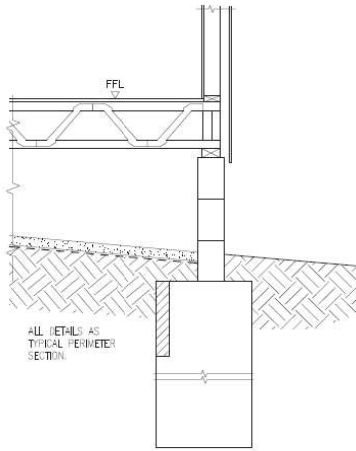


LODGES ON TRADITIONAL FOOTINGS AND SLEEPER WALLS

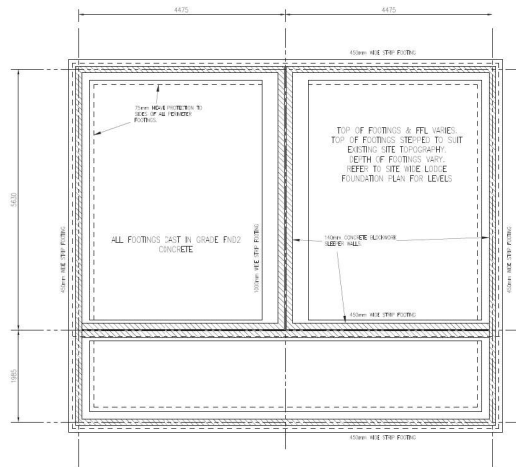


Sleeper walls will be constructed to reflect the full perimeter of the lodge units with fully block bonded corners to ensure stability of the walls and resist lateral forces imposed on them by the lodge units.

Stability of the sleeper walls are critical not only while in service but to make them a robust platform on to which to land the lodges, particularly in the more elevated positions where the sleeper walls are up to 1.5m tall.

Sleeper walls will be brought up to underside of lodge floor level and the lodge unit landed directly onto the head of the walls beneath.

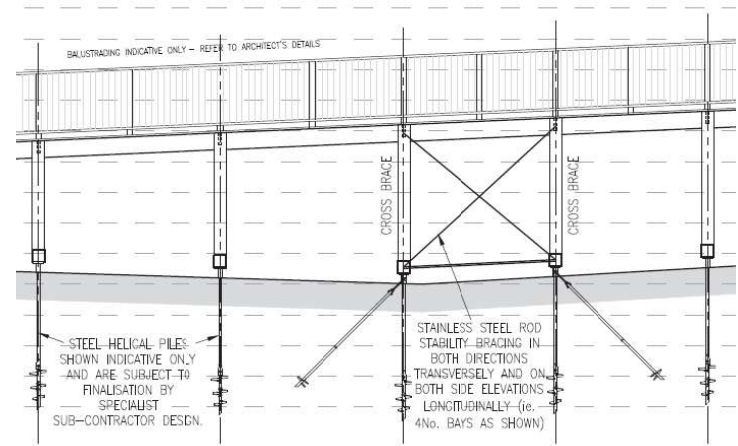
Holding down details and fixings between lodge and sleeper walls will be to the design of the lodge supplier.



Typical Lodge Footing Layout

Raised Boardwalk

A raised timber access 'boardwalk' extends from the main hotel reception to give access to the pedestrian road network of the Lodge development. Again steel helical piling is proposed as the foundation system for this structure with all superstructure elements being constructed in treated timber. Lateral stability to the raised walkway and platform area will be by stainless steel diagonal cross braces connected between underside of platform and pile head level at grade.



The access boardwalk rises some 2m along its 50m length to deliver guests from the lower level hotel area to part way up the elevated access road towards the lodge development.

Balustrading will be a simple post and rail type barrier clad in timber to give the required aesthetic.

Existing Drainage Infrastructure

The site as a whole is currently serviced by an existing private foul and surface water drainage network. Foul water discharges to the public sewer system via on-site private drainage. Surface water is collected from various sources around the Park via the on-site sewer system and some local attenuation.

The existing hotel and its recent extension discharges surface water to a series of linked attenuation ponds that form an on-site SUDS system, before final delivery to an existing 525mm surface water culvert which in turn discharges to a downstream open ditch alongside the A243. This ditch, we understand, is managed by Transport for London.

There is also a system of land drains installed within the paddock immediately adjacent to the proposed lodge site which drain to form a 'wetland' at the low end of the paddock. It is not intended to utilise these land drains for disposal of surface water as their effectiveness for accepting additional volumes is doubtful.

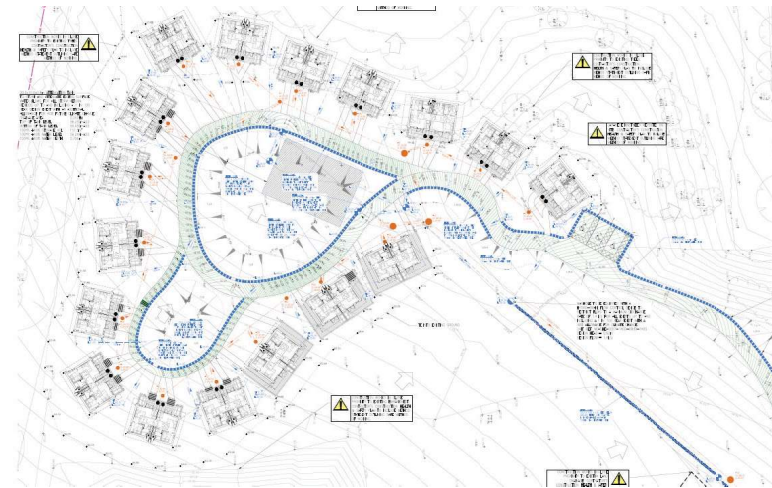
Proposed Foul and Surface Water Drainage

The foul and surface water drainage strategies have been developed further from the Stage 2 design in order to optimise it for tender issue. The drainage strategy has also been optimised for the removal of future phases of lodges. A drainage statement has been prepared to discharge pre-commencement planning condition 10.

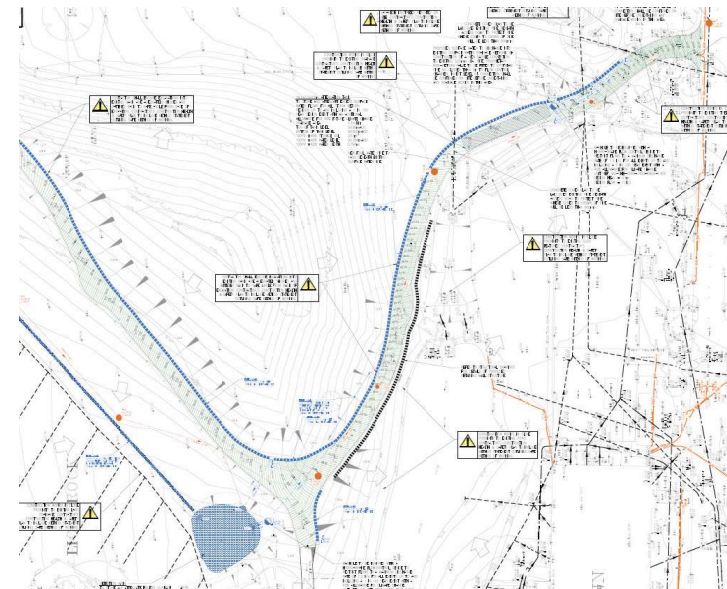
The surface water drainage layout has been optimised to remove the requirement for the overground pipework previously shown through the vegetation to the north of the lodges. This has been achieved by rerouting runoff from the lodges through a below ground attenuation tank at the west end of the access road. The extent of the proposed detention basin has been increased to accommodate the redirected runoff volume from the lodges. By reducing flows upstream, it has allowed us to minimise the size of the below ground attenuation tank at the east end of the access road and relocate it beneath the road construction. In turn, this will remove the requirement to undertake any works to the existing SUDS ponds / ditches previously indicated on the Stage 2 strategy.

The route of foul water drainage from the lodges into the existing network have been optimised to minimise excavations in excess of 3m along the access road. This has been achieved by diverting the foul water pipes alongside the surface water drainage in the 'valley' to the west of the access road, where ground levels are at their lowest.

Simpson's tender issue drawings 13730:101, 102, 108, 109 and 110 detail the drainage and SUDS systems and schedules. Together with the Drainage Statement document they should be referred to for a detailed explanation of the drainage proposals as a whole.



Extract from Engineering Layout drawing 13730:101



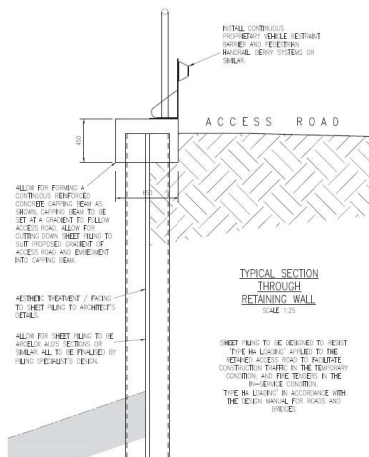
Extract from Engineering Layout drawing 13730:102

External Works

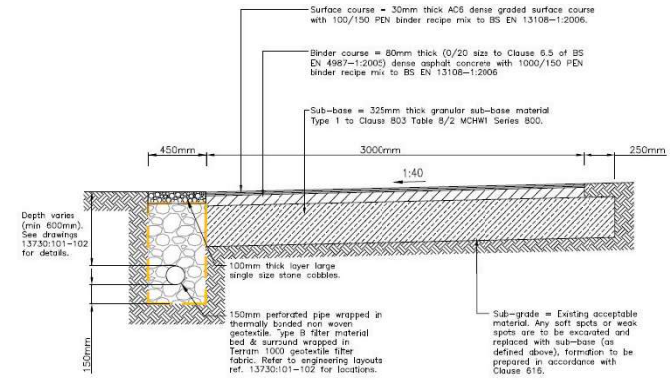
External works, landscaping and hard and soft surfacing has been developed in sympathy with the existing site topography and the requirements of the SUDS design. Retaining structures are required along the main internal access roadway where the existing topography is terraced to form a platform for the roadway. Retaining will be up to 2.5-3.0m in height and is to take the form of steel sheet piling, faced with materials to the Architect's specification for aesthetic effect. Sheet piling will be installed by mobile crane using a non-impact method to minimise disturbance to the adjacent hotel operations. Sheet piling will be to specialist design but is likely to be in the order of 10m long with an embedment depth of 2.5 x retained height. The vertical alignment of the access road has been optimised to reduce the extent of the retaining wall with 1 in 2.5 embankments introduced to support the road where possible.

Levels around the access road / footpath in front of the lodges have been adjusted to remove any requirement for stepped access to the majority of the lodges. The lodges requiring stepped access have been restricted to a maximum of four steps where possible.

The proposed access road construction has been optimised to remove any requirement for kerbs while ensuring it is suitable for tracking by fire tenders. To ensure the required 3.7m wide route is provided for fire tenders, the filter drains collecting runoff from the access road will be overrunnable during emergency access, as will a narrow strip of landscaping over sub-base along the opposite channel line. The access road construction is split between sections that will be founded in existing ground and on engineering fill. The depth of sub-base has been increased in areas founded in existing ground to account for the variability of the formation.

