 (TN 38-84)

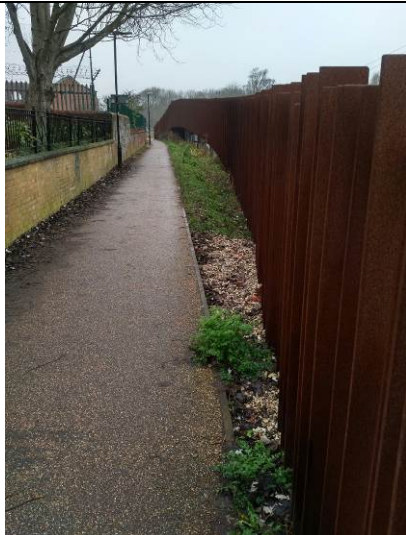
38	Large mature London plane trees. Trees have a medium potential for bats. Photo taken 11th January 2018	
39	Amenity grassland with a small number of trees. Low ecological potential Photo taken 11th January 2018	

Target Note	Description	Photographs
40	Concrete-lined river bank, with a small area of grass. Unsuitable for otters or water voles. Photo taken 11th January 2018	
41	A strip of amenity grassland, adjacent to the river bank. Small crevices between each 'bag' provides an area for aquatic invertebrates and/or fish. Unsuitable for otters or water voles. Photo taken 11th January 2018	
42	Picnic area for large company. Some decorative plants and shrubs. Suitable for birds and potentially reptiles.	No Photograph
43	Private gardens with decorative plants and bird feeders. House sparrows heard calling from dense shrubbery, potential nesting habitat.	No Photograph
44	Concrete lined river-bank Unsuitable for otters or water voles.	No Photograph
45	Private gardens with decorative plants and bird feeders. Area is separated, from the tow path, by an intact, dense species poor hedgerow.	No Photograph
46	Large private communal garden with decorative plants and bird feeders. A large species poor hedgerow, separates this area from the tow path.	No Photograph

Target Note	Description	Photographs
47	Marginal vegetation within the river bed, next to amenity grassland. Unsuitable for otters or water voles, but potential for reptiles. Small trees have no potential for bat roosts. Photo taken 11th January 2018	
48	Scrub land, next to a mooring on the river bank. Photo taken 11th January 2018	
49	Private land – car park for the adjoining residential properties. Concrete with a little gravel. Little ecological value	No Photograph
50	Area of amenity grassland by private properties.	No Photograph
51	Private land – car park for the adjoining residential properties. Concrete with a little gravel. Large mature willow <i>sp.</i>, with ivy, has medium bat potential.	No Photograph

Target Note	Description	Photographs
52	Large area of scrub land (mostly brambles) on the river bank. Potential for reptiles. Photo taken 11th January 2018	
53	Private gardens with decorative plants and bird feeders.	No Photograph
54	Concrete 'bags' which line the river bank. Small crevices between each bag might provide areas for aquatic invertebrates and/or fish. Photo taken 11th January 2018	
55	Typical part of the Southbank Thames walkway, with a small vegetative bank close to the concrete lined river bank. Photo taken 11th January 2018	
56	Private gardens with decorative plants and bird feeders.	No Photograph

Target Note	Description	Photographs
	Suitable for birds.	
57	Small patch of amenity grassland which runs next to the boundary with the riverside properties. Some over-flow vegetation from the private gardens.	No Photograph
58	End of the road which leads to the riverside, similar to TN55. Little ecological value	No Photograph
59	Private gardens with decorative plants and bird feeders.	No Photograph
60	Small patch of scrub which runs next to the boundary with the riverside properties. Some over-flow vegetation from the private gardens. Suitable for birds.	No Photograph
61	Small patch of grass/scrub which forms part of the new bridge river bank. Photo taken 11 th January 2018	
62	Part of a large electrical companies ground. Consists of car park and a small patch of grassland. Suitable for birds and reptiles.	No Photograph
63	Large pedestrian bridge over the River Thames. No bat potential. Photo taken 11 th January 2018	

Target Note	Description	Photographs
64	Access slope up to the pedestrian bridge. This appeared to be suspended over the river. Shaded river bank suitable for aquatic invertebrates and fish.	No Photograph
65	A small area of sheltered scrub between the tow path and the pedestrian bridge. A small patch of fence separates the path from the river bank, meaning fauna cannot pass between the two here. Photo taken 11th January 2018	
66	A series of large, mature trees on the boundary between properties. Potential disturbance issues during construction.	No photograph
67	Concrete tow path with little vegetation at all. Unsuitable for otters or water voles.	No Photograph
68	Thin patch of marginal vegetation along the edge of the river bank. With a concrete lined backing, this offers little sheltering/burrowing opportunity for fauna. Photo taken 11th January 2018	

Target Note	Description	Photographs
69	Small patch of grassland, bordering the river bank, with two large ash. On the other side, next to a boundary wall, an area of scrub with a number of trees. Low potential for bats. Photo taken 11th January 2018	
70	Paved area between the river side properties and the concrete-lined river bank. Connected patches of scrub/hedges. Photo taken 11th January 2018	
71	Small dense hedgerow separating an outdoor area and the tow path. Suitable for birds.	No Photograph
72	Single mature sycamore tree, covered with ivy and a scrub ground flora. Tree with low to medium bat potential.	No Photograph
73	A raised, species-poor, hedgerow which surrounds the building. Suitable for birds. Photo taken 11th January 2018	
74	The ground surrounding the building, in this part of the survey area, is paved.	No Photograph
75	Large mature ash in the car park to the	No Photograph

Target Note	Description	Photographs
	'Thames Water' building. Medium potential for bats.	
76	Small secluded garden, located behind a dense hedgerow. Could only see through vegetation, but appeared to consist of a variety of plants. Suitable for birds and reptiles. Suitable for birds.	
77	Private gardens with decorative plants and bird feeders. A number of large mature sycamores, a single of which is covered in ivy. Low potential for bats but suitable for birds. Photo taken 11 th January 2018	
78	A line of individual London planes, separating two car parks. Large and mature trees with a medium potential for bats.	No Photograph
79	A number of ash trees, on top of a small elevation of earth. All of which have a low potential for bats.	
80	Amenity grassland at the front of the 'Environment Agency' building. This area appeared to be species poor but still suitable for foraging birds. Photo taken 11 th January 2018	
81	Species poor hedgerow which separates the grassland and a car park. Suitable for birds and reptiles.	No Photograph
82	A small 'garden' located at the end of the hedgerow. Suitable for birds.	No Photograph
83	Large lime tree, with low potential for bats.	No Photograph
84	Private gardens with decorative plants and feeders. House sparrows heard in this area. Suitable for birds.	No Photograph