Treework Environmental Practice

Arboricultural Opinion

The Water House, Millfield Lane, N6 6HQ.

Draft report of: Matthew Searle BSc (Hons), MICFor, MRTPI

Dated: 23rd February 2018
Specialist Field: Arboriculture
On behalf of: City of London and Mr. Lewis
On the Instructions of: SM Planning
Reference: 180209-1.3-WHML-MS

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1 Introduction

1.1 The Writer

1.1.1 I am Matthew James Searle. My specialist field is Arboriculture and Amenity Tree Management. I have been a Chartered Arboriculturist (MICFor) since 2011. I have a Bsc (Hons) Environmental Planning Degree and a National Diploma in Arboriculture and Amenity Tree Management. I hold the Cardiff University Law School Bond Solon Expert Witness Certificate (Civil and Criminal). I have worked as a Principal Arboricultural Consultant for Treework Environmental Practice for three years. Before this I was Head of Place Services, Head of Natural Environment and Principal Arboricultural Officer for Essex County Council for sixteen years. Full details of my qualifications and experience entitling me to give expert opinion evidence in this case are in Appendix A.

1.2 Summary of the Background and my Review

1.2.1 Mr. and Mrs. Lewis submitted a planning application for The Water House (ref 2017/3692/P) on 11th July 2017, proposing the erection of a single storey side extension, two storey front infill extension, and part single two storey rear extension, including façade and roof alterations to the main house and front wing; erection of a side extension to an outbuilding in the rear garden to be used as an ancillary habitable accommodation; and landscaping works including external ramps.

1.2.2 Following the inaugural Water House Stakeholder Meeting, held on 25th September 2017, it was agreed that an independent Single Joint Expert should be appointed on behalf of all interested parties to review all available survey data and technical reports with a particular focus on the suitability or otherwise of the proposed cellular confinement system in protecting the veteran trees adjacent to Millfield Lane and close to the toilet block; consideration of temporary proposals to protect other mature trees adjacent to Millfield Lane and a review of the construction impacts on trees T5 and T17 both situated within the development site itself.

1.3 Summary of my Conclusions

1.3.1 The principal tree related objectives are to:

- Successfully retain all the trees that are the subject of this review.
- To protect existing tree roots and optomise the conditions of the rooting environment in which they are growing to maximize their potential longevity.
- To minimize any detrimental impact from the construction activity at The Water House.

1.3.2 This report will show that in my professional opinion and in answer to the three questions, set out in my instructions (see 2.1.2), that:

1.3.3 I am of the opinion that the health and longevity of the three veteran trees (namely, T1, T2 & T3) would be best served by installing a permanent 'no dig' cellular confinement system solution as specified by Geosynthetics Limited (shown in Figure 1 below), a minimum of 59.5 metres in length ,delineated on the Tree Plan (Appendix C). In addition, I recommend the system also incorporates the specification set out in my recommendation (paragraph 4.1.7).

1.3.4 For the other mature trees along Millfield Lane, the majority of which are set further back from the lane, I am of the opinion that because of the marginal benefit offered to the trees, the installation process, including surface removal and leveling has the potential to cause more harm to tree roots and the rooting environment in this location than is mitigated by a temporary cellular confinement system.

1.3.5 Other than leveling localised pot holes and depressions (as recommended by Andrew Dawson), my recommendation is to do nothing in the area outside of the permanent cellular confinement system, the extent on the tree plan (Appendix C), subject to the following necessary controls:

- Vehicle size, number of vehicle trips and the use of banksmen/women as set out in the traffic management plan.
- Vehicles to remain in the centre of the lane and not to track over the soft verges
- If it is not possible to track across the soft verges when turning into the Water House or following inspection, it becomes apparent that such has occurred, then all construction traffic ceased until the temporary solution is installed.

3.1.6 I am of the opinion that Landmark Trees Arboricultural Impact Assessment is accurate and compliant with the guidelines set out in BS 5837 Trees in Relation to Design, Demolition and Construction – Recommendations and that potential detrimental impacts upon trees resulting from the proposed development are reduced to acceptable levels.

3.1.8 Tree T1, a veteran Oak in particular is a 'marginal' specimen with a low physiological condition and could continue to decline irrespective of the installation of a cellular confinement system.

3.1.9 Tree T17, the Hornbeam on the site itself has also been assessed as having only a low physiological condition during my inspection. Landmark Trees noted the early loss of

foliage in 2017 and the presence of the pathogen honey fungus (*armillaria* species) at its base. It is important to note that this tree may decline irrespective of any development.

