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& environmental services

TEDDINGTON SPORTS GROUND
UDNEY PARK ROAD
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TW11 9BB

Phase 2 Bat and Reptile Survey Report

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1.0 Summary

The proposed scheme will see the site on Udney Park Road, Teddington, London, TW11 9BG, regenerated for a mixed-use development that will deliver high-quality sports and community facilities, alongside new public open space and affordable, care led accommodation for Older People. Peach Ecology was instructed to undertake a reptile survey of the land, bat survey of the building and bat activity survey of the site.

No reptiles were recorded during the survey and a single soprano pipistrelle bat was recorded roosting in the Pavilion, it is likely that features in the roof can be maintained for roosting bats with low levels of disturbance and a European Protected Species licence is not deemed necessary to proceed with any refurbishments although if the building was being re-roofed then a licence may be needed in order to proceed. As a precautionary measure twelve Schwegler 1FF bat boxes will be erected on retained trees along the boundary prior to any construction activities on site so bats always have an undisturbed place to roost away from any activities associated with the proposals.

The bat activity survey recorded at least 8 different species of bats within the site boundaries or high above, the vast majority of these were common and soprano pipistrelle although Noctule, Serotine, Brown Long-eared, Leislers, Myotis species and Nathusius Pipistrelle were recorded also. The boundary trees and hedgerows are important for foraging and commuting bats providing key linear features for flight routes and wildlife corridors and these must be protected during construction from harm and post construction from light splay associated with the proposals. The landscaping proposals have been designed to add value to the boundary where possible. The central open space consisting of amenity grassland had lower levels of bat activity however the loss will still need to be compensated for in the site design and by providing new diverse areas of planting and vegetation where possible. This has been achieved through extensive consultation between Peach Ecology and the design team.

2.0 Introduction

Background

2.1 Peach Ecology was commissioned in August 2016 to undertake Phase 2 bat (building and activity surveys) and reptile surveys of Teddington Sports Ground and Pavilion, Udney Park Road, Teddington, TW11 9BB, Grid Reference: TQ16351 70951. Lindsay Carrington Ecological Services Ltd undertook a Phase 1 Ecological Appraisal of the site which highlighted some interest for these species, this Phase 2 report follows on from that.

2.2 These reports will support the planning application being submitted to London Borough of Richmond upon Thames Council. The proposed scheme will see the site regenerated for a mixed-use development that will deliver high-quality sports and community facilities, alongside new public open space and affordable, care led accommodation for Older People. This triple approach secures a sustainable, inclusive future for the site, the benefits of which underpin national and local planning policy. With the creation of the Teddington Community Sports Ground Community Interest Company, three areas will be established :

- Assisted living, extra care, residential development;
- Open parkland with community Orchard and outdoor gym;
- Community sports facilities.

2.3 The proposed community sports facilities will comprise of the following: -

- A full-size Third Generation artificial grass pitch (3G AGP)
- Natural grass playing pitch provision
- Tennis Courts / MUGA
- Community pavilion containing changing rooms, kitchen, bar and server, flexible-use community rooms and crèche

Brief

2.4 To undertake Phase 2 Bat and Reptile surveys of the site and provide advice on the impacts of the proposals and set out mitigation and enhancement measures as required.

3.0 Methodology

Bat building survey

3.1 A methodology was designed in line with the guidance in the Bat Conservation Trust Bat Surveys for Professional Ecologists, Good Practice Guidelines (2016). Five bat emergence surveys encompassing dusk and dawn surveys took place. Surveys started at least 15 minutes before sunset for the dusk survey and continued until 1.5 hours after, the dawn survey started 1.5 hours before sunrise and continued until just after. 1-4 surveyors were present during each survey positioned at vantage points that covered the most likely access points on the building. Equipment used included hand-held Elekon Bat Logger M bat detector/recorders. Sounds were analysed on Elekon Software. Details on the environmental conditions were taken at the time of survey. Davog McCloskey (Licence number 2015-11951-CLS-CLS) was present at all of the surveys with other experienced bat surveyors (Jack Hargreaves, Clare Halliday and Adrian Hickman). The survey covered the maternity season and carried on into the autumn to look at the buildings importance later in the season.

Bat activity survey - manual

3.2 A methodology was designed in line with the guidance in the Bat Conservation Trust Bat Surveys for Professional Ecologists, Good Practice Guidelines (2016). The aim of the study was to get an understanding of the level of bat activity during the active bat season from Summer (2016) to Spring (2017), to look at numbers of passes and different species and to establish how bats use the site and the different habitats. Surveyors walked the perimeter of the site in a 'zig-zag' route to cover the centre of the site as well as the boundary. A static bat detector was left along the eastern boundary during the summer survey to collect additional information and a single surveyor was used walking the perimeter of the site. During the autumn 2016 and the spring 2017 manual survey two surveyors were deployed, surveyor 1 walked the western and southern boundary and surveyor 2 walked the northern and eastern boundary.

Bat activity survey – static

3.3 Static bat activity surveys took place over 5 consecutive nights during spring, summer and autumn. Elekon batlogger A+ bat detectors were located pointing north and south out first floor windows of the Pavilion towards the centre of the site to record bat activity. Bat activity was recorded as the average number of bat passes per night to get an hourly pass rate for each season. All bat recordings were analysed and bat species was recorded to species level where possible. As the boundary habitat is proposed to be retained and enhanced the aim of the static surveys was to establish bat activity in more central areas away from the boundaries, focusing on the amenity grassland to the east of the Pavilion as a sample of the open grassland habitat.