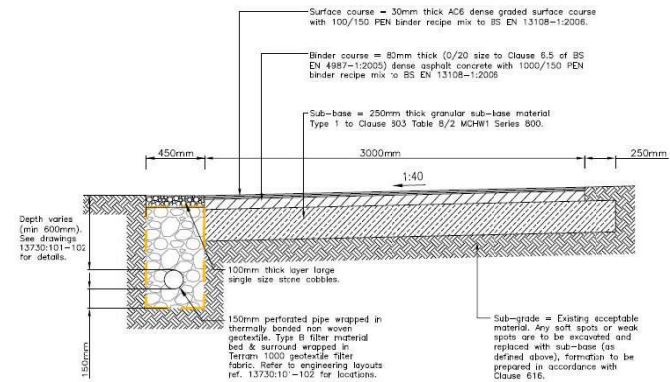


Section Through Sheet Piled Retaining Wall to Access Road



TYPICAL SECTION THROUGH ACCESS ROAD FOR USE BY CARS/LIGHT VEHICLES AND EMERGENCY ACCESS (2% CBR)

SCALE 1:20

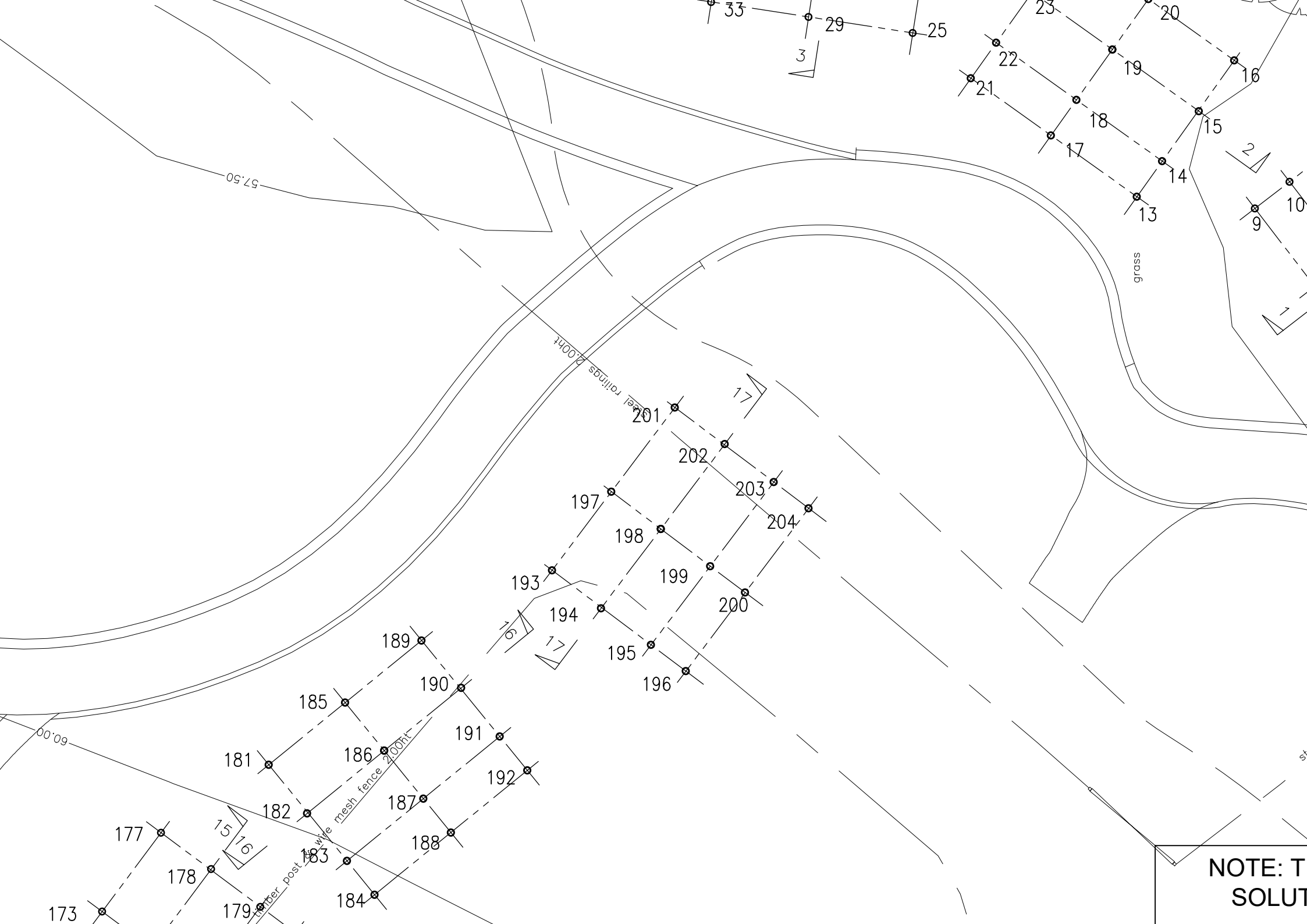


TYPICAL SECTION THROUGH ACCESS ROAD FOR USE BY CARS/LIGHT VEHICLES AND EMERGENCY ACCESS (5% CBR)

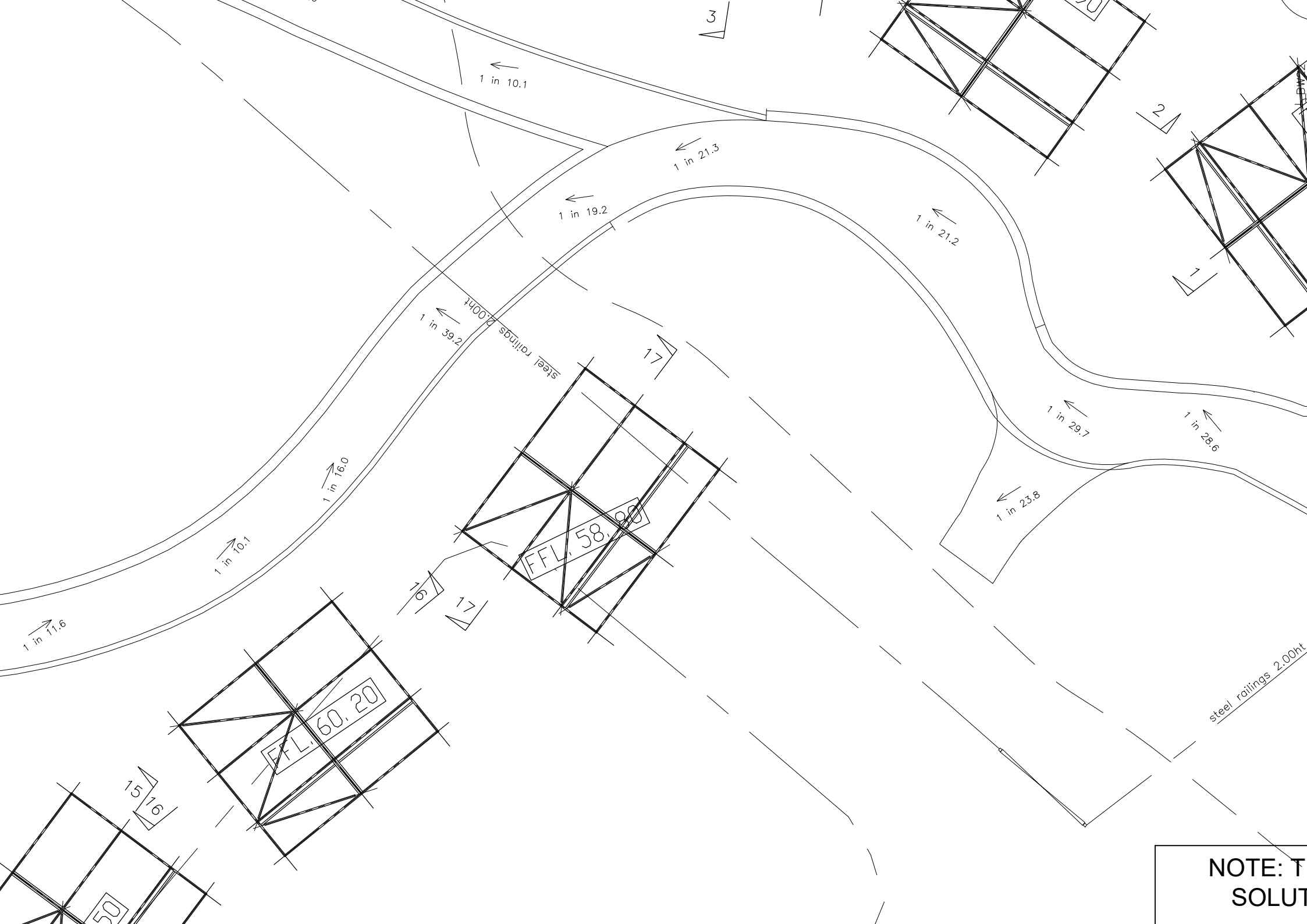
SCALE 1:20

Specifications for Access Road Construction

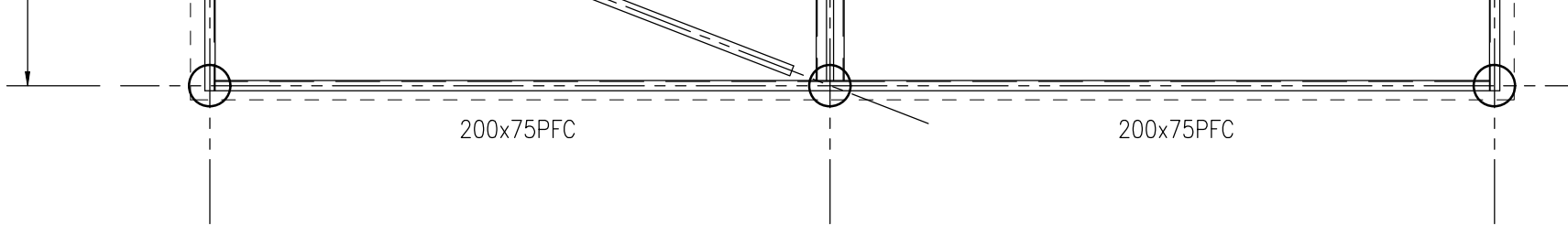
END OF REPORT



NOTE: T
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NOTE: T
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PROVIDE LATERAL RESTRAINT
 . SPECIALIST HELICAL PILE
 ZANT OF ELEVATED LEVELS
 TION TO EXTERNAL GROUND
 ROTRUDING PILE SHAFTS
 RDINGLY.

ALL STEELWORK TO BE GALVANISED

Raking helical piles required for lateral stability of steel frame. Raking piles may be omitted if piling specialist confirms helical piles can accept lateral stability forces. T.B.C.

FLOOR PLAN

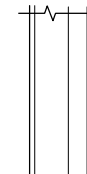
STANDARD ACCESSIBLE LODGE (PILED) GROUND FLOOR STEEL SUB-FRAME

Option 1 = 3No. Thus
Option 2 = 3No. Thus

CONSTRUCTION OF LODGE IS SHOWN INDICATIVELY ONLY AND IS TO SPECIALIST SUPPLIER'S DETAILED DESIGN.