1.4 Those Involved

1.4.1 Those involved in this case and referred to in my report are as follows:

- **The Applicants** are Mr. and Mrs. Lewis, referred to hereafter as 'the applicants'.
- **Mr. Gill**, is the developer, referred to hereafter as 'the developer'.
- **The 800 Group** is the main contractor for the developer.
- **The City of London**, are landowner and managers of the veteran and mature trees adjacent to Millfield Lane and understood too to currently maintain Millfield Lane.
- **Then London Borough of Camden** is the local planning authority deciding the application.
- **Landmark Trees** are the developers Arboricultural Consultants
- **Sharon Hosegood Associates**, Arboricultural Consultants for the City Of London carried out a Ground Penetrating Radar Root Survey.
- **Geosynthetics Limited** have submitted a proposed design for a 'no dig' cellular confinement system.
- **Andrew Dawson,** Nottingham University Consultants
- **James Frith Ltd,** Consulting Civil and Structural Engineers, commissioned to assess the structural impact on structures along Millfield Lane from construction traffic.

1.5 Technical terms and Explanations

1.5.1 I have indicated technical terms in ***bold italic text***, defining these terms when first used in brackets.

1.6 Limitations

1.6.1 My site inspection was carried out on 7th February 2018 and consisted of a visual, ground level assessment only.

1.6.2 I collected no independent tree root or soil samples whilst on site. Neither have I undertaken any laboratory tests.

1.6.3 I have confined my report to arboricultural matters within my area of expertise, making specific reference to interdependent facts or opinion, falling outside of my specialism and made by others.

2 Statement of Instructions and the Issues to be Addressed

2.1.1 I was instructed by SM Planning on 12th January 2018, to provide specialist advice on the tree-related matters in relation to this application.

2.1.2 My instructions (as set out in SM Planning's Revised Scope) were, that when providing my opinion, I was to address the following three areas:

1. **That the technical specification of the proposed permanent cellular confinement systems are sufficient to provide protection for the tree roots of the three veteran oak trees and their associated rooting environment as well as other mature trees growing adjacent to the lane.**

2. **To consider temporary proposals to protect the veteran and mature trees, maintaining safe public access for walkers, cyclists, pushchairs, wheelchairs, mobility scooters and construction traffic.**

3. **To review the construction impacts on trees T5 (oak) and T17 (Hornbeam), situated within the development site.**

3 My Investigation of the Facts

3.1 The Facts

3.1.1 The brief facts set out in paragraphs 3.1.2 to 3.1.18 below, which I will later rely upon in forming my opinion are facts stated by others and contained within the documents that I have considered to date and listed in Appendix E.

3.1.2 Mr. and Mrs. Lewis submitted a planning application for The Water House (ref 2017/3692/P) on 11th July 2017, proposing the erection of a single storey side extension, two storey front infill extension, and part single two storey rear extension, including façade and roof alterations to the main house and front wing; erection of a side extension to an outbuilding in the rear garden to be used as an ancillary habitable accommodation: and landscaping works including external ramps.

3.1.3 Millfield Lane is a single track unmade road, starting at the surfaced junction between Merton Lane and Fitzroy Park, which during my site visit, appeared to be used predominantly, although not exclusively by pedestrians. Two domestic vehicles travelled along the lane during the three hours I was on site.

3.1.4 Millfield Lane is under shared ownership between the City Of London and the private residents and understood to be currently managed by The City of London.

3.1.5 James Frith Ltd found Millfield Lane to be approximately 340 metres in length, its width varying. The Water House is located approximately 190 metres from its junction with Merton Lane and Fitzroy Park.

3.1.6 Millifield Lane's contours vary across its length with a general cross fall towards the heath. The lane also contains small hollows, potholes and is rutted at its soft edges.

3.1.7 Andrew Dawson (from the University of Nottingham) commented on tree roots and possible damage to them, concluding that the soil consultants tests revealed occasional tree roots in the lane's fill material, at least 350mm beneath the surface. The stress analysis shows that at this depth additional stresses resulting specifically from vehicle traffic will be 35kPa, equivalent to the stress on roots under 2.3 metres of soil. Note that oak and horse chestnut roots from physiologically healthy trees have been found (at other sites) at depths in excess of this. Andrew Dawson also notes that deflection of the surface at a depth of 200mm is less than 0.5mm. I am unaware of any research specifically examining the typical movement of roots in soil at such depths, but I would agree with his assessment that such a small deflection would seem likely to have an insignificant detrimental effect on tree roots.