Reptile survey

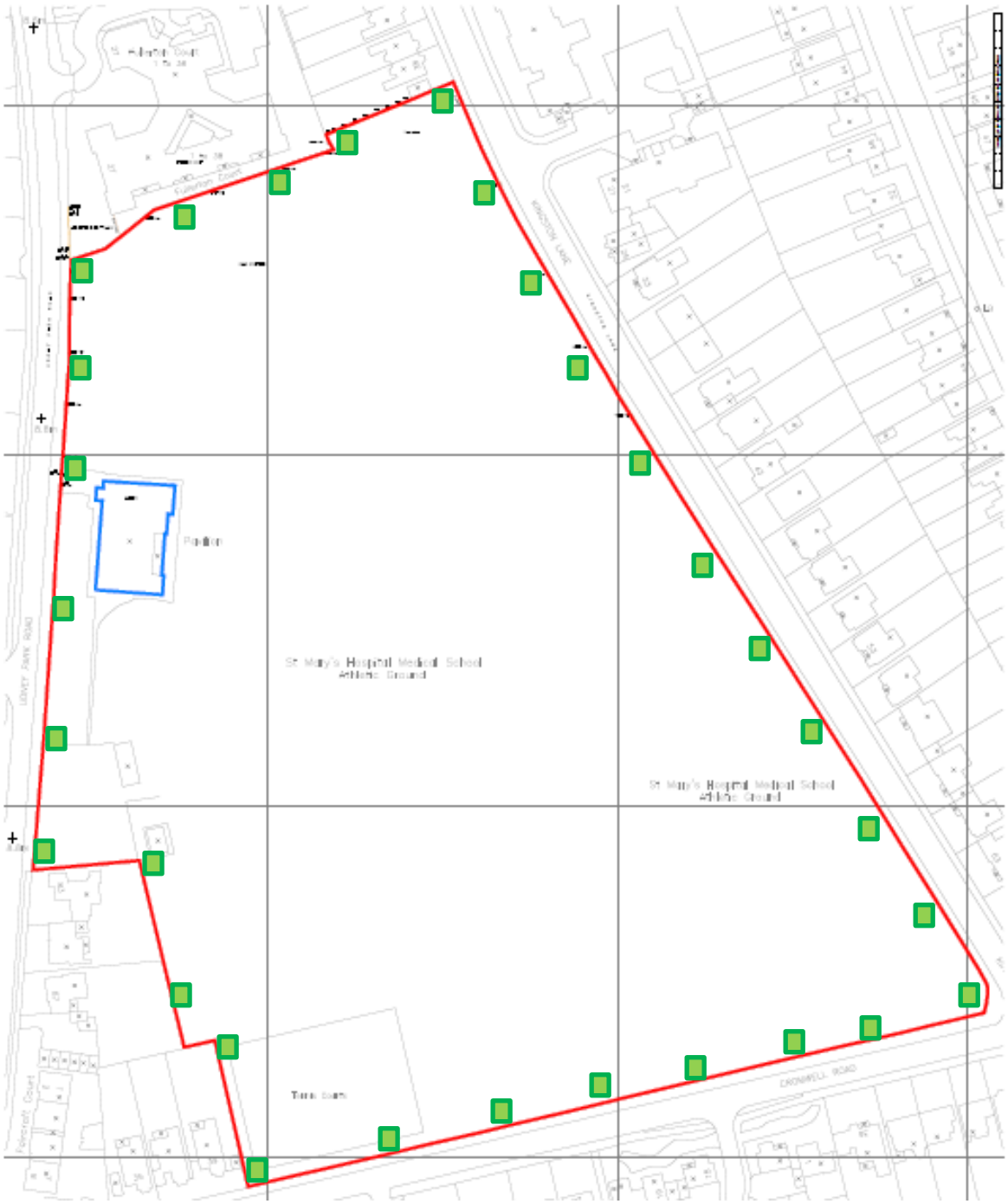
3.4 Habitat features suitable as hibernacula, foraging or basking areas were noted. Piles of logs, grass and compost heaps were all carefully examined to look for reptiles or for evidence of reptiles, including shed skins. A series of presence/likely absence surveys

were conducted within the site boundaries, targeting areas of habitat highlighted by the initial ecological survey as having potential to support reptiles. 30 Artificial refugia were laid out on the 11th August 2016 within the site boundaries and left for at least two weeks to settle and bed in before any surveys were carried out. A total of seven separate survey visits were then conducted between August and October 2016, under good weather conditions. All field surveys were undertaken by an experienced ecologist.

3.5 The surveys consisted of the following three methods, in accordance with current guidance (Griffiths and Inns, 1998; Froglife, 1999):

- Visual Search – The site was searched visually during each visit. Details of reptiles encountered basking in the open were recorded. Recorded data included; species, sex, age and location.
- Extant Refugia – Any existing potential refugia present within the site boundaries were carefully searched by hand for reptiles, these included brash piles.
- Artificial Refugia – Artificial refugia, consisting of 500mmX500mm squares of bitumen roofing felt were sited in areas of reptile habitat, the shrub beds and at the edges of mature vegetation as shown in **Plan 1** below. All refugia were lifted during each survey visit and all reptiles present on, under or next to each refugia were recorded.

***Plan 1**: Layout of artificial refugia*



4.0 Results and Discussion

Site description in relation to bats and reptiles

Bats

4.1 The site is located in a residential area of London and is completely surrounded by residential housing and flats on all sides. The site can be divided into two main habitats (**Appendix A**), the mature boundary tree/hedge line which surrounds parts of the site and the open grassland which is well used and managed for sports in the centre of the site and is often floodlit during the evenings. The trees along the eastern boundary include oak, hazel, holly, silver birch, sycamore, sweet chestnut, lime, elm, hornbeam and other species, there is very little understorey or ground flora associated with the trees as the grass is managed by regular short cuts up to the base of the trees. The western side of the site has a tree lined avenue along Udney Park Road, this is just outside the site boundary. To the southern boundary is a partial hedgerow on the site side with a tree lined road on the other side of the boundary along Cromwell Road.

4.2 Although the site is relatively isolated by the areas of residential housing, there is some connectivity for bats into the wider landscape by the mosaic of different residential gardens nearby and by tree lined roads and the railway track. The nearest large areas of open space with a wide variety of optimal bat foraging habitats is located in Bushy Park less than 0.5km to the south-west and The River Thames and its associated riparian habitats are located within 0.5km to the north-east. Similar, relatively small areas of open space consisting or amenity grassland with trees at the boundary include St Mary's University Twickenham, just over 200m to the east and Collis Primary School, just over 100m to the south

Reptiles

4.3 The majority of the site is covered in short sward grassland with negligible value to reptiles (**Appendix B**). The boundary habitat including areas of hedgerow base would appear to be suitable habitat for reptiles although the site is isolated from any other nearby areas of reptile habitat by houses and roads. A small area of the site in the north-east corner is directly connected into a residential garden although this area has a high degree of fox activity and the grassland nearby is regularly cut short and disturbance will be high from activities associated with people and sport reducing the likelihood of reptiles being present.

Phase 2 building surveys

4.4 The emergence surveys took place over the maternity season and when it was clear that a maternity roost was not present the surveys extended into September and October to look for transitory bat roosts. Activity surveys of the site at other times of the year took place over 2016 and 2017 and these allowed the surveyors to add to the data collected from the building specific surveys, although the Pavilion was not the focus of these surveys. **Table 1** below shows a summary of the environmental data and times.

***Table 1**: Phase 2 bat building survey details*

Survey Date	Survey type	Surveyors	Equipment used	Duration	Weather	Sunset /sunrise time
11th August 2016	Dusk	DM, AH, JH, CH	Elekon X 3, Magenta x 1	2015 - 2200	10% cloud cover, wind force 1-3, no rain, 21°C at start of survey and 20°C at end.	2030
25th August 2016	Dusk	DM, AH, JH, CH	Elekon X 3, Magenta x 1	1925 - 2130	0% cloud cover, wind force 1, no rain, 23°C at start of survey and 24°C at end, Hot day	2002
26th August 2016	Dawn	DM	Elekon X 2	0430 - 0620	21°C at start of survey and 18°C at end, 1-2 wind, 10% cloud cover, rain previous night	0605
23rd September 2016	Dawn	DM, CH, JH, AH	Elekon X 3, Magenta x 1	0520 - 0709	11°C at start of survey and 8°C at end, 0-1 wind, 0% cloud cover, no rain	0650
4th October 2016	Dusk	AH	Elekon X 1	1815 - 2000	17°C at start of survey and 15°C at end, 2-4 wind, 0-10% cloud cover, no rain	1831

4.5 During the first survey no bats were recorded roosting in the Pavilion. Two soprano pipistrelle commuted in a south/north direction along the tree line to the west of the site at 2048, towards and past the Pavilion and then soprano pipistrelle activity was recorded regularly over the next 7 minutes within the locality, presumably from the same bats, mostly foraging round the trees to the west of the building, taking advantage of the dark corridor although a pass was noted past the east of the building once. A noctule/leislers was seen flying high from north-east to south-west high above the Pavilion at 2108. Common pipistrelle, soprano pipistrelle, noctule, leislers and a myotis species were all recorded during the survey with most of the activity to the west of the Pavilion along the tree line by individual bats.