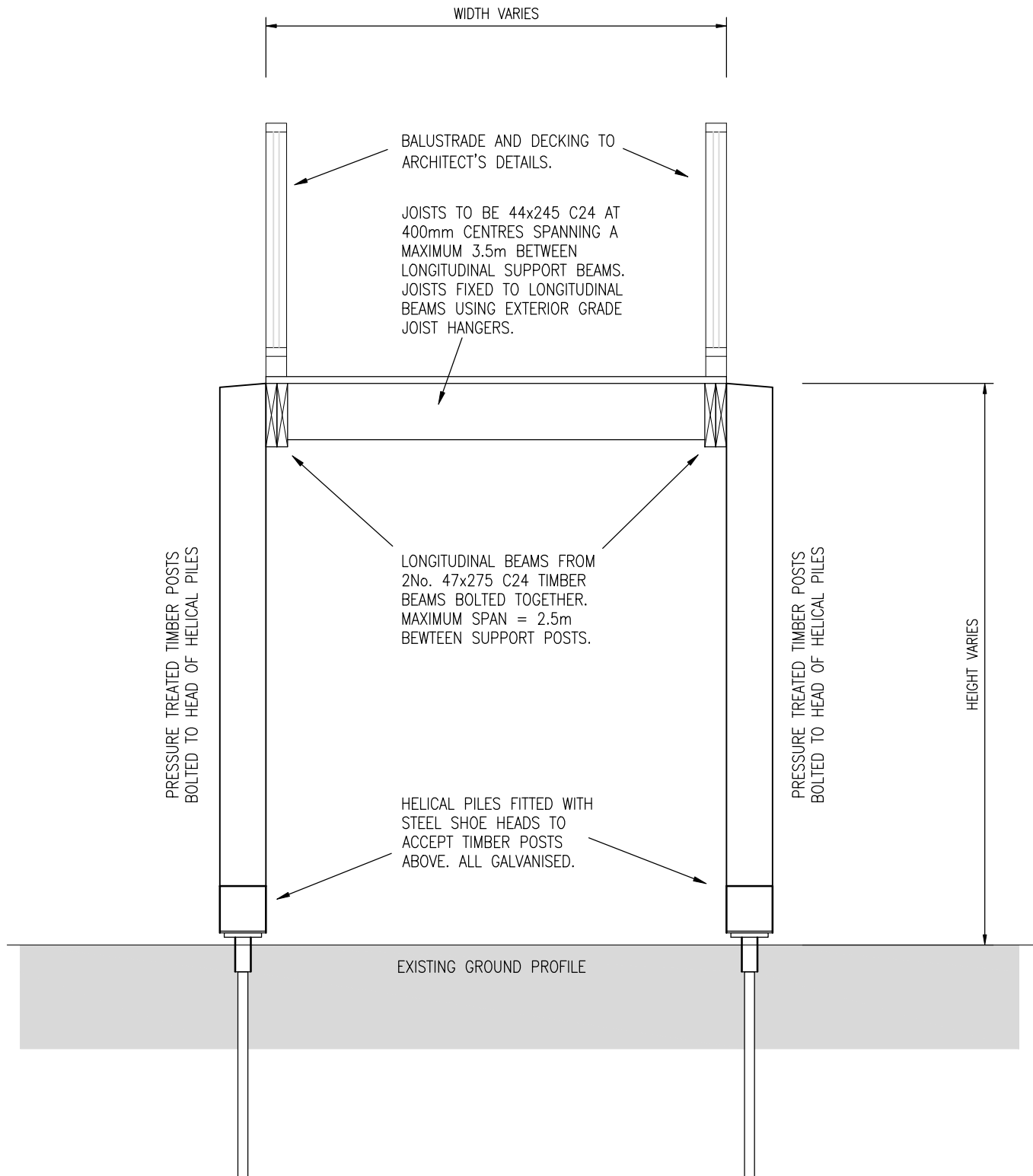
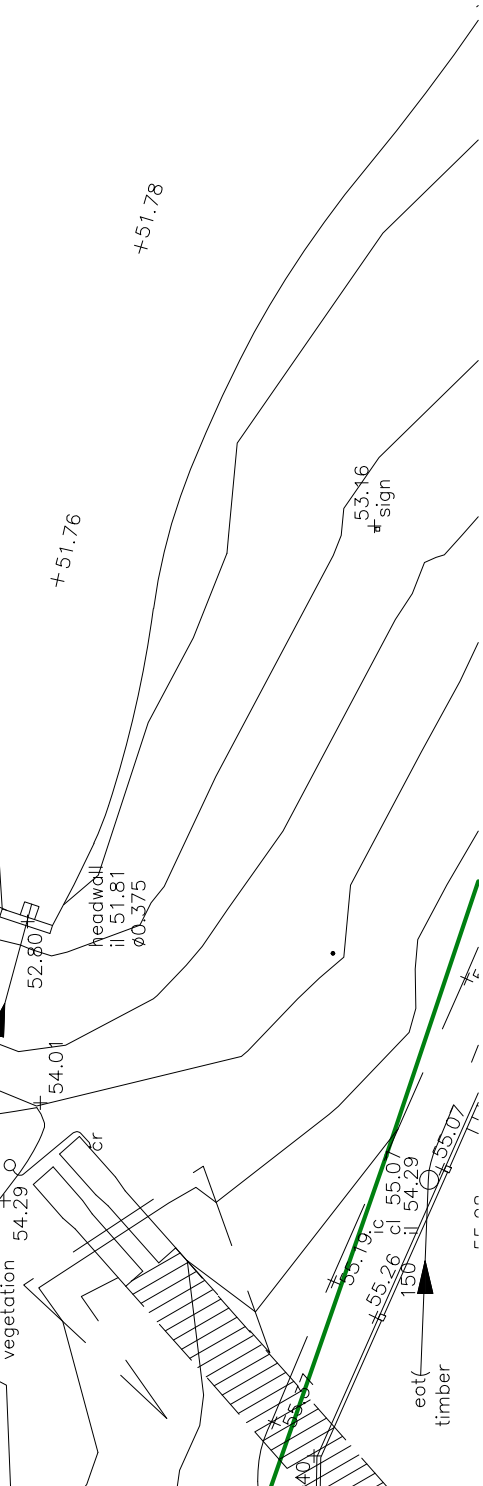
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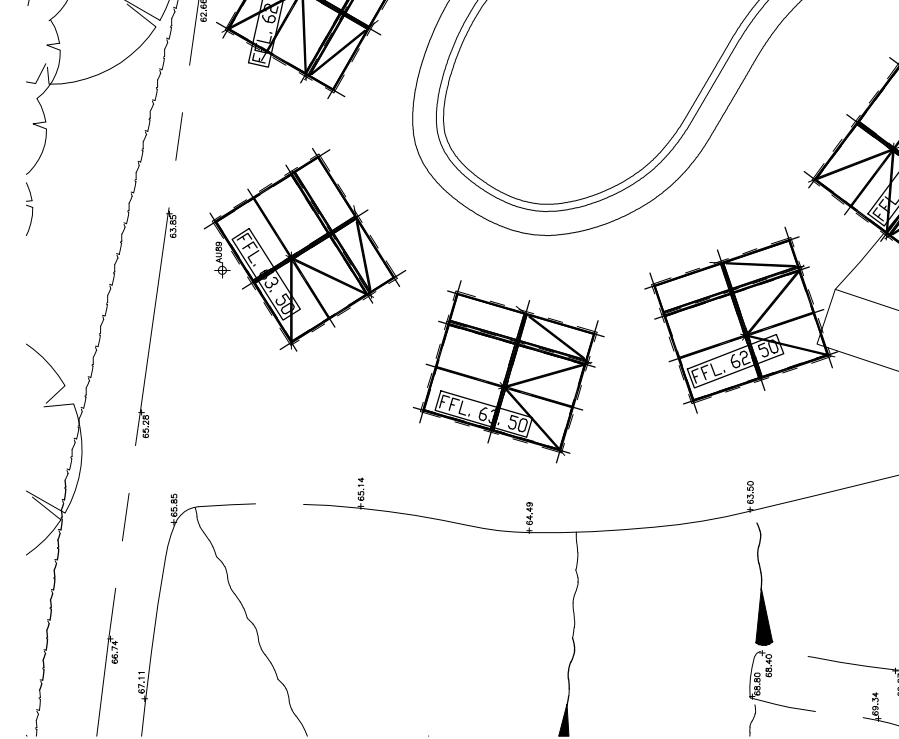
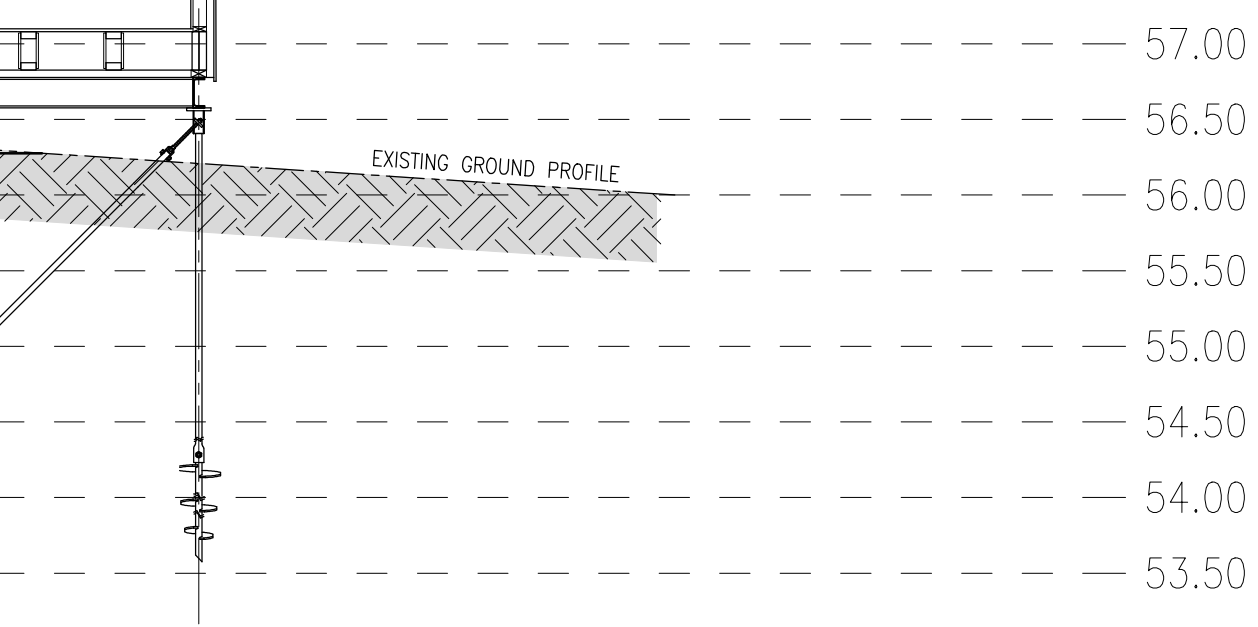