3.1.8 800 Group have submitted a traffic management plan specifying a number of controls to limit damage to Millfield Lane. Notable control measures include maximum weight of construction traffic being 3.5 tonnes; vehicle speed restricted to 5mph; a maximum of 7 vehicles per day and escorted to the front and rear of any

vehicle.

3.1.9 Three veteran oak trees (in proximity to the toilet block) along Millfield Lane (Trees T1,T2 & T3 on the Tree Plan, *Appendix C*) and a group of mature Horse Chestnut trees (G1 on the Tree Plan, *Appendix C*) are situated in potential influencing distance of Millfield Lane and could potentially be impacted by construction traffic using the lane.

3.1.10 A further two trees are examined by my review, tree T5 and T17, an oak and hornbeam respectively, both standing within the site itself (T5 and T17 on the Tree Plan, *Appendix C*)

3.1.11 For all the trees above, a survey was carried out in accordance with BS5837:2012 Trees in Relation to Design, Demolition and Construction – Recommendations and in accordance with our scope of works as set out in my instructions. Above-ground constraints consist of tree stems and canopies, for which no control measures are required. Canopies are shown on the Tree Plan as green outlines. The below-ground constraints, which are the focus here, are tree roots, shown on the Tree Plan as Root Protection Areas (RPAs). RPAs are a layout design tool, indicating the minimum area around a tree deemed to contain sufficient roots and soil volume to maintain the tree's viability. RPAs should be treated as a precautionary area within which activities such as ground compaction, excavation, storing of materials, ground stripping, raising of levels and building are likely to cause damage to trees and should therefore be avoided.

3.1.12 Sharon Hosegood Associates Ground Penetrating Radar work (29th March 2017) provides evidence of the real tree root architecture and extent of the three veteran trees (only), rather than the theoretical RPA approach above.

3.1.13 The results of the radar work found that trees are rooting throughout the scanning areas, however, the unit used was unable to determine which roots are from the veteran trees and which belong from other smaller trees. For this reason, I shall rely on the RPA's to dictate the extent of the lateral spread in which sufficient tree roots an rooting environment exists to assist the protection of the trees.

3.1.14 In terms of the vertical root architecture and size, it was found that the majority of tree roots were at depths of between 150mm to 800mm deep with large quantities of roots found at 1.9m deep. No roots over 20mm (The British Standard classifies roots over 25mm as 'significant') were found in the top 100mm.

3.1.15 The above results show that any surfacing works should not remove material deeper than 100mm, or the potential for damage to tree roots exists.

3.1.16 Turning now to the two trees on site (T5 and T17), Landmark Trees Arboricultural Impact Assessment (AIA, 15th December 2017) identifies both trees being located within a designated Conservation Area. In addition, T5, the Oak, had a Tree Preservation Order placed upon it in the autumn of 2016, but does not appear to have been confirmed within the 6 month period. Therefore it does not appear to be protected by an Order.

3.1.17 Landmark Trees AIA assesses T5 (the Oak) and T17 (the Hornbeam) as being British Standard (BS 5837) categories A and C respectively. Category A trees are defined as 'trees of high quality', and as such are likely to be considered by the local planning authority as posing a significant material constraint. Category B 'trees of moderate quality', and as such are likely to be considered by the local planning authority as posing a significant material constraint and Category C, 'trees of low quality', and whilst still a 'material consideration' are likely to be considered by the local planning authority as posing less of a constraint and where appropriate, one that can often be mitigated with replacement planting.

3.1.18 The Arboricultural Method Statement, (AMS, 15th December 2017) identifies measures to protect trees on site including T5 and T17.

3.2 Facts that I have Established

3.2.1 Tree Inspection, Methodology and Findings

3.2.2 I inspected the trees on 7th February 2018. Weather conditions were dry and clear.

3.2.3 My inspection comprised a visual assessment of the trees from ground level which recorded the following information into MyTrees, tree management software and detailed in the Tree Schedule (Appendix B):

- **Tree identification number**
- **Species** (Botanical and Common name, where known)
- **Height** (estimated in metres)
- **Stem diameter** (measured at approximately 1.5m, or stated if otherwise and represented in centimetres)
- **Crown spread** (estimated in metres)
- **Life Stage** (young, semi mature, early mature or mature, for the purpose of this report)
- **Physiological Condition** (Good, Fair, Poor)
- **Tree Notes** (where they clarify or assist this report).