4.6 During the second survey a single soprano pipistrelle was recorded emerging from the west side of the Pavilion at 2029 (**Photo 1**) and then flying north along the tree line. The bat emerged from the roof near the hanging tiles and did a few loops before disappearing north. A common pipistrelle flew from a north to south direction past the Pavilion along the western tree line at 2030, this may have emerged from a tree outside the site boundary. Soprano pipistrelle, common pipistrelle and noctule were all recorded during the survey.

Photo 1 – Soprano pipistrelle emerges from western side of building from location shown

4.7 During the third survey no bats were recorded roosting. A nathusius pipistrelle was recorded once just to the east of the Pavilion at the start of the survey hunting. There were periods of sustained activity to the west of the Pavilion by common pipistrelle along the tree line but this was only by small numbers of bats (approximately 1-3). Bats were recorded going in both directions along the tree line to the west. A soprano pipistrelle was recorded on a few occasions although the majority of activity was made up by common pipistrelle. Small numbers of individual bats were recorded during the survey.

4.8 During the fourth survey no bats were recorded roosting. A single pipistrelle was recorded commuting north to south along the tree line to the west at 0600, potentially making its way towards a roost. Bat activity was low, this was probably due to the colder weather towards sunrise.

4.9 During the fifth survey no bats were recorded roosting but bat activity was recorded at different locations around the Pavilion by soprano and common pipistrelle. The majority of the activity was along the tree line to the west. Many social calls were recorded by common pipistrelles during the survey indicating the importance of the tree line to bats at this time of year.

4.10 The building has been confirmed as a day roost for a single soprano pipistrelle bat, it is not being used as a maternity roost, however due to the complex roof structure the roof has the potential to be used by hibernating bats. It is proposed that the Pavilion will be retained although it will be converted internally. Although the conversion works may result in some dust, noise and vibration disturbance to roosting bats it is likely that the access points to roosts externally will be retained and bats will not be left without a roost in the long term. The Pavilion is not proposed to be re-roofed, if it was it could result in harm and disturbance to any bats present at the time. If re-roofing is to take place then a European Protected Species licence will need to be applied for to proceed with the works so that they can be carried out in a considerate and timely manner and so that it can be assured that new mitigation will be built in to compensate for any loss in roosting features or access points. It is recommended that the new proposals build

in a range of bat roosting features into new buildings at a range of different places and aspects to provide roosting opportunities for bats throughout the site in future.

Bat activity survey - manual

4.11 Manual bat activity surveys of the site took place in spring, summer and autumn, the results are annotated in the Appendices although it must be noted that the plans show the location of the surveyor at the time the bat was recorded and do not show the position of the bat. These surveys were supplemented with activity results taken while the building itself was being surveyed in summer and autumn 2016. **Table 2** below shows a summary of the environmental data and times.

***Table 2**: Phase 2 Manual bat activity survey details*

Survey Date	Survey type	Surveyors	Equipment used	Duration	Weather	Sunset /sunrise time
16th August 2016	Dusk	DM	Elekon X 2	2014 - 2221	1% cloud cover, wind force 1-3, no rain, 18°C at start of survey and 16°C at end.	2021
4th October 2016	Dusk	DM & CH	Elekon X 2	1831 - 2031	5% cloud cover, wind force 1, no rain, 16°C at start of survey and 15°C at end.	1831
3rd May 2017	Dusk	DM & CH	Elekon X 2	2027-2230	14°C at start of survey and 11°C at end, 1-2 wind, 100% cloud cover, rain earlier in the day	2027

4.12 In summer 2016 (**Appendix C**) a soprano pipistrelle was the first bat recorded at 2105 to the south-west corner of the site near the boundary, shortly after a soprano pipistrelle was recorded near the north-west corner, this may have been the same bat. A soprano pipistrelle was recorded in the north-east corner at 2116. At 2131 a soprano pipistrelle was recorded to the west of the Pavilion. At 2137 a soprano pipistrelle was recorded along the eastern boundary high in the canopy of the trees and at 2138 the first common pipistrelle was recorded in a similar location. At 2141 a soprano pipistrelle was recorded near the south-east corner of the site. At 2142 and 2151 a myotis species was recorded to the south-east and north-west respectively, close to the boundary. During the remainder of the survey, soprano and common pipistrelle were the only species recorded and these were found along the eastern and western boundary as individual bats foraging. Small numbers of bats were recorded during the survey, only one bat was recorded at a time and it is though that the individual bats were foraging in loops along the trees at the boundaries. There was less bat activity to the southern boundary where it was more well lit from street lamps and there was less tree cover. Bats were recorded foraging for insects around the Pavilion, possibly attracted to insects which were in turn attracted to lights. The static bat detector left along the eastern boundary during the survey recorded more soprano pipistrelle passes at the start of the survey, between 2100 and 2220 soprano and common passes were approximately equal. The static bat detector had one recording of a myotis species at 2135, this bat may have been the same one that was recorded manually later during the survey indicating that it may have foraged briefly around the perimeter once during the survey period. During summer building surveys on 11th August 2016 a noctule bat was recorded flying high over the site commuting from north-east to south-west shortly

after sunset (approximately 50 minutes after), possibly to hunting habitat to the west. A myotis bat was recorded during the summer building surveys on the 11th August close to a surveyor to the west of the site and a Leislers was recorded but not seen on the 25th August. A nathusius pipistrelle was recorded once to the east of the Pavilion during a dawn building survey on the 26th August 2016.

4.13 In autumn 2016 (**Appendix D**) activity was generally lower than the summer survey and common and soprano pipistrelle were the only species of bat recorded except for a single recording of a noctule, common pipistrelle made up the majority of the recordings. All activity was at the site boundary and the majority of bat activity was recorded to the north-east corner and the western boundary with occasional recordings towards the south-east. The first bat recorded, a common pipistrelle, came from outside of the site at 1857 and flew into the site via the south-east corner. A soprano pipistrelle was recorded for the first time at 1902 to the western boundary. Social calls were recorded by common pipistrelle to the west of the Pavilion on several occasions. Floodlights were on during the survey due to sports activities. The recordings were from small numbers or individual bats foraging. During the building surveys on the 4th October 2016 foraging was recorded around the Pavilion by soprano and common pipistrelle on several occasions and activity was noted along the western boundary by individual bats.

4.14 In spring 2017 (**Appendix E**) activity was relatively low, much lower than summer 2016 and lower than autumn 2016. Soprano and common pipistrelle made up the vast majority of the recordings in roughly equal numbers and a single leislers bat was recorded at 2209. Two soprano pipistrelles were recorded on one occasion to the south-west corner. Bat activity was mostly confined to the western and eastern boundaries with only a couple of passes to the south and north by pipistrelles. The first bat recorded was a soprano pipistrelle at 2056 to the western boundary, a common pipistrelle was recorded at 2057 to the north-east corner. The recordings were from small numbers or individual bats foraging at the boundaries.