FF1

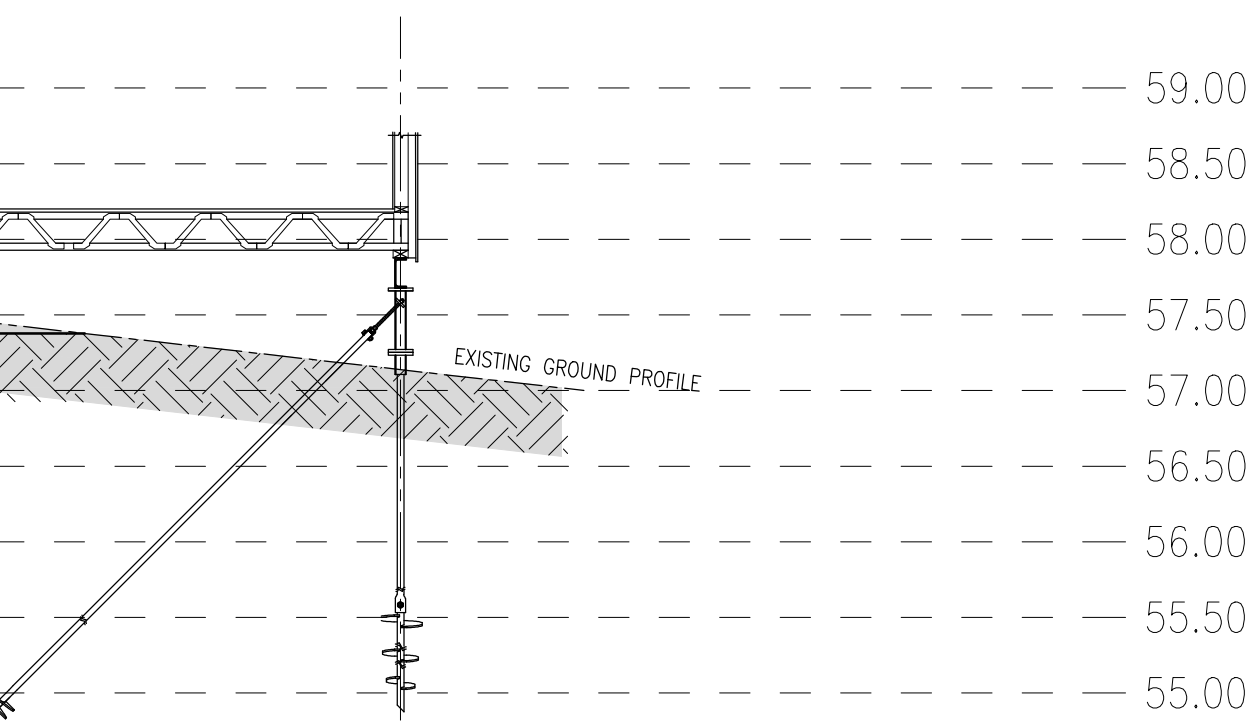
EXTERNAL GROUND LEVEL TO BE BATTERED BACK AT AN ANGLE OF REPOSE OF 1:3 TO MEET

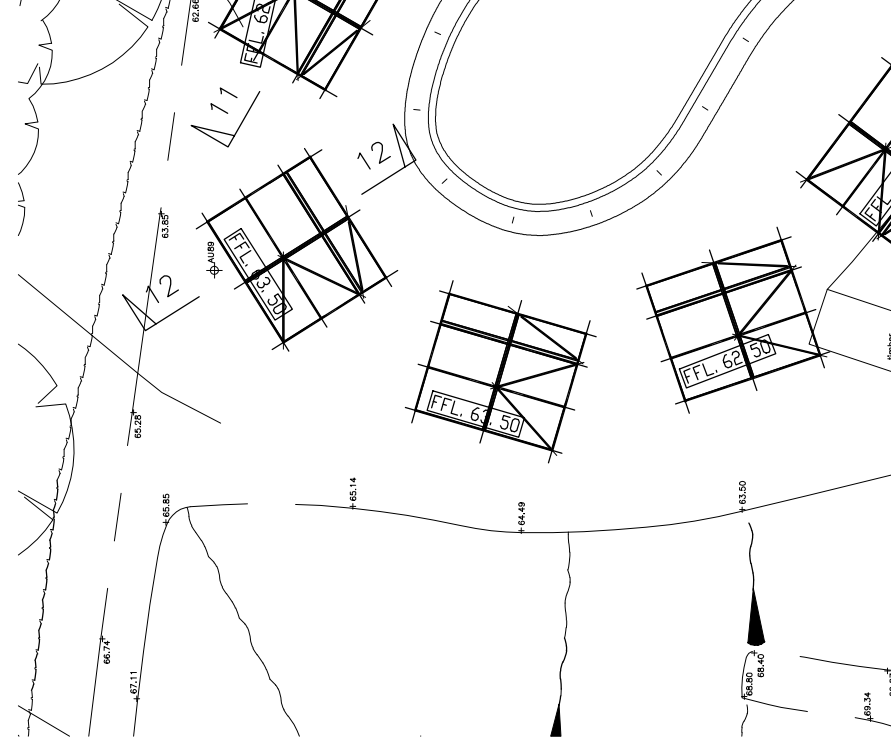
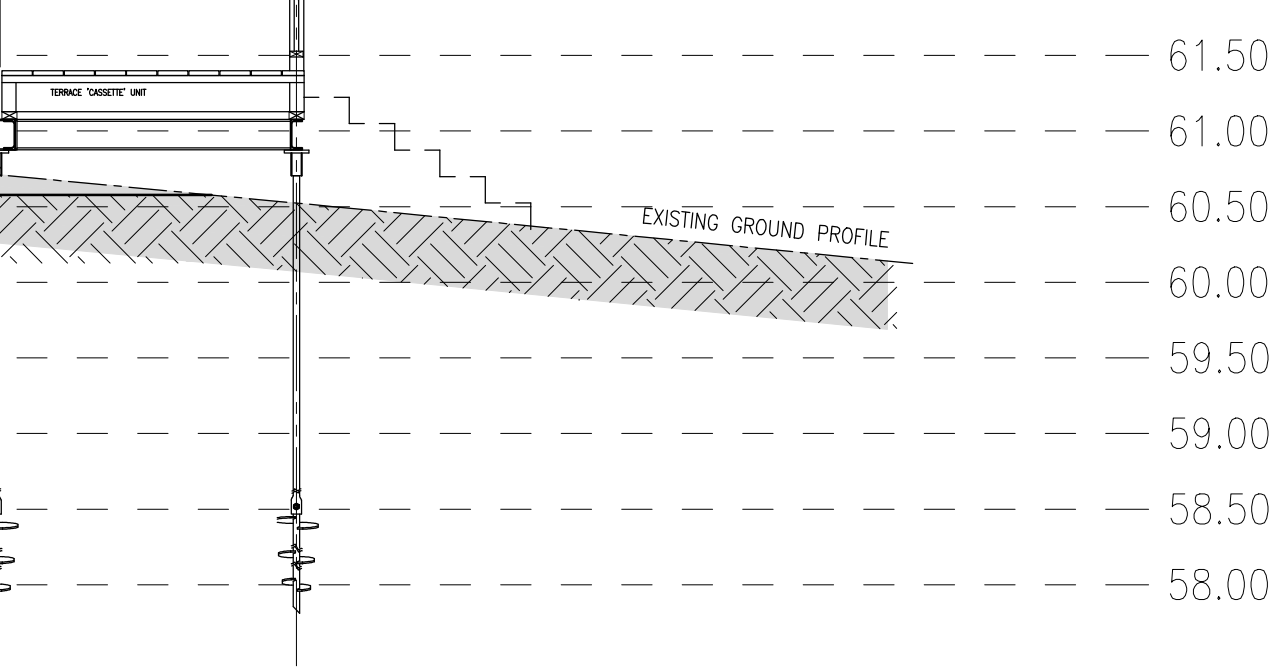
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74	9477.960E	6148.295N	2 1	2 0	1 0	0	0	0	7 2	2 0	1 0	5	5	5	1 2 3
75	9480.216E	6146.611N	2 2	2 0	1 0	0	5	0	7 3	2 0	1 0	0	0	0	1 2 4
76	9481.808E	6145.424N	2 3	1 5	2 0	0	0	0	7 4	2 0	1 0	0	5	5	1 2 5
77	9478.381E	6153.565N	2 4	2 0	1 0	5	5	5	7 5	2 5	1 5	0	0	0	1 2 6
78	9480.661E	6151.914N	2 5	2 0	1 0	0	0	0	7 6	2 0	1 0	0	5	5	1 2 7
79	9482.893E	6150.198N	2 6	2 0	1 0	0	5	5	7 7	2 0	1 0	0	0	0	1 2 8
80	9484.484E	6149.010N	2 7	2 5	1 5	0	0	0	7 8	7 0	3 0	0	5	5	1 2 9
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82	9485.021E	6154.445N	2 9	2 0	1 0	0	0	0	8 0	7 0	3 0	5	5	5	1 3 1
83	9486.830E	6152.288N	3 0	7 0	3 0	0	5	5	8 1	2 0	1 0	0	0	0	1 3 2
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91	9493.770E	6157.937N	3 8	2 0	1 0	0	5	5	8 9	2 0	1 0	0	0	0	1 4 0
92	9495.023E	6156.398N	3 9	2 5	1 5	0	0	0	9 0	7 0	3 0	0	5	5	1 4 1
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94	9498.376E	6163.766N	4 1	2 0	1 0	0	0	0	9 2	7 0	3 0	5	5	5	1 4 3
95	9500.648E	6162.104N	4 2	7 0	3 0	0	5	5	9 3	2 0	1 0	0	0	0	1 4 4
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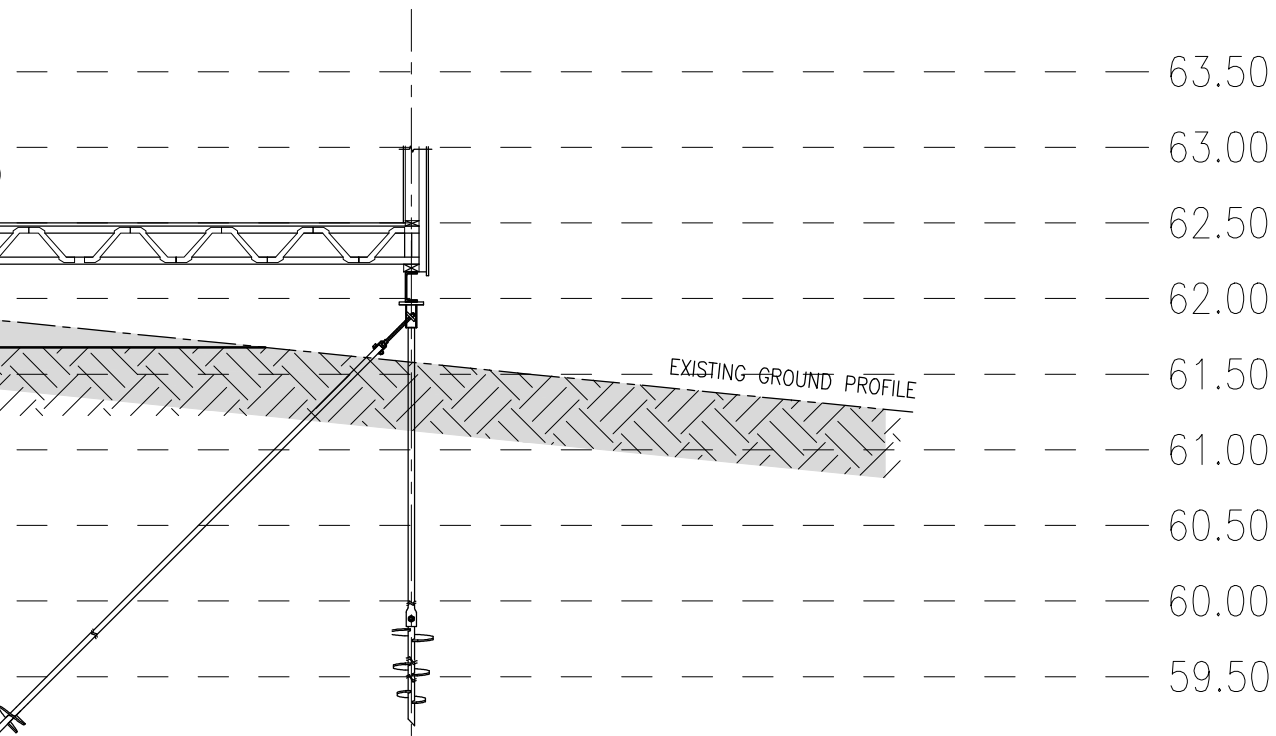


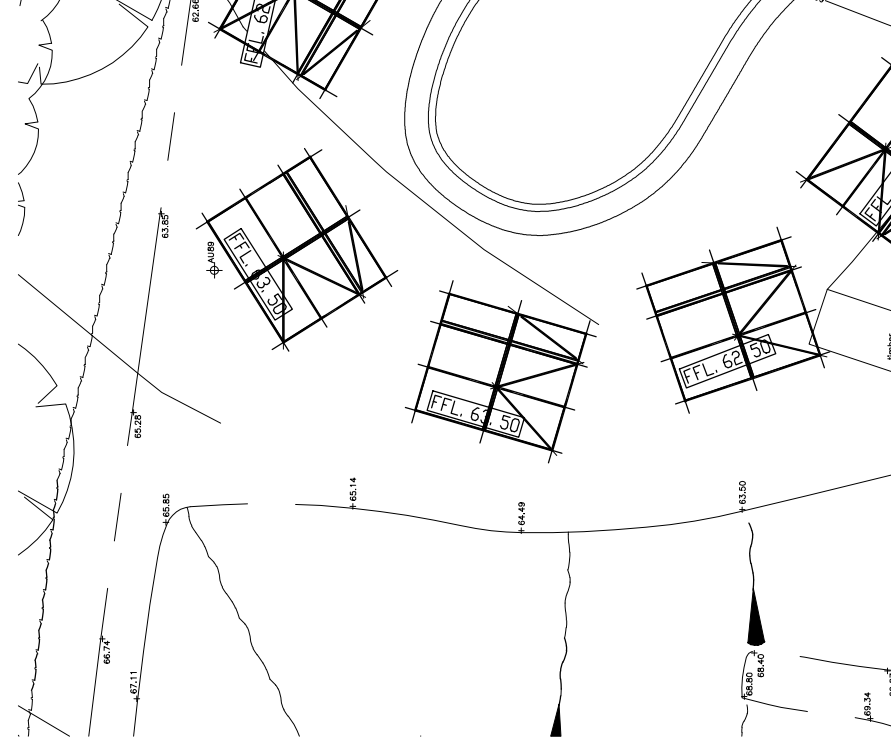
KEY PLAN SHOW





KEY PLAN SHOW





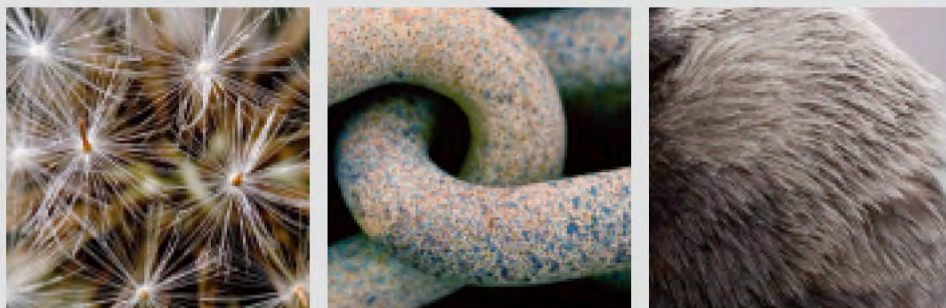
KEY PLAN SHOW

Appendix 5

Chessington Lodges

Ecological Survey and Appraisal

Updated October 2018



baker *consultants*

WHO WE ARE:

Baker Consultants is an ecology and sustainability consultancy. We work in terrestrial, freshwater and marine environments, providing a range of services for industry, government, developers, public services and utilities.

Baker Consultants comprises a highly experienced team of professional ecologists. We do wildlife surveys - but they are only the first steps in the process for most projects. We are also involved in ecological assessment, environmental law, biodiversity management and design planning.

We don't just work with wildlife, because we know that communication with clients, design teams and conservation bodies is the key to project success. Explaining the implications of survey data, and interpreting legislation, policy and practice is one of our strengths. We help decisions to be made and actions taken, allowing constraints to be kept to a minimum and project risks to be managed.

Our approach is scientific, pragmatic and creative. Alongside tried and tested methods we seek to innovate, introduce clients to new ways of thinking and always deliver sound commercial awareness. You will find us honest and approachable, but we're not afraid to be robust and challenging - or to ask difficult questions.

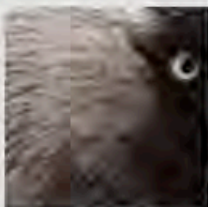
We do believe in nature conservation – none of us fell into this line of work by chance. But we also believe in good development, well delivered. We also know that with our input, projects and plans can provide benefits for both nature and people.

WHAT WE DO:

- Terrestrial, Freshwater and Marine Surveys
- Environmental Impact Assessments
- Appropriate Assessment
- Ecological Appraisals
- Public Exhibitions
- Public Inquiry
- Bioacoustic Survey and Monitoring
- Ecological Design and Mitigation
- SM2 Field Support

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For more information look at our web site www.bakerconsultants.co.uk, subscribe to our blog, or just give us a call on 0114 360 2969



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Contact details	c.abrahams@bakerconsultants.co.uk
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	Name	Position	Date
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Unless otherwise stated in this document, the assessments made assume that the site referred to will continue to be used for its current purpose without significant change. The assessment, recommendations and conclusions contained in this document may be based upon information provided by third parties and upon the assumption that the information is relevant, correct and complete. There has been no independent verification of information obtained from third parties, unless otherwise stated in the report.

Where field investigations have been carried out, these have been restricted to the agreed scope of works and carried out to a level of detail required to achieve the stated objectives of the services. Natural habitats and species distributions may change over time and further data should be sought following any significant delay from the publication of this document.

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1 Key Issues	1
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3 Methods	5
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7 References	27
8 Appendix 1. Bat survey plan	28
9 Appendix 2. Amphibian survey plan	29

I Key Issues

I.1 The Proposed Development

- 1.1.1 Merlin Attractions Operations Ltd is proposing to install 34 accommodation lodges for guests within the resort at Chessington World of Adventures Resort (referred to below as 'the Site').
- 1.1.2 The proposed development could potentially result in impacts on the ecological features of the site and/or its surroundings. This report details the results of our ecological assessment of the site and describes features of ecological value found to be present. It also provides advice to help minimise impacts, thereby enabling the development to comply with current nature conservation policy and legislation.
- 1.1.3 The ecological assessment, set out in detail below, was originally undertaken in 2016/2017 and was set out in two reports – A Preliminary Ecological Assessment and a protected species report. To reflect recent changes to the scope and scale of the proposed development, these two previous reports have been combined and updated to reflect the currently proposed scheme.