3.2.4 Three veteran trees (T1, T2 & T3), a group of mature Horse Chestnuts (G1) and two trees on the site (T5 and T17) were assessed as a part of my review. Trees T1-T3 and G1 stand on land owned and managed by The City of London. Trees T5 and T17 stand within The Moat House. The approximate locations of the trees are identified on the Tree Plan (*Appendix C).* Details of each are identified in the Tree Schedule (Appendix B). For contextual reference, selected trees are shown in the images in *Appendix D*.

3.2.5 Tree T1 was found to be in a poor physiological condition with what appeared (in winter) to be only three relatively small branches (at heights of between 6-8 metres and with diameters of under 8cm) remaining live. Tree T3 was assessed as having a fair physiological condition with only T2 assessed as fair to good. Whilst it is considered that the ground protection measures and my additional recommendations will have a beneficial impact on the tree roots and the rooting

environment and consequently the physiological condition of the trees, it is important to note that tree T1 in particular is a 'marginal' specimen and could continue to decline even following the installation of the proposed system.

3.2.6 Tree T17, the Hornbeam on the site itself has also been assessed as having only a low physiological condition during my inspection. Landmark Trees noted the early loss of foliage in 2017 and the presence of the pathogen honey fungus (*armillaria* species) at its base. It is important to note that this tree may decline irrespective of the development.

3.3 Documents and Research

3.3.1. In addition to the documents provided to me on 12th January 2018, and identified in Appendix E, in forming my opinions, I have also relied on other literature, identified in Appendix F.

4. My Opinion

4.1.1 As an expert arboriculturist in this multi–disciplinary case, I believe my principal duty is to attempt to determine which trees, if any, including those highlighted in my instructions, might be impacted by the proposed development and associated works, to what extent and whether proposed mitigation measures would reduce impacts to acceptable levels.

4.1.2 My knowledge of veteran trees, review of the submissions and discussions with stakeholders leads me to highlight the following two key objectives (in relation to the three veteran trees):

- Retain all three trees
- To optomise the conditions of the rooting environment in which they are growing to maximize their potential longevity.
- To minimize any detrimental impact from the construction activity at The Water House.

4.1.3 Specifically, I have been asked to consider the following:

1 That the technical specification of the proposed permanent cellular confinement systems are sufficient to provide protection for the tree roots of the three veteran oak trees and their associated rooting environment as well as other mature trees growing adjacent to the lane.

2 To consider temporary proposals to protect the veteran and mature trees, maintaining safe public access for walkers, cyclists, pushchairs, wheelchairs, mobility scooters and construction traffic.

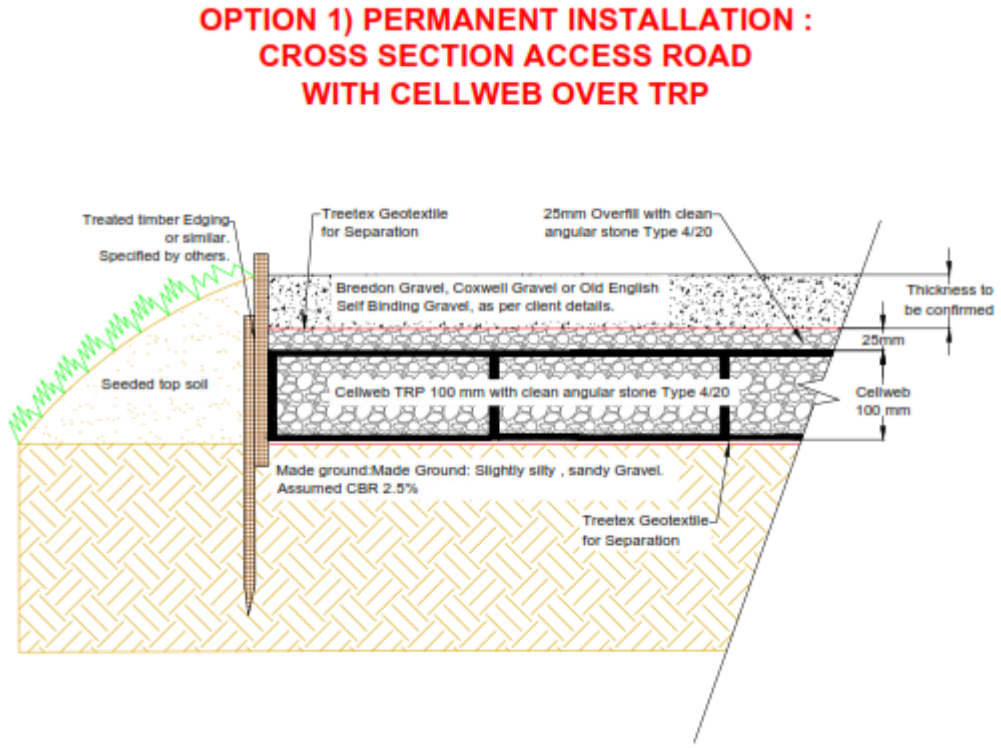
3 To review the construction impacts on trees T5 and T17, situated within the development site.