4.15 No activity was recorded towards the centre of the site, the majority of the recordings were amongst the tree canopy or within 5-10m of it. It would appear that the areas of short grassland provide minimal bat foraging value due to the lack of vegetation and cover and resulting lack of insects which bats feed on. Tree/hedge planting to the southern and northern boundary would enhance it and provide more cover and a buffer from light providing an enhancement for bats, similarly improving the value of the centre of the site with new areas of diverse structural planting would greatly benefit bats as long as these areas take light into consideration. Providing new areas for roosting bats within the centre of the site would entice bats to use areas not previously used, again providing an enhancement for roosting bats.

Bat activity survey - static

4.16 **Table 3** below shows a summary of the environmental data and times.

***Table 3**: Phase 2 Manual bat activity survey details*

Survey Date	Survey type	Surveyors	Equipment used	Duration	Weather	Sunset /sunrise time (approx)
11-16th August 2016 (Summer)	Dusk - Dawn	-	Elekon Bat Logger A+	5 consecutive nights	Suitable weather, no rain or high wind	2030 - 0542
4-5th October 2016 (Autumn)	Dusk - Dawn	-	Elekon Bat Logger A+	5 consecutive nights	Suitable weather, no rain or high wind	1831 - 0708
3-8th May 2017 (Spring)	Dusk - Dawn	-	Elekon Bat Logger A+	5 consecutive nights	Suitable weather, no rain or high wind	2027 - 0527

Summer 2016

4.17 During the first survey on 11-12th August 2016, 175 recordings of common pipistrelle were recorded from 0046 – 0054, the type of calls are similar to calls just before they roost so it is possible that common pipistrelle are roosting in the Pavilion to the eastern side although there is no visual recording of roosting. 284 recordings were picked up for this survey but the numbers are swayed by the large number of recordings, probably from one bat, in such a short period of time. An average of 23 soprano pipistrelle recordings were noted during this survey and a single noctule was noted.

4.18 During the survey from 12th – 13th August 2016 noctule was the first bat recorded at the start of the night at 2118, several calls were recorded, a noctule/leislers was only recorded briefly on two more occasions during the survey. Common pipistrelle were first recorded at 2116 and soprano pipistrelle were recorded at 2203. Brown long-ear were recorded for the first time at 0104, several calls were recorded in close succession indicating some foraging nearby and a myotis species (possible brandts) was recorded for the first time at 0405 as a single pass. At least 10 common pipistrelle social calls were recorded during the survey. Bat activity was relatively regular during the survey from dusk to dawn.

4.19 During the survey on the 13-14th August 2016 an average of 54 passes were recorded. Soprano pipistrelle made up the most recordings with common pipistrelle next, the first soprano pipistrelle was recorded at 2107 and the first common pipistrelle was recorded at 2118. Noctule/Leislers were recorded on several occasions. A noctule trill was recorded at 1950 which is reminiscent of a call made while roosting so it may be that one is roosting in a tree nearby. Noctules were recorded on approximately 10 occasions between 2150 – 0434, at 0319 they were recorded several times in the space of a minute, this may have been from one bat or from different bats communicating with eachother. Noctule/Leislers social calls were recorded during the survey once and common pipistrelle social calls were also recorded once, soprano pipistrelle social calls were recorded on several occasions. One myotis bat (possible brandts) was recorded during the survey at 0134 indicating a commuting bat. A nathusius pipistrelle was recorded on one occasion also at 0338.

4.20 During the survey from 14th – 15th August 2016 an average of an average of 58 passes were recorded. Noctule was the first bat recorded at 2107, the first soprano pipistrelle was recorded at 2112, the first common pipistrelle was recorded at 2206, the first nathusius pipistrelle was recorded at 2246, brown long-ear were first recorded at 0035, a myotis bat (Possible brandts) was first recorded at 0211 and another (possible Daubentons) at 0446, and a Leislers was first recorded at 0234. Soprano and common pipistrelle social calls were recorded.

4.21 During the survey from 15th – 16th August 2016 an average of 53 calls were recorded. The first common pipistrelle was recorded at 2117, the first soprano pipistrelle was recorded at 2120, the first noctule was recorded at 2123 and the first Leislers was recorded at 2232. A social call was recorded by a noctule at 2214, possibly from a perched bat and possibly mating related. Soprano pipistrelle social calls (Type B and C) were also recorded. At 2300 two soprano pipistrelle bats were recorded flying close together, Type C social calls were recorded and these may have been from a mother and young bat.

Autumn 2016

4.22 During the survey from 4th – 5th October 2016 an average of 10 passes were recorded during the survey. Common and soprano pipistrelle bats were the only species recorded, a single soprano pipistrelle recording was made. The first common pipistrelle was recorded at 2136 and the soprano pipistrelle was recorded at 0059. Common pipistrelle social calls were recorded.

4.23 During the survey from 5th – 6th October 2016 an average of 13 calls were recorded, the calls were mostly from shortly after sunset and were all within 7 hours of sunset, the final recording (from a Nathusius pipistrelle) was at 0156, probably due to the colder weather in autumn. Small numbers of soprano and common pipistrelle were recorded, 3 Leislers recordings were made and a single call from either a noctule or leislers was noted. Nathusius pipistrelle was recorded on two occasions by both bat detectors indicating that it had flown past the eastern side of the building on two occasions at 0045 and 0156 so is likely to have been hunting nearby. Social calls were recorded from a Leislers bat, a call linked with foraging/mating activity. Leislers were the most common species recorded during the survey.

4.24 During the survey an average of 7 bat passes were recorded, 1 noctule/leislers, 1 soprano pipistrelle, 2 nathusius pipistrelle and 3 common pipistrelle. The recordings were made from approximately half an hour after sunset until 0357. A nathusius pipistrelle social call was recorded, possibly from an advertising male during the mating season (Type D social call). One of the nathusius calls was indicative of a call made close to a building due to the apparent reflection of sound noted in the recording.

4.25 During the survey from 7th – 8th October 2016 out of the 25 recordings made 17 of these were from nathusius pipistrelle, some of these included social calls. The calls were spread throughout the survey from 2033 – 0558 although 16 of these calls were over the space of 14 minutes approximately 2 hours after sunset. It is not possible to conclude that Nathusius pipistrelle are roosting in the building but it is likely it is roosting nearby and the results do show that Nathusius pipistrelle forages to the east of the Pavilion.

4.26 During the survey from 8th – 9th October 2016 Nathusius pipistrelle made up the majority of the recordings (7 out of a total of 19), they were recorded from 2014 until 0210 with the bulk of these between 1921 – 2014 although the last recording was made later at 0210. Soprano pipistrelle and common pipistrelle were recorded 5-6 times each during the survey and a single recording was made of a Leislers.

4.27 An additional recording on 9th – 10th October recorded nathusius pipistrelle, common pipistrelle, soprano pipistrelle and a single myotis species. All the recordings were made within 2 hours after sunset.

Spring 2017

4.28 During the survey from 3rd – 4th May 2017 soprano pipistrelle were recorded first at 2105, two nathusius pipistrelle recordings were made shortly after in quick sucession at 2112 – 2113. Common pipistrelle were first recorded at 2120, a Leislers was first recorded at 2208 and what may have been a myotis species was recorded briefly at 0451 – this was the final bat call of the survey. An average of 8 passes were recorded during the survey and what appeared to be Nathusius pipistrelle social calls were noted.