I.2 Ecological Receptors

- 1.2.1 A number of designated sites, habitats and species (ecological receptors) have been identified on the Site or nearby, including the following:
- One statutory designated site, present within 1km of the Site boundary.
 - Nine non-statutory designated sites within 1km of the Site boundary, including one which is located immediately adjacent to the proposed development site.
 - Areas of broad-leaved semi-natural woodland and scrub.
 - Several Japanese knotweed stands.
 - The presence of a range of bats, common amphibians, slow-worms and 33 species of birds using the site.
 - The presence of great crested newts has been recorded off site to the west.
- 1.2.2 There is potential for a low level of ecological impact to arise from the proposed scheme on the species present. This can be minimised through the application of appropriate mitigation.

I.3 Required Actions

- 1.3.1 No adverse impacts on bats or their habitat are anticipated as a result of development. Trees will be checked prior to felling, their habitats will be maintained and enhanced under the proposal, and bat boxes will be provided to increase roosting opportunities.

- 1.3.2 Although the potential for adverse impacts on great crested newts is low, it is considered worthwhile to apply for a European Protected Species Licence to cover the construction of the lodges. This will avoid the risk of the project being delayed should great crested newts be found on site during construction.
- 1.3.3 Vegetation clearance prior to works will reduce the risk of slow worms being harmed during construction. This work should be undertaken outside of the bird nesting season (March-August inclusive), to avoid impacts on breeding birds.
- 1.3.4 A strategy for Japanese knotweed eradication should be put into place.
- 1.3.5 These mitigation measures can all be set out and implemented under a Construction Environmental Management Plan.

2 Introduction

2.1 Site Description

- 2.1.1 Merlin Attractions Operations Ltd is proposing to install 34 accommodation lodges for guests within the resort at Chessington World of Adventures Resort (referred to below as 'the Site'), centered on National Grid Reference TQ172627.
- 2.1.2 Previous ecology reports were issued in February/March 2017, but since then the size and layout of the proposed scheme has been reduced. The previous scheme had 45 standard and premium lodges specified, together with a watering hole, new reception etc, and the new revised scheme now only consists of 34 standard lodges as shown in the proposed plan at Figure 1.
- 2.1.3 Due to these changes, this ecology report has been updated from the previous versions to reflect the new scheme.

Figure 1. Proposed Development Area



2.2 Study Scope

- 2.2.1 This report has been prepared to accompany a detailed planning application to the Royal Borough of Kingston upon Thames, for the installation of 34 accommodation lodges, together with associated infrastructure and landscaping.
- 2.2.2 A Preliminary Ecological Assessment (Ref: 750_PEA_01) was produced for the site in May 2016 (and revised February 2017), to report on a desk study and extended Phase 1 habitat survey. This was followed by an Ecological Survey and Appraisal report (Ref. 750.01_rep_ca) in October 2016 (and revised March 2017), which covered protected species issues. These two previous assessments have been combined and updated in this report.
- 2.2.3 Across the previous two reports, Baker Consultants was commissioned by the client to undertake the following works in relation to the Site:
- Preliminary Ecological Assessment, consisting a desk study and extended Phase 1 habitat survey.
 - Reptile survey in areas of grassland and scrub.
 - Great crested newt surveys in the three ponds adjacent to the hotel.
 - Bat activity survey, using walked transects and static detectors.
 - Breeding bird survey.

3 Methods

3.1 Desk Study

- 3.1.1 Records of internationally, nationally and locally designated sites, together with records of protected or otherwise notable species, were requested from Greenspace Information for Greater London (GIGL) and Surrey Biodiversity Information Centre (SBIC) in April 2015.
- 3.1.2 The study area for the data search was defined as being within 1km of the approximate Site boundary. Additionally, the Multi-Agency Geographic Information for the Countryside (MAGIC) website was reviewed for details of designated sites in the same search area.

3.2 Phase I Habitat Survey

- 3.2.1 Diana Clark MSc MCIEEM conducted a Phase 1 Habitat Survey on the 11 November 2015. Whilst this is not the optimal time of year for a Phase 1 survey, due to the lack of complex or diverse habitats present, it was possible to gain a good understanding of the habitats present, in order to allow accurate assessment of potential impacts. The mild weather at this time of year also meant that a number of plants that would normally have died back by this time were still visible.
- 3.2.2 The vegetation types and habitats present were described and mapped during a walkover of the survey area, based on standard published guidelines for Phase 1 Habitat Survey (JNCC, 2010). Features of particular interest were recorded as Target Notes (TNs).
- 3.2.3 In addition, the habitats within the survey area were appraised for their suitability to support protected or notable species, or assemblages that could be sensitive to the Proposed Development, in accordance with 'Guidelines for Baseline Ecological Assessment' (IEA, 1995).
- 3.2.4 The protected and notable habitats and species referred to above include those listed under the Wildlife and Countryside Act 1981 (as amended); The Conservation of Habitats and Species Regulations 2017; and Species and Habitats of Principal Importance in England/Wales, listed under the Natural Environment and Rural Communities (NERC) Act 2006.
- 3.2.5 During the survey, consideration was given to features such as potential breeding bird habitat, bat roosting locations, reptile habitat and the suitability of water features for amphibians and riparian mammals. Exotic and invasive species, e.g. Japanese

knotweed *Fallopia japonica*, Himalayan balsam *Impatiens glandulifera* and giant hogweed *Heracleum mantegazzianum*, were noted by the surveyor, if present.

- 3.2.6 The survey approach taken is designed to identify broad habitat types at a site and the potential of these habitats to support notable/protected species, and to assist in providing an overview of the ecological interest at a site. It is the most widely used and professionally recognised method for initial ecological site appraisal.
- 3.2.7 A full check of the Site for badgers *Meles meles* was conducted at the same time as the Phase 1 Habitat Survey, in accordance with recognised survey methods and guidance (Harris *et al.*, 1989). This involved walking across the Site, looking for signs of badgers, including their setts. Signs are characteristic and include tufts of hair caught on barbed wire fences, conspicuous badger paths, footprints, small excavated pits or latrines in which droppings are deposited, scratch marks on trees, and snuffle holes, which are small scrapes where badgers have searched for insects and plant tubers.

3.3 Bat Activity Survey

- 3.3.1 To record bat activity within the survey area, the surveys listed in Table 1 below were carried out. These were all undertaken in accordance with standard survey guidance (BCT, 2016).
- 3.3.2 The surveyors used Wildlife Acoustics EM Touch recorders to record bat calls for later computer analysis. A transect around the survey area was walked, in proximity to features likely to be used by roosting or commuting/foraging bats. Station stops of 2 minutes were carried out at selected locations along the route.
- 3.3.3 The transect route is shown on a plan in Appendix 1.

Table 1. Bat Survey Conditions

Date	Surveyors	Weather	Sunset time	Start/finish
18/05/2016	Diana Clark, Carlos Abrahams	14°C, cloudy, breezy and dry	20:50	20:50/22:10
06/07/2016	Diana Clark, Katie Watson	18°C, cloudy, slight breeze, dry	21:18	21:15/22:52
08/09/2016	Carlos Abrahams, Rich Hall	15°C, clear, calm, dry.	19:30	20:20/21:30

3.4 Automated Bat Survey

- 3.4.1 Wildlife Acoustics SM2 automated bat detectors were deployed on site according to the details provided below in Table 2. These detectors record nearby bat calls automatically, with each digital file being appropriately date and time-stamped. After recording, the data collected is downloaded for analysis on computer
- 3.4.2 The locations of the bat detectors are shown on a plan in Appendix 1.

Table 2. Automated Bat Surveys

Date of Deployment	Date of Retrieval	Detector location	Unit Number
19/05/2016	03/06/2016	TQ 172 628	012431
19/05/2016	03/06/2016	TQ 174 627	013150
06/06/2016	21/07/2016	TQ 175 628	012431
06/06/2016	21/07/2016	TQ 171 627	013150

3.5 Amphibian Survey

- 3.5.1 Four surveys were carried out on the pond, in accordance with standard Natural England guidance, to determine the presence or absence of great crested newts *Triturus cristatus* and other amphibian species. Each survey consisted of an evening visit to set bottle traps and undertake torching, followed by a visit the next morning to retrieve bottle traps. Egg searching was undertaken on one of these evening/morning visits, so that three methods were used for each survey event.
- 3.5.2 The dates, conditions and results of these surveys are set out in Table 3 below. A map of all surveyed ponds is included in Appendix 2.
- 3.5.3 Ordnance Survey mapping was reviewed to identify the presence of any waterbodies within 250m of the Site boundary that could be potential amphibian breeding sites. A fifth pond located just off site to the west was also surveyed on visit 3 as this pond is within 250m of the survey boundary. This involved using torching, netting and an egg search.

Table 3. Great Crested Newt Survey Metadata

Date	Weather	Method	Surveyors
09.05.16 (pm)	18C, dry	Torching, 30 traps in pond 1, 10 traps in pond 2	Diana Clark, Verity Coleing
10.05.16 (am)	16C, light rain	Collect traps	Diana Clark, Verity Coleing
10.05.16 (pm)	Damp, breezy	Torching, 30 traps in pond 1, 10 traps in pond 2	Diana Clark, Carlos Abrahams
11.05.16 (am)		Collect traps	Diana Clark, Carlos Abrahams
18.05.16 (pm)	14C, cloudy, breezy and dry	Torching, 20 traps in pond 1, 10 in pond 2	Diana Clark, Carlos Abrahams
19.05.16 (am)		Collect traps, netting and egg search of pond 5	Diana Clark, Carlos Abrahams
02.06.16 (pm)	15C, cloudy, dry	Torching, 20 traps in pond 1, 10 in pond 2	Diana Clark, Katie Watson
03.06.16 (am)	14C, cloudy, dry	Collect traps	Diana Clark, Katie Watson

3.6 Bird Survey

- 3.6.1 The breeding birds survey methodology broadly followed the 'Common Bird Census' (CBC) devised by the British Trust for Ornithology (Marchant, 1983). This technique involves walking the survey area while watching and listening for birds, and mapping the location and behaviour of every bird recorded using a standardized system of notation.
- 3.6.2 Three visits were undertaken to each parts of the site during the bird breeding season in suitable weather conditions. The visits were made either in the early morning or evening, when birds are most active. The surveyors, dates, times and weather conditions during these surveys are detailed in Table 4.

Table 4. Breeding Birds Survey Conditions

Date	Surveyor	Times (hrs)	Weather Conditions	Sunrise Time
19/05/16	Carlos Abrahams	07:10/08:50	10C, overcast, dry	05:03
23/06/16	Carlos Abrahams	07:05/08:25	18C, light rain, F1 wind	04:45
07/07/16	Diana Clark, Katie Watson	08:50/09:50	16C, F1 wind, 70% cloud, dry	04:53

3.7 Reptile Survey

- 3.7.1 Reptile surveys were completed using standard presence/absence methodology (Froglife, 1999). A total of 75 reptile mats, made from 0.5m x 0.5m squares of roofing felt, were placed in areas of suitable habitat on 03 June 2016. The mats were allowed to settle for a minimum of 2 weeks before being checked, on 6 subsequent visits, for reptiles basking on top and hiding underneath (see Table 5). Any reptiles observed were recorded, together with details of species and age (adult or juvenile).

Table 5. Reptile Survey Conditions

Visit no./Date	Start	Surveyors	Conditions
1 (06.07.16)	15:00	Diana Clark, Katie Watson	20C
2 (07.07.16)	08:30	Diana Clark, Katie Watson	18C, 50% cloud, Light breeze, dry
3 (21.07.16)	08:15	Diana Clark, Katie Watson	17C, 80% cloud, dry, wind F1-2
4 (12.08.16)	11:20	Courtenay Holden, Katie Watson	22C, 15% cloud, Wind F0
5 (25.08.16)	09:00	Rich Hall, Courtenay Holden	18C, no cloud, F1 wind, dry
6 (20.09.16)	16:10	Steve Docker, Ben Hinder	20C, 90% cloud, F1 Wind

4 Results

4.1 Study Limitations

- 4.1.1 Whilst every effort was made in the field survey to provide a comprehensive description of the site, no investigation can ensure the complete characterisation and prediction of the natural environment. Also, natural and semi-natural habitats are subject to change, species may colonise the site after surveys have taken place and results included in this report may become less reliable over time.
- 4.1.2 The weather on multiple reptile surveys was very warm which may have led to a low count of individuals.

4.2 Designated Sites

- 4.2.1 A number of designated sites were found to be present within the desk study search area and are summarised in Table 6 below.

Table 6. Designated Sites.