4.29 During the survey on 4-5th May 2017 an average of 14 calls were recorded in total by four different species. Common pipistrelle made up the majority of the recordings and Leisler were recorded more to the north of the site than to the south.

4.30 During the survey from 5-6th May 2017 an average of 14 calls were recorded, these were made up of common and soprano pipistrelle although what may have been nathusius pipistrelle social calls were also recorded. Soprano pipistrelle were the first bat recorded at 2049 and common pipistrelle were recorded first at 2211. Bat activity took place throughout the night until 0438.

4.31 During the survey from 6th – 7th May 2017 an average of 26 bat passes were recorded including social calls from soprano pipistrelle. The majority of the calls were from soprano and common pipistrelle and individual calls were picked up from leislers and nathusius pipistrelle. Nathusius pipistrelle social calls were also recorded on several occasions during the survey. Bat activity took place throughout the night from 2124 – 0432.

4.32 During the survey five species of bats were recorded from 2119 – 0434 and an average of 25 bat passes were recorded. Nathusius pipistrelle social calls were noted on three occasions at different times more to the north of the site. The majority of the recordings were from soprano and common pipistrelle with approximately equal numbers of each.

4.33 **Table 4** provides a summary of the results from the static bat detector survey.

Table 4*: Static bat activity results*

Season	Average number of bat passes per hour	Bat species recorded
Summer	7.5	Common pipistrelle, soprano pipistrelle, Noctule, Brown long-ear, Myotis (Brandts or Daubentons), Nathusius pipistrelle, Leislers, Serotine
Autumn	1.0	Common pipistrelle, soprano pipistrelle, Noctule, Leisler, Nathusius pipistrelle, myotis sp.
Spring	1.9	Soprano pipistrelle, common pipistrelle, nathusius pipistrelle, Leislers, Noctule, myotis sp.

Summary analysis of bat activity surveys

4.34 As expected the numbers of bat passes per hour were significantly higher in the summer than in spring or autumn. The number of passes per season was still generally low at a national level however the figures need to be taken in context at the London level, and for a relatively urban site the low number of passes by a relatively high diversity of species shows that the site has importance, potentially as a commuting juncture where bats pass through and forage on their way to other sites in the locality. Although the surrounding area is relatively built up there are residential gardens

connected by tree lined corridors on all sides and further afield there are larger areas of open space, parkland and river corridors with greater bat foraging value, the development site is a stepping stone within this habitat. The number of recordings will include many passes by the same bat foraging around the area and is not representative of different individual bats passing. Most of the passes were from common species and it is likely that the site is used regularly for foraging by these species. It is difficult to be certain of the proximity of the passes from the detectors as the detectors will record bats up to at least 100m away and further for louder bats like noctule although this will depend on different factors including temperature, direction of travel and angle of flight. Some of the recordings were likely to be from bats very close to the detectors as there was some interference on occasions due to sound reflection from the Pavilion walls. When the manual activity surveys and building surveys took place no bats were recorded centrally within the site foraging or commuting (except for some noctule/leislers much higher up) so it must be assumed that the data from the static surveys were was collected from bats closer to the Pavilion as opposed to more centrally within the open areas of grassland on the pitches, the open space does not provide high value habitat, this was supported by the manual bat surveys. Species like leisler and noctule are less dependant on wildlife corridors as they tend to fly higher and generally require less cover for commuting whereas other species recorded critically require higher levels of cover provided by the boundary trees.

4.35 The majority of bat activity was along the western and eastern boundaries where greater levels of cover are present with mature trees forming dark corridors. These dark corridors will need to be protected from loss or harm during construction and protected from light splay post construction as this can have a major effect on bat flight paths. The existing site is well lit throughout the year from floodlights after sunset although these tend to only light up more central areas of grassland and avoid the boundary habitat. The boundaries will need to be protected from light spillage associated with any external lighting post development on new buildings, roads or paths and lighting within the site will need to be kept to a minimum to maintain dark corridors for bats where possible. External lighting must be maintained below recommended levels around all areas of planting, trees and vegetation as these contribute to bat commuting and foraging corridors locally and external lighting should be directed away from any wildlife boxes or new bat roosting features installed on buildings or trees.

4.36 Species of bats recorded during the surveys included common pipistrelle, soprano pipistrelle, nathusius pipistrelle, noctule, leisler, serotine, brown long-ear and myotis species (possibly brandts and daubentons). The 2km data search of the local area has records of all the same bats apart from brandt's although confidence levels on this species are not high from the relatively small numbers of recordings taken and the difficulty of deciphering one myotis species from another.

4.37 It was clear that the site does contribute to bat foraging and commuting habitat locally. At least eight species were seen or recorded within the site or above it and it may be that all these species depend on vegetation within the site to some degree for foraging or commuting. The majority of bat activity was recorded around the boundaries signifying its importance – the majority of the boundary trees will need to be retained and protected during construction (including trees outside of the site boundary) and enhanced with new planting where necessary, any loss of trees or connectivity will need to be compensated for with new structural diverse planting – this has been shown on the proposed site plan and landscape plan and will need to be set out in detail in the final landscape plan, secured as a condition.

4.38 New diverse habitats will need to be created on site to mitigate for the loss of the species poor amenity grassland. The new habitats will consist of:

- New areas of parkland habitat
- Wildlflower grassland managed for biodiversity
- New hedges linking boundary habitats east/west and north/south
- New hedge planted along northern boundary
- Tree planting to create new flight lines and foraging zones
- Diverse ornamental planting around new buildings
- Orchard planting
- Infill planting and thickening of the boundary hedges where necessary with new woody species and native bulbs at base
- Pond creation
- Green and brown roofs on buildings where possible

4.39 Creating the new habitats will provide an initial boost to bat foraging and commuting habitat, these new habitats will need to be managed and maintained in the long term for them to be sustained in optimal condition for wildlife. This will require a management company to incorporate the management into a plan, this plan will need to be assessed by an ecologist to ensure that it is suitable.

Phase 2 reptile survey

4.40 The initial phase 1 site visit found that the site had several different areas of reptile habitat that would be lost or impacted by the proposals. These areas were mostly confined to the boundaries and the vegetation surrounding the tennis court and Pavilion.

4.41 A phase 2 reptile survey took place to determine if reptiles were present at the site, and if so where at, how many and which species in order that a suitable mitigation plan could be prepared if necessary. The reptile survey was set up in August and took place over summer and autumn during periods of suitable weather. The results of the survey including the environmental conditions are shown below in Table 1. Additional checks were undertaken at different stages during the bat survey and no reptiles were recorded then either.

Table 5: *Summary of reptile survey results*

Survey number	Survey date	Weather	Method	Location/Refugia ID (See Plan 2)	Species	Sex	Age	Quantity	Peak Adult Count
Survey set up	11.8.16	warm	Visual search	-	-	-	-	-	0
1	25.8.16	Start time :1830 Finish time:1900 Start temp ºC:26 Finish temp ºC:26 Wind speed (beaufort):1-2 Cloud cover %: 0 Rain: drizzle earlier Ground conditions: dry Observations:	-	-	-	-	-	-	0
2	26.8.16	Start time:0620 Finish time:0645 Start temp ºC:19	-	-	-	-	-	-	0

		Finish temp ºC: 19 Wind speed(beaufort):0-1 Cloud cover %: 5 Rain: None Ground conditions: dry Observations:							
3	10.9.16	Start time:1530 Finish time:1545 Start temp ºC:19 Finish temp ºC:19 Wind speed(beaufort):1-2 Cloud cover %: 100 Rain: light drizzle Ground conditions: wet Observations: JH surveyor	-	-	-	-	-	-	0
4	11.9.16	Start time:1800 Finish time:1815 Start temp ºC:22 Finish temp ºC:22 Wind speed(beaufort):1-2 Cloud cover %:0 Rain: none Ground conditions: dry Observations: JH surveyor	-	-	-	-	-	-	0
5	23.9.16	Start time:0900 Finish time:1000 Start temp ºC:14 Finish temp ºC:14 Wind speed(beaufort):1 Cloud cover %:0 Rain: none Ground conditions: dry Observations:-	-	-	-	-	-	-	0
			-	-	-	-	-	-	
6	4.10.16	Start time: 1630 Finish time:1700 Start temp ºC: 17 Finish temp ºC:16 Wind speed(beaufort):2-4 Cloud cover %:10 Rain: None Ground conditions: dry Observations:-	-	-	-	-	-	-	0
7	10.10.16	Start time:1300 Finish time:1330 Start temp ºC: 13 Finish temp ºC:14 Wind speed(beaufort): 1-2 Cloud cover %: 50 Rain: No Ground conditions: dry Observations:	-	-	-	-	-	-	0

4.42 No reptiles were recorded during the survey and it is likely that there are no reptiles on site. The surveys took place over a wide range of times from the end of summer through to autumn during the active reptile period and a larger number of artificial refugia were used to establish presence than is required. It is likely that reptiles are absent from the immediate area surrounding the site, the nearest record for reptiles is a slow worm record from 1998 less than 1km to the north. The majority of the site is covered in short grassland used as playing pitches so has negligible value for reptiles. The bases of the trees and areas of shrubs and hedges towards the boundaries and around the pavilion would typically be considered as reptile habitat however these have the grass on site cut extremely short right up to the edges and additionally there is a very active fox earth on site with resident population of foxes. These dig and burrow excessively along the eastern boundary and would decimate a population of reptiles if present. There is a lack of cover for foraging and basking reptiles and little or no features that could be used as hibernacula.

4.43 The impact of the construction stage of the proposals on reptiles is likely to be low to negligible. The proposals will result in much improvement to areas of vegetation on site that would benefit reptiles if they were present, new areas of planting giving structure to the site will take place and areas of wildflower meadow and a pond are proposed which would be an enhancement for reptiles and other wildlife.

5.0 Requirements and Recommendations

Landscape mitigation and enhancements

5.1 Any vegetation removal will need to take place outside of the bird nesting which runs from 1st March – 1st August inclusive unless an ecologist is present to ensure there are no birds nesting.

5.2 Any vegetation clearance should be used to create log and habitat piles within the retained areas of hedgerow for species like stag beetles. New log piles, half dug into the ground will be created in retained and protected parts of the site at the boundaries.

5.3 Appropriate fencing will need to be erected prior to construction to protect the retained hedges and trees, this will provide undisturbed areas of the site for nesting birds. All construction works taking place in the vicinity of retained vegetation, and particularly those close to existing buildings, should conform to British Standard 5837:2005 Trees In Relation to Construction.

5.4 A range of features for nesting birds will be incorporated into the new buildings on site for swifts, house sparrows and tits.

5.5 Infill planting of the boundary hedge to form a continuous wildlife corridor will be an enhancement for garden bird species, creating additional places to nest and forage in the local area. Native bulb planting with a variety of different species will be used to enhance the ground flora at the bases of the retained trees and hedges at the boundaries.

5.6 A Landscape Plan has been designed in consultation with the Landscape and Design Team, for further details please see the Final Landscape Document. **Appendix F** shows an indicative plan which incorporates:

- Green and brown roofs.
- New tree and hedge planting
- Wildflower meadow creation and management
- Diverse areas of ornamental planting
- New areas of parkland, orchards and herb gardens
- New wildlife corridors
- A new pond

5.7 A Landscape Management Plan for the site will be reviewed by an ecologist and secured as a condition of planning.

Bats

5.8 Twelve Schwegler 1FF bat boxes will be erected on retained trees along the western boundary prior to any renovation work on the Pavillion (**Appendix G**).

5.9 The new buildings will have a range of bat roosting crevice features built in at different aspects.

5.10 Any work effecting any part of the roof of the Pavillion from soffit level up will be undertaken under strict ecological supervision with a licensed bat worker present, this will include any retiling or work on soffits etc.

5.11 A European Protected Species (EPS) licence will be required if the Pavillion is being re-roofed. It may be possible to avoid the need for the licence if any re-roofing works can be undertaken and completed during the period March/April or September/October under strict ecological supervision. Further consultation will be required with the design team to establish the need for and scheduling of roofing works.

5.12 At least 10 new bat roosting features will be incorporated into the new renovated Pavillion, these can include bat boxes and tiles.

5.13 New landscaping will benefit bats. The landscape proposals have been designed in conjunction with the landscape team to benefit wildlife wherever possible on site. See the Landscape Proposals and Landscape Biodiversity Mitigation Strategy for further details.

Pollution prevention and drainage

5.14 It is important that the proposals follow appropriate pollution prevention guidelines (PPG 6) and drainage guidelines (Defra guidelines for Sustainable Urban Drainage) to protect groundwater and other habitats connected hydrologically.

Fencing and wildlife corridors

5.15 Any new fencing proposed for the site will not prevent movement at ground level for species like hedgehogs or amphibians to move easily north/south or east/west through the site. Gaps of at least 100mm high and 100mm wide will be located through the site near to vegetated areas.

Lighting

5.16 Any new external lighting associated with the proposals will need to avoid splaying onto any of the boundary vegetation. Lighting from new external lighting sources must not exceed 1lux and only be directed to where it is needed.

5.17 New tree planting will be used where possible to create dark corridors to minimise impact of lighting from new development and proposed flood lighting.