Name	Status	Distance from Site	Description
Jubilee Wood	LNR	800m	Mixed broadleaved woodland and hay meadow
Winey Hill	SINC (BII)	Adjacent	Horse-grazed pasture, scrub, grassland, stock pond and hedges
Barwell Estate Lake	SINC (BI)	350m	Large lake important for breeding and wintering birds including wildfowl and waders
Green Lane	SINC (BII)	350m	Ancient cattle road with hedges, mature trees, supporting birds and invertebrates
Sixty Acre Wood and Jubilee Wood	SINC (M)	450m	Botanically diverse ancient woodland with good invertebrate fauna.
The Meadowlands	SINC (BI)	450m	Species-rich grassland
Chessington Wood	SINC (BI)	500m	Ancient woodlands with good range of breeding birds
Bonesgate Stream	SINC (BII)	550m	Meandering stream with associated riparian habitat
The Grapsome	SINC (BII)	650m	Ancient woodland with associated ground flora
Jubilee Meadows ('Meadowlands')	SINC (BII)	700m	Two large meadows over London clay. Field pond and WWII pill box converted for use by bats as winter hibernaculum

Key:

LNR = Local Nature Reserve

SINC = Site of Importance for Nature Conservation

(M) = Of Metropolitan importance

(BI) = Of Borough importance Grade I

(BII) = Of Borough importance Grade II

- 4.2.2 No internationally designated sites are present within 1km of the Site.
- 4.2.3 One Local Nature Reserve (LNR) is present within 1km of the Site. Jubilee Wood LNR is designated for its broadleaved woodland and hay meadow.
- 4.2.4 Nine Sites of Importance for Nature Conservation (SINCs) are located within 1km of the Site, including one of Metropolitan importance (Sixty Acre Wood and Jubilee Wood SINC), three of Borough grade I importance and five of Borough grade II importance (including Winey Hill immediately adjacent to the Site to the north-west). These sites are designated for a range of reasons, including the presence of woodland, meadows, riparian habitat, grassland and a large waterbody.

4.3 Habitats

- 4.3.1 The habitat types recorded during the Phase 1 Habitat Survey are described within the following paragraphs and shown in Figure 2 below. Scientific names are given after the first mention of a species; thereafter, common names only are used. Nomenclature follows Stace (2010) for vascular plant species. Target Notes (TNs) are given in Table 7 below.

Figure 2. Aerial Photo of Habitat Survey Area with Target Notes.

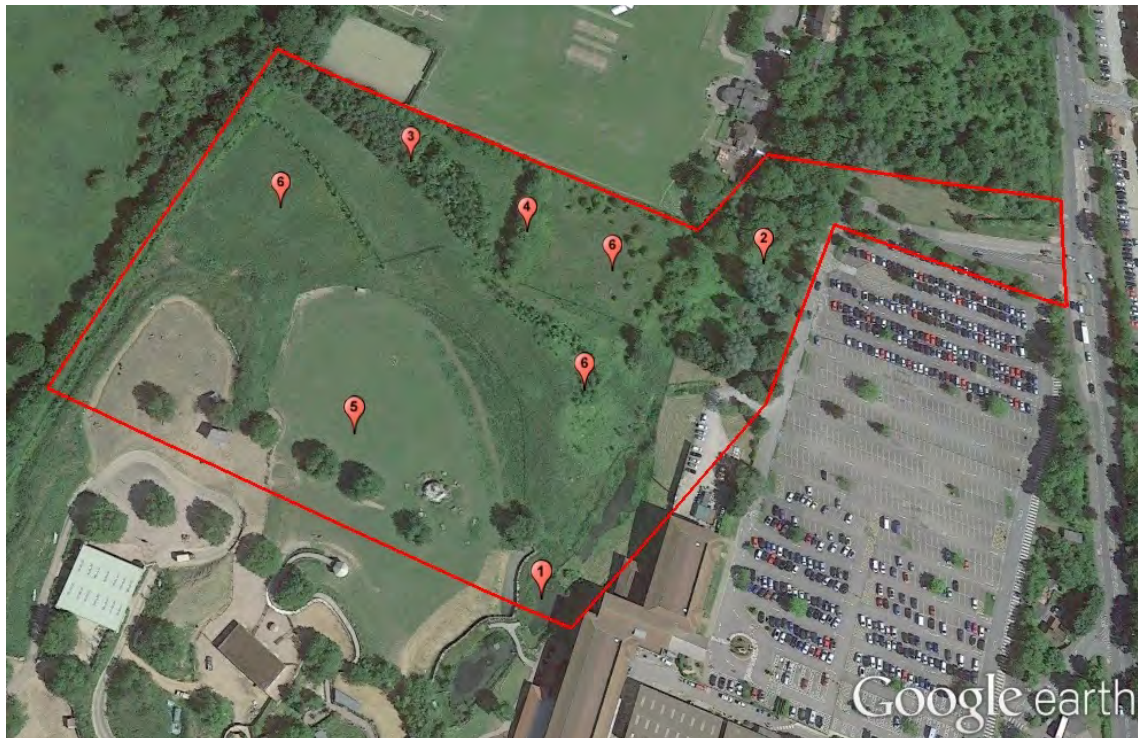


Table 7. Target Notes (TNs).

TN	Notes
1	Series of three ponds with associated aquatic, emergent and marginal vegetation.
2	Area of woodland / scrub, some mature trees present - particularly along the access road. Also overgrown ditch with some water present at time of survey.

- 3 Young planted woodland of native species.
 - 4 Area of dense blackthorn/hawthorn/bramble scrub.
 - 5 Grazed grassland within existing animal enclosures. Some semi-mature trees present to the south.
 - 6 Rough grassland with some patches of dense scrub and planted young trees.
-

4.3.2 The habitat types recorded during the Phase 1 Habitat survey are described in the following paragraphs.

Broadleaved semi-natural woodland

4.3.3 An area of broadleaved semi-natural woodland is located at TN2, and includes some older trees that have clearly been planted adjacent to the access road (see Figures 3 and 4 below), as well as younger specimens that have self-seeded. Several dead trees were also noted, still standing at the time of the survey. This area also contains significant amounts of bramble *Rubus fruticosus* agg. understorey, and where more light is present, areas of tall ruderal (mainly common nettle *Urtica dioica*). Tree species include ash *Fraxinus excelsior*, crack willow *Salix fragilis*, field maple *Acer campestre*, horse chestnut *Aesculus hippocastanum*, hawthorn *Crataegus monogyna*, Scot's pine *Pinus sylvestris* and lime *Tilia x cordata*.

Figure 3. Planted trees along access road.



Figure 4. Mature trees and dense scrub.



Broadleaved plantation woodland

4.3.4 An area of young planted woodland is present at TN3, with specimens around 15 – 20 years old to the northwest corner, and younger specimens (less than 8 years old) to the east of this area. Species present include a mix of Scot's pine, field maple, oak *Quercus robur*, ash, blackthorn *Prunus spinosa*, hazel *Corylus avellana*, guelder rose *Viburnum opulus*, sweet chestnut *Castanea sativa* and hawthorn.

Scattered/dense scrub

- 4.3.5 Areas of dense scrub dominated by bramble are present on the site, particularly between the area of rough grassland and the ponds/broadleaved semi-natural woodland (see Figure 5 below). Dense scrub is also present within the area of woodland at TN2 (see Figure 4 above), and at TN4 where it is largely dominated by blackthorn.

Scattered trees

- 4.3.6 A number of scattered trees are present, some of which are young and are associated with the fence line through the site to the west. More semi-mature trees are present within the animal enclosure to the south (see TN5), however species identification was not possible for these due to the lack of direct access.

Figure 5. Dense scrub.



Figure 6. Semi-improved grassland.



Semi-improved grassland

- 4.3.7 A large area of semi-improved grassland is present over much of the central part of the survey area, at TN6 (Figure 6). Species are mixed, but dominated by coarser grasses such as false oat-grass *Arrhenatherum elatius* and cock's-foot *Dactylis glomerata*, as well as Yorkshire-fog *Holcus lanatus*, bent grasses *Agrostis* sp., and perennial rye-grass *Lolium perenne*. Some common forb species are also present, including creeping buttercup *Ranunculus repens*, common nettle, ribwort plantain *Plantago lanceolata*, broad-leaved dock *Rumex obtusifolius*, common sorrel *R. acetosa*, creeping thistle *Cirsium arvense* and lesser stitchwort *Stellaria graminea*.

Tall ruderal

- 4.3.8 Several areas of tall ruderal vegetation are present, largely associated with the waterbody margins and generally mixed in with tall rank grasses. A mix of species is present, including common nettle, goat's-rue *Galega officinalis*, cleavers *Galium aparine*, ragwort *Senecio jacobaea*, wild teasel *Dipsacus fullonum*, hemlock *Conium maculatum*, mugwort *Artemisia vulgaris*, and coltsfoot *Tussilago farfara*.

Standing water

4.3.9 Four standing water bodies are present on or just outside the site (TN1). The emergent/marginal vegetation includes bulrush *Typha latifolia* and pendulous sedge *Carex pendula* (Figure 7). A short section of wet ditch is also present between the woodland and the access road on the eastern edge of the site.

Amenity grassland

4.3.10 Several areas of amenity grassland are present, immediately adjacent to the car park access road on the eastern side of the site.

Figure 7. Waterbody.



Figure 8. Japanese knotweed.



Invasive species

4.3.11 Three Japanese knotweed stands were noted on the site during the survey, these are shown in Figure 8 above and their approximate location is given in Figure 9 below.

Figure 9. Approximate location of known Japanese knotweed stands.



4.3.12 Due to the dense nature of scrub and tall ruderal vegetation at TN2, it is also possible that additional stands of Japanese knotweed are present within this area.

4.4 Desk Study Species Records

4.4.1 Due to confidentiality requirements of the biological records centres, a copy of the full desk study report is not included here. However, relevant records of bats and reptiles found within the search area are summarised in Table 8 below and records of notable birds are summarised in Table 9.

Table 8. Summary of Bat and Reptile Records since 2000.

Common name	Scientific name	Conservation status	Latest record
Common Pipistrelle bat	<i>Pipistrellus pipistrellus</i>	EPS, WCA5	2014
Soprano Pipistrelle bat	<i>Pipistrellus pygmaeus</i>	EPS, S41, WCA5	2014
Daubenton's bat	<i>Myotis daubentonii</i>	EPS, S41, WCA5	1980
Brown Long-eared bat	<i>Plecotus auritus</i>	EPS, S41, WCA5	2014
Slow-worm	<i>Anguis fragilis</i>	WCA5, S41	2011
Grass Snake	<i>Natrix natrix</i>	WCA5, S41	2011
Common Lizard	<i>Zootoca vivipara</i>	WCA5, S41	2011

Key:

EPS = European Protected Species (listed in Annex 4 of the EC Habitats Regulations and Schedule 2 of the Habitats Regulations).

WCA5 = Animals listed in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended).

S41 = Listed as a Species of Principal Importance in England and covered by Section 41 of the Natural Environmental and Rural Communities Act 2006.

Table 9. Summary of Notable Bird Records.

Common name	Scientific name	Conservation status	Latest record
Lesser Redpoll	<i>Acanthis cabaret</i>	S41, Red	2008
Skylark	<i>Alauda arvensis</i>	S41, Red	2014
Barnacle Goose	<i>Branta leucopsis</i>	BD1	2008
Nightjar	<i>Caprimulgus europaeus</i>	BD1, S41, Red	2005
Linnet	<i>Carduelis cannabina</i>	Red	2014
Cuckoo	<i>Cuculus canorus</i>	S41, Red	2002
Yellowhammer	<i>Emberiza citrinella</i>	S41, Red	2011
Reed Bunting	<i>Emberiza schoeniclus</i>	S41	2009
Peregrine	<i>Falco peregrinus</i>	BD1, WCA1	2008
Hobby	<i>Falco subbuteo</i>	WCA1	2008
Red Kite	<i>Milvus milvus</i>	BD1, WCA1	2002
Spotted Flycatcher	<i>Muscicapa striata</i>	S41, Red	2002
House Sparrow	<i>Passer domesticus</i>	S41, Red	2014
Marsh Tit	<i>Poecile palustris</i>	Red	2008

Common name	Scientific name	Conservation status	Latest record
Starling	<i>Sturnus vulgaris</i>	Red	2009
Redwing	<i>Turdus iliacus</i>	WCA1, Red	2008
Song Thrush	<i>Turdus philomelos</i>	Red	2014
Fieldfare	<i>Turdus pilaris</i>	WCA1, Red	2014
Barn owl	<i>Tyto alba</i>	WCA1	2008
Lapwing	<i>Vanellus vanellus</i>	S41, Red	2006

Key:

BD1 = European Protected Species of bird, listed under Annex 1 of the Birds Directive 2009/147/EC.

WCA1 = Listed as a protected bird under the Wildlife and Countryside Act 1981 (as amended), Schedule 1.

Red = Listed as 'red' (highest conservation concern) under criteria in Birds of Conservation Concern.

S41 = Listed as a Species of Principal Importance (SPI) under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.

4.4.2 In addition to the Red-listed birds shown in Table 9, a number of additional bird species highlighted by the desk study, but not shown here, were highlighted as Amber listed, for being of moderate conservation concern.

4.5 Bats

4.5.1 The static bat detector recorded for 16 consecutive nights in the first survey session and 15 nights in the second session. Seven species were recorded, with common and soprano pipistrelles being the most common (Table 10). Locations 1 and 4, north of the animal enclosures recorded more bat activity, in comparison to Locations 2 and 3 near to the car park. This is understandable in terms of the higher quality bat foraging habitat provided by the grassland and scrub around the animal enclosures.