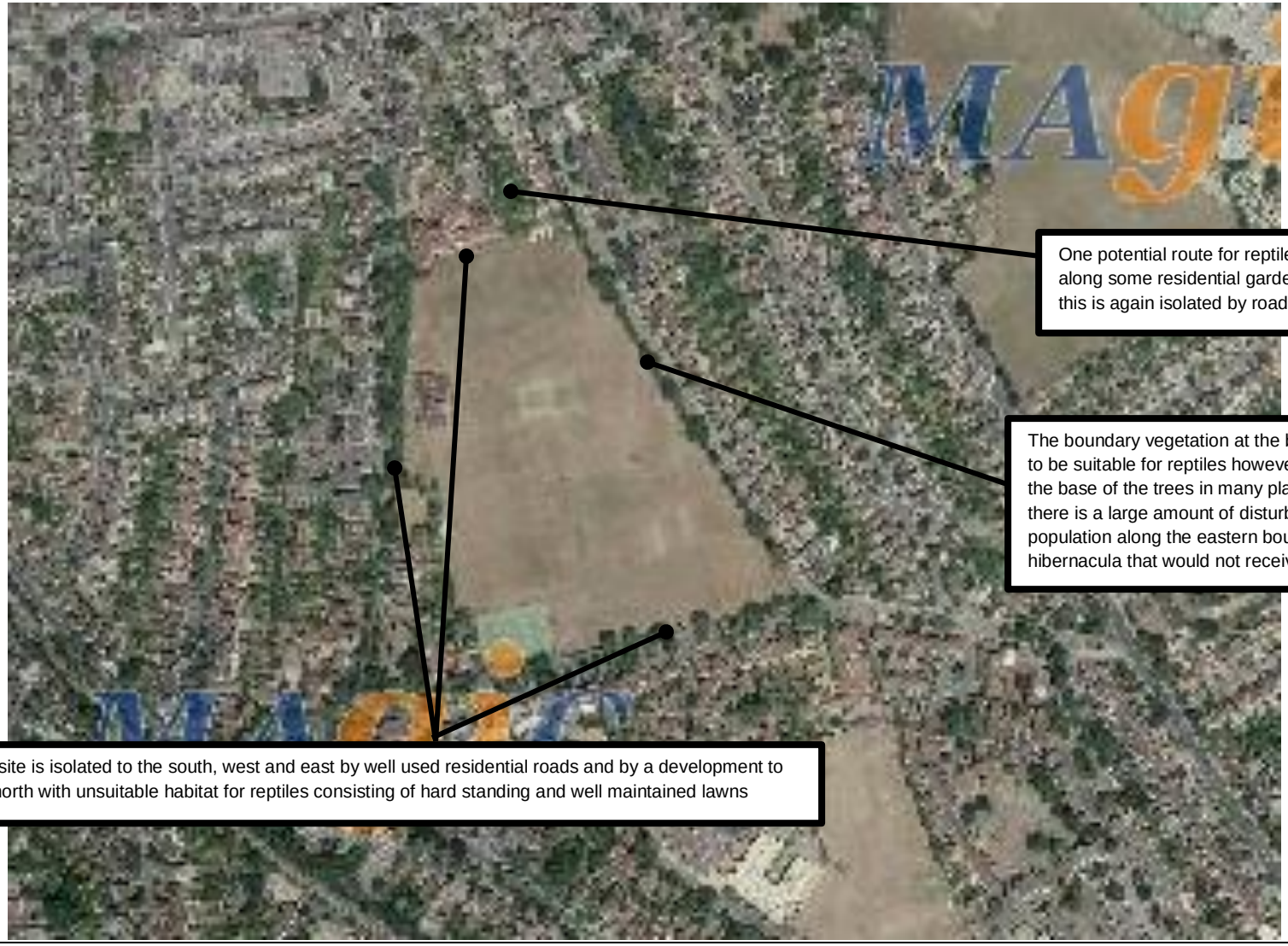
5.18 A lighting plan will be secured as a condition of planning.

Other

5.19 A follow up site visit will be required to determine if there are any changes to the ecological status of the site after a year from the original survey. During this time the bat roosting potential can change significantly.

Appendix A: Bat habitat

Appendix B: Reptile habitat



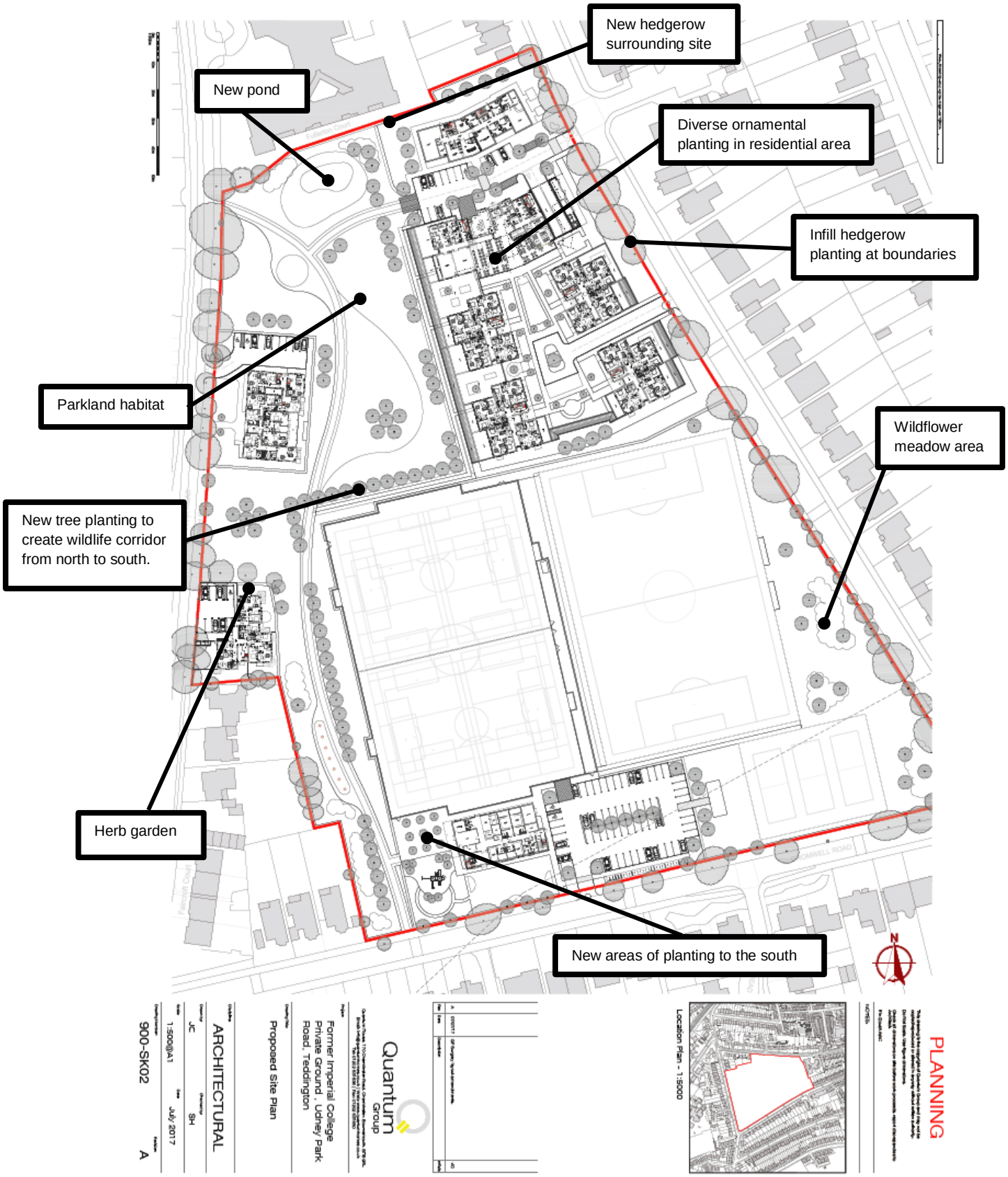
Appendix C: Manual bat activity survey results – Summer 2016

Appendix D: Manual bat activity survey results – Autumn 2016

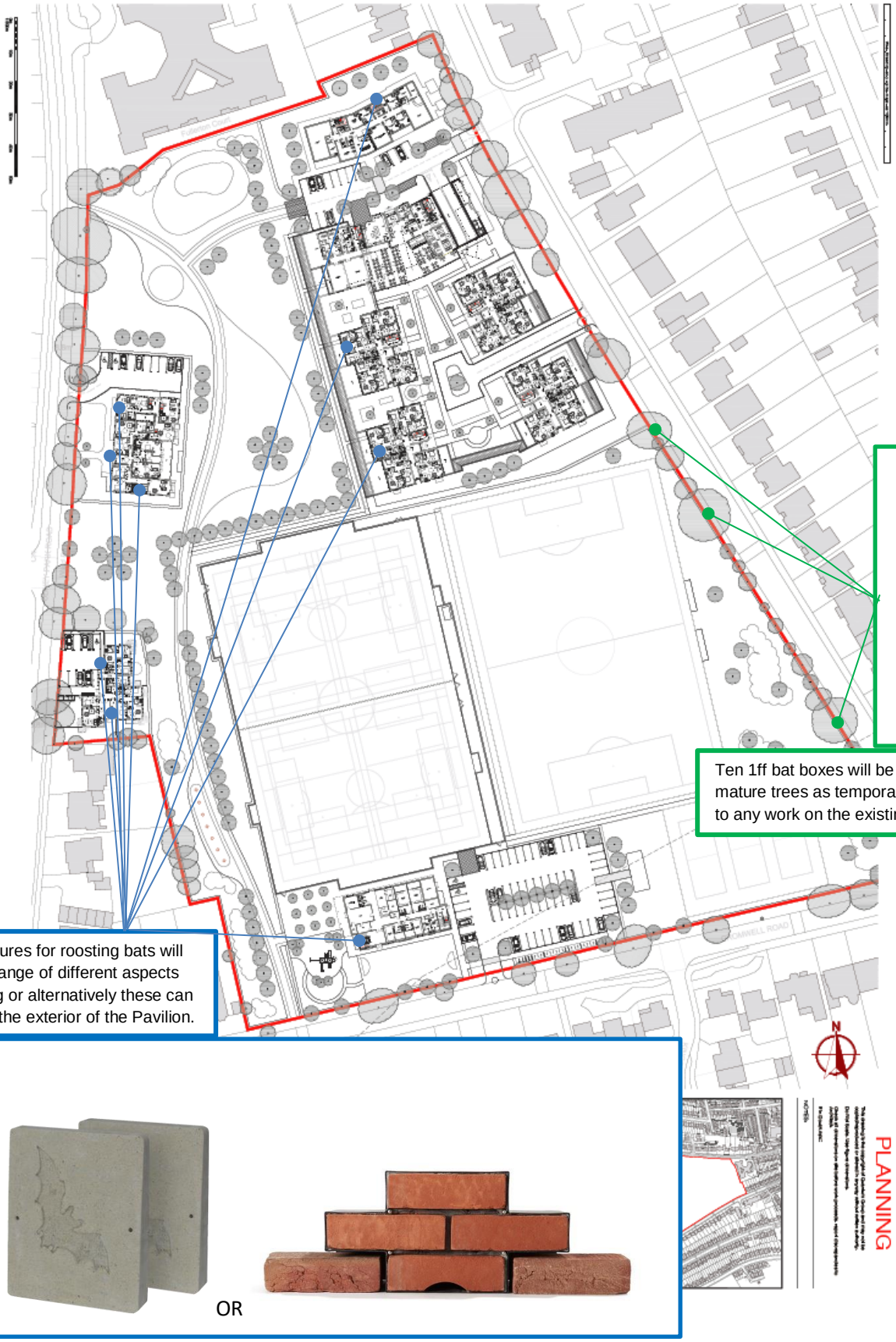
Common pipistrelle
Soprano pipistrelle

Appendix E: Manual bat activity survey results – Spring 2017

Appendix F: Landscape mitigation and enhancements



Appendix G: Bat mitigation



Ten 1ff bat boxes will be hung on retained mature trees as temporary mitigation prior to any work on the existing Pavilion

At least 10 features for roosting bats will be built into a range of different aspects on new building or alternatively these can be attached to the exterior of the Pavilion.

OR

OR

Appendix H: Protected species legislation

European Protected Species

Bats

These species are listed in Schedule 5 of the *Wildlife and Countryside Act 1981* (as amended) and Schedule 2 of the *Conservation of Habitats and Species Regulations 2010*. They are afforded full protection under Section 9(4) of the Act and Regulation 41 of the Regulations. These make it an offence, *inter alia*, to:

- deliberately capture, injure or kill any such animal;
- deliberately disturb any such animal, including in particular any disturbance which is likely:
    - to impair its ability to survive, breed, or rear or nurture their young;
    - to impair its ability to hibernate or migrate;
    - to affect significantly the local distribution or abundance of that species; or
- damage or destroy a breeding site or resting place of any such animal; or
- intentionally or recklessly disturb any of these animals while it is occupying a structure or place that it uses for shelter or protection; or
- intentionally or recklessly obstruct access to any place that any of these animals uses for shelter or protection.

In addition, five British bat species are listed on Annex II of the Habitats Directive. These are:

- Greater horseshoe bat (Rhinolophus ferrumequinum);
- Lesser horseshoe bat (Rhinolophus hipposideros);
- Bechstein's bat (Myotis bechsteinii);
- Barbastelle (Barbastella barbastellus);
- Greater mouse-eared bat (Myotis myotis).

In certain circumstances where these species are found the Directive requires the designation of Special Areas of Conservation (SACs) by EC member states to ensure that their populations are maintained at a favorable conservation status. Outside SACs, the level of legal protection that these species receive is the same as for other bat species.

Nationally Protected Species

Breeding Birds

With certain exceptions[1], all wild birds, their nests and eggs are protected by section 1 of the *Wildlife and Countryside Act 1981* (as amended). Therefore, it is an offence, *inter alia*, to:

- intentionally kill, injure or take any wild bird;
- intentionally take, damage or destroy the nest of any wild bird while it is in use or being built; or
- intentionally take or destroy the egg of any wild bird.

These offences do not apply to hunting of birds listed in Schedule 2 subject to various controls.

Bird species listed on Schedule 1 of the Act receive further protection, thus for these species it is also an offence to:

- intentionally or recklessly disturb any bird while it is nest building, or is at a nest containing eggs or young; or
- intentionally or recklessly disturb the dependent young of any such bird.

Reptiles

The four widespread[2] species of reptile that are native to Britain, namely common or viviparous lizard (*Zootoca vivipara*), slow worm (*Anguis fragilis*), adder (*Vipera berus*) and grass snake (*Natrix natrix helvetica*), are listed in Schedule 5 of the *Wildlife and*

[1] Some species, such as game birds, are exempt in certain circumstances

[2] The other native species of British reptile (sand lizard and smooth snake) receive a higher level of protection under the *Habitats Regulations* 1994 and (in England and Wales only) the *Wildlife and Countryside Act 1981* (as amended). However, the

Countryside Act 1981 (as amended) and are afforded limited protection under Section 9 of this Act. This makes it an offence, *inter alia*, to:

- intentionally kill or injure any of these species.

distribution of these species are restricted to only a very few sites. All marine turtles (Cheloniidae and Dermochelyidae) are also protected.