Table 10. Static Detector Summary

Species	Location 1	Location 2	Location 3	Location 4	Species total
Common pipistrelle	137	203	436	1038	1814
Soprano pipistrelle	1424	38	84	122	1668
Noctule	10	20	163	19	212
Leisler's	3	0	44	0	47
Nathusius pipistrelle	13	0	6	1	20
Myotis species	3	1	0	1	5
Serotine	0	0	0	4	4
Location Total	1635	319	741	1202	

Numbers shown are total number of bat 'passes' at each location.

4.5.2 The transect surveys mostly recorded passes of noctule and common pipistrelle bats (Table 11). The noctule bats were recorded on the site, especially feeding around the car park streetlights, and from locations off site to the north (the call of this species is particularly loud and travels further than vocalizations from other bats). Activity was

generally low in the first two surveys, with more bat activity being recorded in the third survey, in August

Table 11. Transect Data Summary

Species	Bat 'passes' recorded
Noctule	74
Common pipistrelle	16
Leisler's	2
Soprano pipistrelle	1
Nathusius pipistrelle	1
Transect Total	94

4.6 Amphibians

- 4.6.1 The desk study provided no records of any amphibians within a 1km radius of the site.
- 4.6.2 The field survey confirmed the presence of a population of smooth newts *Lissotriton vulgaris* in Ponds 1 and 2, with the larger population residing in Pond 1 (Table 12).
- 4.6.3 Ponds 3 and 4 were surveyed using torches only, as the fenced animal enclosure boundaries around them prevented access – and the presence of koi carp in Pond 3 and the captive animals disturbing the waterbody in Pond 4 makes it very unlikely that amphibian populations would be present.
- 4.6.4 Pond 5 (outside the site to the west) was surveyed on the 18/19 May 2016 and found to contain great crested newt, smooth newt and palmate newt *Lissotriton helveticus*.

Table 12. Amphibian Survey Results

Pond	Visit 1 9/10 May	Visit 2 10/11 May	Visit 3 18/19 May	Visit 4 02/03 June
1	7f, 36m SN trap 6f, 1m SN torch	5f, 27m SN trap 0 torch	4f, 5m SN trap 0 torch	1f, 1m SN trap 2f SN torch CF tadpoles
2	0 trap 2f SN torch 3CF	0 trap 1 SN torch	0 trap 0 torch	0 trap 0 torch
3	0 torch	0 torch	0 torch	0 torch
4	0 torch	0 torch	0 torch	0 torch
5	-	-	1m GCN net 1m PN, 12f 7m SN net 0 torch CF tadpoles	-

Key: f-female, m-male. SN - smooth newt, PN - palmate newt, GCN - great crested newt, CF - common frog

4.6.5 Multiple toads *Bufo bufo* and frogs *Rana temporaria* were also found using the refugia during the reptile survey, with frogs and tadpoles also being recorded in Ponds 1, 2 and 5.

4.7 Reptiles

4.7.1 The desk study returned records of grass snake, common lizard and slow worm. The closest records for these species were all obtained in 2011 and in the same location 900m from the site boundary.

4.7.2 Slow worms were found during the surveys on visits 1, 2, 3, and 6, confirming that the site has valuable habitat for this species.

4.8 Birds

4.8.1 A total of 33 species of birds were recorded during the site surveys, of which 4 species were confirmed to be breeding (B), 3 probably breeding (Pr) and 13 possibly (Po) breeding. A further 13 species were considered to be non-breeding visitors (N). Table 13 lists these birds and their breeding status.

Table 13. Bird Species Recorded

Species	Latin name	Breeding status
Blackbird	<i>Turdus merula</i>	Po
Blue tit	<i>Cyanistes caeruleus</i>	Po
Canada goose	<i>Branta canadensis</i>	B
Carrion crow	<i>Corvus corone</i>	N
Chaffinch	<i>Fringilla coelebs</i>	Po
Chiffchaff	<i>Phylloscopus collybita</i>	Po
Collared dove	<i>Streptopelia decaocto</i>	N
Dunnock	<i>Prunella modularis</i>	Po
Feral pigeon	<i>Columba livia</i>	N
Goldcrest	<i>Regulus regulus</i>	Po
Goldfinch	<i>Carduelis carduelis</i>	Pr
Great tit	<i>Parus major</i>	Po
Greenfinch	<i>Chloris chloris</i>	B
Grey heron	<i>Ardea cinerea</i>	N
Herring gull	<i>Larus argentatus</i>	N
Jackdaw	<i>Corvus monedula</i>	N
Little grebe	<i>Tachybaptus ruficollis</i>	B
Long tailed tit	<i>Aegithalos caudatus</i>	Po
Magpie	<i>Pica pica</i>	Po
Mallard	<i>Anas platyrhynchos</i>	N
Meadow pipit	<i>Anthus pratensis</i>	N
Mistle thrush	<i>Turdus viscivorus</i>	Po
Moorhen	<i>Gallinula chloropus</i>	B
Pied wagtail	<i>Motacilla alba</i>	Po
Ring necked parakeet	<i>Psittacula krameri</i>	N
Robin	<i>Erithacus rubecula</i>	Pr
Skylark	<i>Alauda arvensis</i>	N
Song thrush	<i>Turdus philomelos</i>	Po
Starling	<i>Sturnus vulgaris</i>	N
Swallow	<i>Hirundo rustica</i>	N
Whitethroat	<i>Sylvia communis</i>	Po
Willow tit	<i>Poecile montanus</i>	N
Woodpigeon	<i>Columba palumbus</i>	N
Wren	<i>Troglodytes troglodytes</i>	Pr

5 Assessment

5.1 National Policy

5.1.1 The National Planning Policy Framework (NPPF 2018) sets out the Government's planning policies for England and how these should be applied. It states that the purpose of the planning system is to contribute to the achievement of sustainable development, combining economic, social and environmental objectives, and 'protecting and enhancing our natural --- environment; including ---helping to improve biodiversity'. Within this framework, the requirements in relation to biodiversity are included within several policies. The two most relevant to individual planning decisions are Paragraphs 170 and 175, shown below:

170: Planning policies and decisions should contribute to and enhance the natural and local environment by:

- a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);
 - b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;
 - c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;
 - d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;
- etc...

175. When determining planning applications, local planning authorities should apply the following principles:

- a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;

- c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and
- d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.

5.1.2 Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006 places a duty on every public authority to have regard to conserving biodiversity. Section 41 of the same Act requires that the Secretary of State must publish a list of the living organisms and types of habitats that are of 'Principal Importance' for the purpose of conserving biodiversity. The Secretary of State must take steps, as appear reasonably practicable, to further the conservation of those living organisms and habitats in any list published under this section. The list of species and habitats of principal importance currently includes 943 species and 56 habitats.

5.2 Impacts on Designated Sites

- 5.2.1 The closest designated site to the study area is Winey Hill SINC. The site is important due to its diverse grassland, boundary features, woodland and a stock pond. Declining birds, including linnet and bullfinch, have been recorded on this site. However, it is considered unlikely that the development proposals will impact on this SINC as: a) the footprint of the development will be entirely outside the SINC, and b) additional footfall is likely to be limited, as no connecting access will be provided within the development. There is an opportunity to strengthen the strip of woodland/scrub on the western boundary of the Site to further buffer the development from the SINC. This is addressed further in Section 6 of this report.
- 5.2.2 Impacts on other designated sites are also likely to be negligible as a result of the development, due to their distance from the proposed development site and the fact that the Lodges site will be designed to be self-contained within the CWoAR complex, i.e. there will be no exit points from CWoAR onto the SINC to the north or other designated sites.

5.3 Impacts on Habitats

- 5.3.1 Within the reduced footprint of the revised current scheme, the potential impacts will be limited to: a) loss of semi-improved grassland; b) damage to waterbodies; c) loss of/damage to woodland/trees/scrub and d) disturbance/ other indirect impacts during construction. Whilst none of these habitats present on the site are considered to be exceptional, both woodland and ponds are Habitats of Principal Importance and should be retained as far as possible, or their losses mitigated for appropriately. Additionally, without appropriate mitigation, the Japanese knotweed stands present

on the Site may be caused to be spread to other locations. This is addressed further in Section 6 of this report.

- 5.3.2 As part of the development, a new SUDS pond will be created close to existing waterbodies. This will help to provide additional aquatic habitat, and a potential new breeding habitat for the smooth newts present on the site.

5.4 Impacts on Species

Bats

- 5.4.1 Bats and their habitats are protected under the Wildlife and Countryside Act 1981 (as amended by the CRow Act 2000), and by the Conservation of Habitats and Species Regulations 2017. Taken together, these make it an offence to:
- a) Deliberately capture, injure or kill a bat;
 - b) Deliberately disturb any bat, in particular any disturbance which is likely to (i) impair their ability to survive, breed, reproduce or to rear or nurture their young; or in the case of hibernating or migratory species, to hibernate or migrate; or (ii) to affect significantly the local distribution or abundance of the species to which they belong.
 - c) To be in possession or control of any live or dead bat or any part of, or anything derived from a bat;
 - d) Damage or destroy a breeding site or resting place of a bat;
 - e) Intentionally or recklessly obstruct access to any place that bat uses for shelter or protection;
 - f) Intentionally or recklessly disturb a bat while it is occupying a structure or place that it uses for shelter or protection.
- 5.4.2 Seven bat species are listed in the UK Biodiversity Action Plan and are listed as Species of Principal Importance under the provisions of the NERC Act 2006.
- 5.4.3 Records of four species of bats were highlighted by the desk study, including common pipistrelle, soprano pipistrelle, Daubenton's *Myotis daubentonii* and brown long-eared *Plecotus auritus*. The field survey added Nathusius pipistrelle, noctule, Leisler and serotine bats to this species list.
- 5.4.4 Suitable foraging habitat for a range of bats is present on and around the Site, in particular areas of woodland, scrub, and hedgerows. A number of mature trees within the woodland on the edge of the site have the potential to provide opportunities for roosting bats.

- 5.4.5 Whilst, in principle, the operational impacts of the proposed development are likely to be low for bats, any loss of mature/semi-mature trees (to allow installation of buildings, access routes etc.) or management, such as removal of dead limbs for health and safety reasons, may potentially impact on roosting bats. However, no such impacts are currently identified under the proposed scheme.

Amphibians

- 5.4.6 Great crested newts and their habitats in water and on land are protected under the Wildlife and Countryside Act 1981 (as amended by the CRoW Act 2000) and under the Conservation of Habitats and Species Regulations 2017. In addition, great crested newt is listed as a Species of Principal Importance under the provisions of the NERC Act 2006.
- 5.4.7 Great crested newts are present in Pond 5 to the west of the site, approximately 150m from the proposed development. There is a low potential for newts from this pond to use the development site as terrestrial habitat. As a result, there is a low risk for impacts on this species arising from development.
- 5.4.8 A new SuDS pond is proposed for the new development. It is likely that this will provide additional habitat of benefit to the amphibians present on the site.

Reptiles

- 5.4.9 All British reptiles are protected under the Wildlife and Countryside Act 1981 (as amended by the CRoW Act 2000). Grass snake, slow worm, common lizard and adder are protected against intentional killing or injury and against sale. In addition, all British reptiles are listed as Species of Principal Importance under the provisions of the NERC Act 2006.
- 5.4.10 The desk study indicated that records of common reptile species are present within the search area, including common lizard *Zootoca vivipara*, grass snake *Natrix natrix* and slow worm *Anguis fragilis*.
- 5.4.11 Slow worm has been recorded on the site, and the areas of scrub and rough grassland provide suitable areas of habitat for this species. This species could be affected during construction of the lodge development, and appropriate mitigation should be put in place to prevent killing or injury arising from the development.

Birds

- 5.4.12 All nesting birds are protected under the Wildlife and Countryside Act 1981 (as amended), which makes it an offence to intentionally kill, injure or take any wild bird or take, damage or destroy its nest whilst in use or being built, or take or destroy its eggs. In addition to this, for some rarer species (listed on Schedule 1 of the Act), it is an offence to intentionally or recklessly disturb them while they are nest building or at or near a nest with eggs or young, or to disturb the dependent young of such a bird.

5.4.13 The Birds of Conservation Concern initiative (Eaton *et al*, 2015) publishes lists of Red and Amber species. Birds on the Red list are of high conservation concern within the UK, while those on the Amber list are of medium conservation concern. In addition, a number of bird species are also included as Species of Principal Importance under the provisions of the NERC Act 2006.

5.4.14 A total of 33 birds were recorded during the breeding birds surveys, including the notable species set out in Table 14 below.

Table 14. Notable Bird Species

Species	Latin name	Status
Dunnock	<i>Prunella modularis</i>	Amber, BAP, NERC41
Herring gull	<i>Larus argentatus</i>	Red, BAP, NERC41
Mallard	<i>Anas platyrhynchos</i>	Amber
Meadow pipit	<i>Anthus pratensis</i>	Amber
Mistle thrush	<i>Turdus viscivorus</i>	Red
Skylark	<i>Alauda arvensis</i>	Red, BAP, NERC41
Song thrush	<i>Turdus philomelos</i>	Red, BAP, NERC41
Starling	<i>Sturnus vulgaris</i>	Red, BAP, NERC41
Willow tit	<i>Poecile montanus</i>	Red, BAP, NERC41

Key:

SPI – Species of Principal Importance for Conservation

Amber – Species of Moderate Conservation Concern

Red – Species of High Conservation Concern

LBAP – Priority species on the relevant Local Biodiversity Action Plan

5.4.15 Those habitats with the greatest value to breeding birds within the application area are the scrub and woodland vegetation on the fringes of the site. These habitats support breeding birds but also serve as important connective habitat linking to the wider landscape.

5.4.16 Whilst the majority of the development is located within the grassland area to the north of the safari enclosures, there will be some impact on scrub at the site. Construction of the western group of lodges will require the removal of scattered young trees along an existing fence line in the northwest part of the site. In addition, the new access to the lodges will require removal of dense scrub on the western side of the northernmost existing SuDS pond. Both of these habitats were recorded as having breeding birds present.

6 Recommendations

6.1 Mitigation Measures

- 6.1.1 The 'Mitigation Hierarchy' refers to the principle of first avoiding impacts, secondly minimising/reducing any impacts through mitigation, and thirdly compensating (or off-setting) such impacts. Finally, enhancement should also be considered. Generally speaking, the best approach is that proposed development should seek to work around existing features, avoid significant impacts upon them and essentially build them into proposed projects.
- 6.1.2 We would recommend a number of constraints and opportunities to be considered during the design process, in order to minimise impacts on habitats and the species they support. These include the following:
1. **Retain existing trees and woodland** within the design of the scheme as far as possible. Where this is not possible, consideration should be given to replacing trees and strengthening woody vegetation elsewhere on the site, for example along the western boundary with the SINC. Ideally, new tree planting should be of native species (although it is recognised that since CWoAR is a theme park, non-native species may be planted as well) and any species planted should be chosen to help provide food sources to birds and other animals.
 2. **Where vegetation removal cannot be avoided**, in order to avoid committing an offence under the Wildlife and Countryside Act 1981 (as amended) it will be necessary to programme this to take place outside the bird-breeding season. The bird breeding season is normally taken to be March – August inclusive, with September – February inclusive being the best time for vegetation clearance. Where this is not possible, any vegetation scheduled for removal should be inspected immediately before works by an appropriately experienced ecologist and, if breeding birds are found, a buffer area should be put into place and no vegetation removal should proceed until the nest is no longer active.
 3. **Retain existing waterbodies** within the design of the scheme as far as possible. Habitat management may also be appropriate to ensure a dense, varied wetland fringe to the ponds. Adjacent habitats could also be managed to ensure waterbodies don't become shaded with scrub.
 4. **Installation of bird and bat boxes across the site.** This would increase opportunities for birds and bats to use the site and the habitats present, thereby achieving some biodiversity gain.
 5. **Lighting should be minimised** across the site, in order to keep impacts on foraging bats as low as possible.

6. **A management plan to avoid the spread of Japanese knotweed** during works should be prepared in accordance with Environment Agency guidelines provided in *Managing Japanese knotweed on development sites - the knotweed code of practice* (Environment Agency, 2006).

6.2 Bats

- 6.2.1 In general terms, the scheme will be developed within grassland habitats that do not offer potential for roosting bats. However, there will be limited tree-felling required as part of the proposals. Any tree greater than 300mm diameter should be inspected for bat roost potential by an experienced ecologist prior to felling.
- 6.2.2 Habitat enhancement for bats will be provided by the introduction of 12 bat boxes of varied style within the existing tree areas. Proposals to maintain the boundary trees and provide additional landscape planting will maintain and enhance the bat foraging and commuting habitats at the site.

6.3 Amphibians

- 6.3.1 The potential for impact on great crested newts is limited. The closest pond with great crested newts is 150m away from the proposed works site, and this species has not been recorded within the existing SuDS ponds at the site (although smooth newts have been recorded here). If great crested newts are using the grassland areas proposed for development, then there could be the chance of them being harmed during the construction process. This impact, however, is expected to be temporary, with newts being able to use the site during operation. Although the chances of impacting great crested newts during construction are not high, it is recommended that a newt licence should be sought prior to development commencing. This is for pragmatic reasons as much as for preventing offences under the legislation, to ensure that delays to the development programme are not caused by the discovery of great crested newts during the construction process.
- 6.3.2 The new SuDS pond within the development will be planted with aquatic and marginal vegetation to provide valuable new amphibian habitats at the site.

6.4 Reptiles

- 6.4.1 Impacts on slow worms should be minimised by encouraging them to disperse from working areas by vegetation clearance before construction starts.

6.5 Birds

- 6.5.1 To avoid committing an offence under the Wildlife and Countryside Act it will be necessary to programme all construction works that might directly impact upon breeding birds to the September-February period outside the bird breeding season. Any works during the bird breeding season (March-August), will need to be preceded by a check for nesting birds by an experienced ecologist. If nesting birds

are found during this, they will need to be left in situ until nesting has been completed and the young have fledged the nest.

6.6 CEMP

6.6.1 The above recommendations can be detailed within a Construction Environmental Management Plan (CEMP) under Condition attached to the planning consent. This can include the following:

- a) Risk assessment of potentially damaging construction activities.
- b) Identification of "biodiversity protection zones".
- c) Practical measures (both physical measures and sensitive working practices) to avoid or reduce impacts during construction (may be provided as a set of method statements).
- d) The location and timing of sensitive works to avoid harm to biodiversity features.
- e) The times during construction when specialist ecologists need to be present on site to oversee works.
- f) Responsible persons and lines of communication.
- g) The role and responsibilities on site of an ecological clerk of works (ECoW) or similarly competent person.
- h) Use of protective fences, exclusion barriers and warning signs.

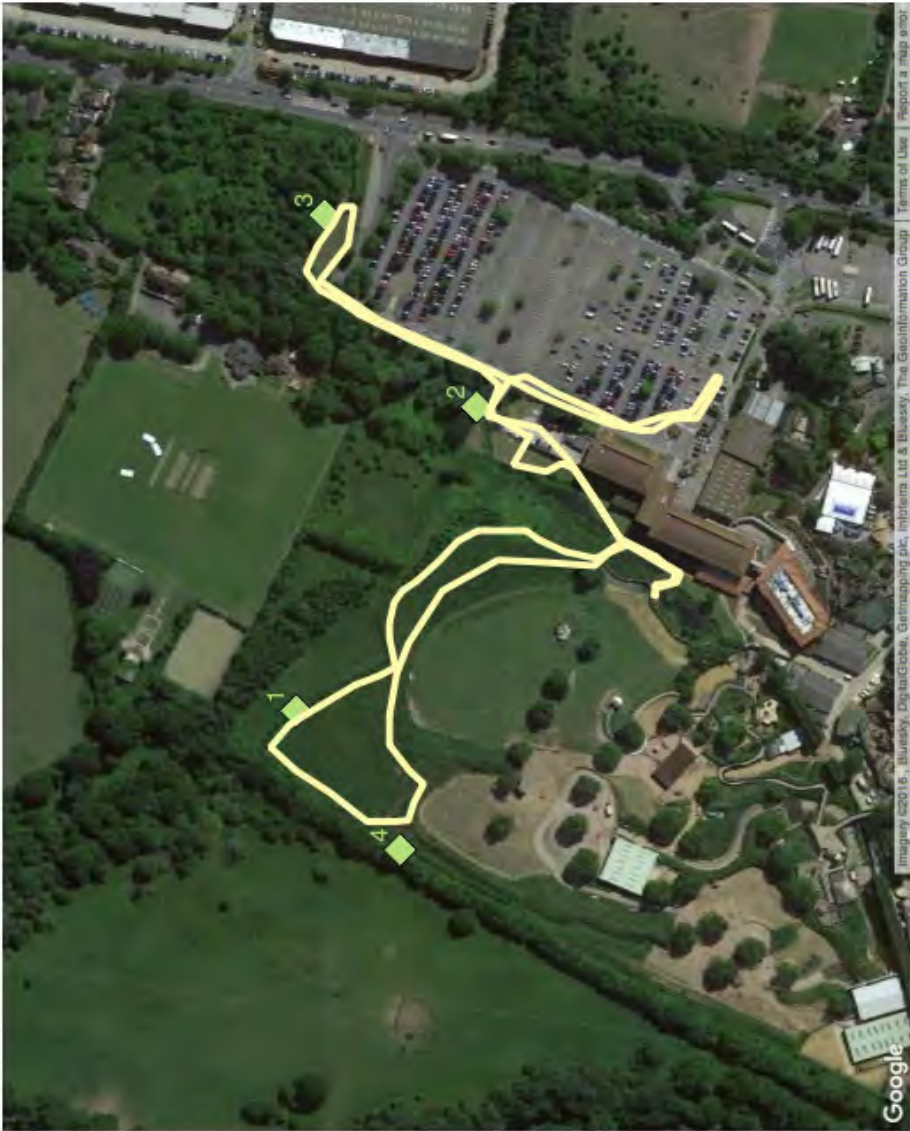
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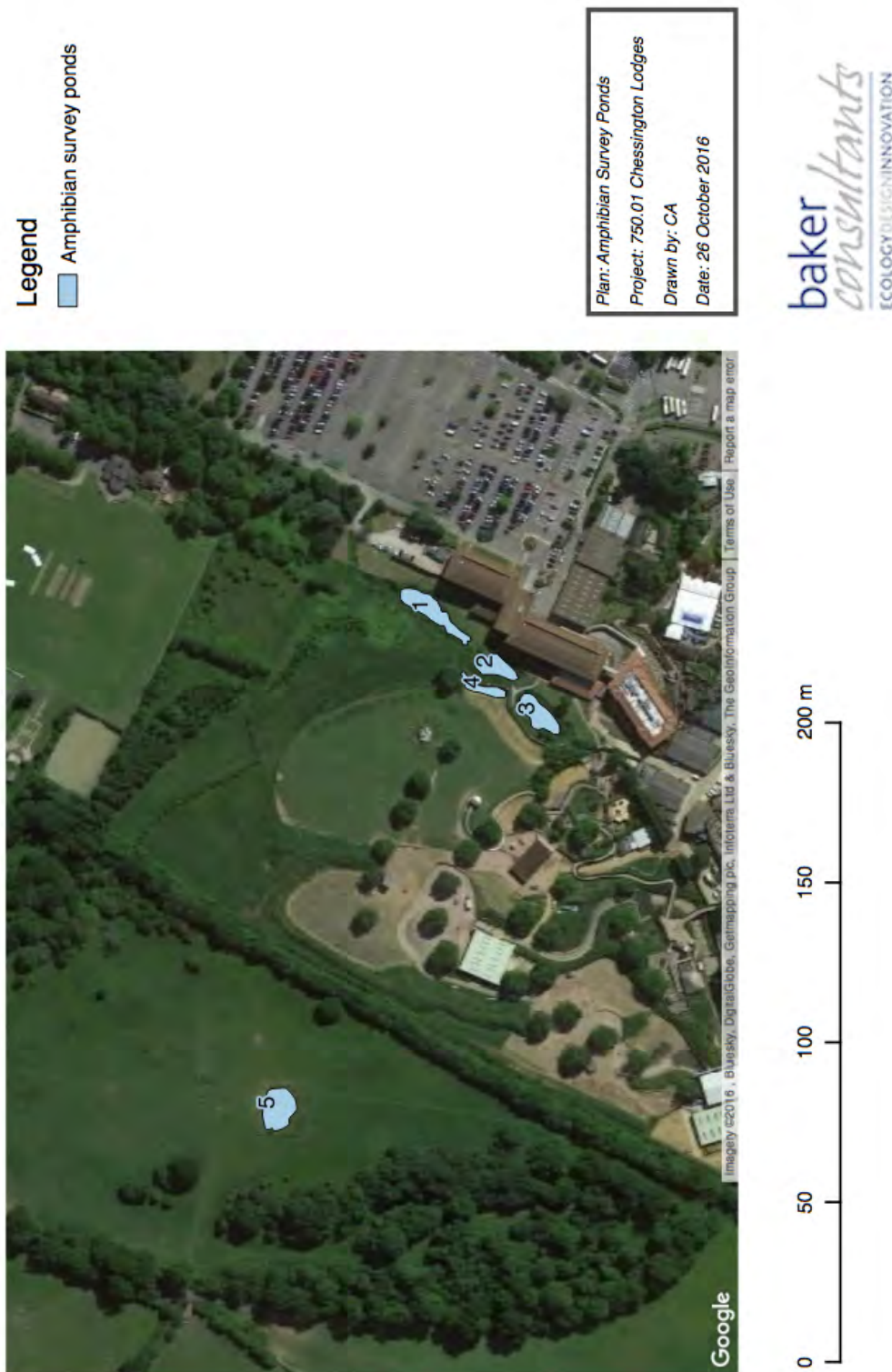
8 Appendix I. Bat survey plan

- Legend**
- Bat Transect Route
 - SM2 locations

Plan: Bat Survey Plan
Project: 750.01 Chessington Lodges
Drawn by: CA
Date: 26 October 2016



9 Appendix 2. Amphibian survey plan





baker *consultants*