4.1.4 I will examine each in turn:

That the technical specification of the proposed permanent cellular confinement systems are sufficient to provide protection for the tree roots of the three veteran oak trees and their associated rooting environment as well as other mature trees growing adjacent to the lane.

4.1.5. Having reviewed the submissions (set out in Appendix F) most notably the two consultant structural engineers reports and the Tree Root Radar survey, I am of the opinion that the permanent 'no dig' cellular confinement system specification in proximity to the three veteran trees, submitted by Geosynthetics Limited (and shown in Figure 1 below) would reduce any detrimental impact on existing tree roots, albeit that these impacts are likely to be minimal. The biggest gain when looking at the objectives (paragraph 1.3.2) would be the opportunity to also improve the rooting environment as part of the system.

Figure 1 The Permanent Solution



4.1.6 Andrew Dawson was asked to comment about potential damage to tree roots. He refers to the soil consultants tests revealing roots at 350mm beneath the surface. Sharon Hosegood Associates Ground Penetrating Radar results indicating (significant roots) below 200mm. Andrew Dawson estimates the root deflection resulting from construction traffic to be less than 0.5mm. Andrew Dawson expresses concern about the possibility of further rutting as a result of the construction traffic. I am concerned with the increased rutting and increased damage to the soft verges of the lane in the area nearest the three veteran trees, where roots have the potential to be compacted. The other mature trees are generally located further back from the lane where rutting and verge damage is less significant.

4.1.7 In order to reduce further rutting and damage to the verges from construction traffic, I would therefore recommend a permanent cellular confinement system be installed in proximity to the three veteran trees, across the entire area of the Root Protection Areas (59.5 metres in length), the extent of which is delineated on the Tree Plan (Appendix C) and that the specification shown in figure 1 above is generally fit for purpose, but I would suggest the following amendments:

- Unless it can be demonstrated that the suggested surface finish of Breedon Gravel, Coxwell Gravel or Old English Self Binding Gravel are fully permeable over a number of years, an alternative surface layer solution should be found. Anecdotal evidence suggests such surfaces can silt up with fines, making them less and less porous over time. One of the key performance criteria required is a truly permeable construction that allows the roots and rooting environment to receive sufficient access to water, nutrients and oxygen.

- Geosynthetics Limited have suggested an alternative product that they believe can provide the necessary long term permeability, called Golpa. (*see Appendix E*). Note that Geosynthetics Limited or other suppliers can offer further advice on the surface layer in conjunction with the project engineers.

- Only up to a maximum of 100mm be stripped off the current surface to enable the required leveling, although it is my understanding that the

Geosynthetics Limited solution does not require a completely level surface, having some flexibility to deal with undulations. This is recommended to protect existing tree roots.

- Any potholes, ruts or depressions to be filled BY HAND with inert materials including where possible, mulches and also soil and builders sand. Soft sand MUST NOT be used as it tends to contain salt, which is toxic to tree roots. This is recommended to protect existing tree roots and the rooting environment in which new tree roots can exploit.

- The seeded top soil edge to be graded so as not to exceed 200mm above existing ground levels. This is recommended to protect existing tree roots.

- The existing ground layer to be carefully forked BY HAND and have a mulch layer (supplied by The City Of London) and applied across the Root Protection Area.

- Banksmen/Bankswomen to ensure that no construction vehicles drive close to the edge of the cellular confinement system (also recommended by Adam Dawson).
- All installation to be overseen by Geosynthetics Limited.
- The installation, particularly the bottom layer, to be carried out with Arboricultural Supervision.

To consider temporary proposals to protect the veteran and mature trees, maintaining safe public access for walkers, cyclists, pushchairs, wheelchairs, mobility scooters and construction traffic.

4.1.7 I am of the opinion that the health and longevity of the three veteran trees would be best served by applying a permanent solution as detailed in paragraphs 4.1.5 to 4.1.7 above.

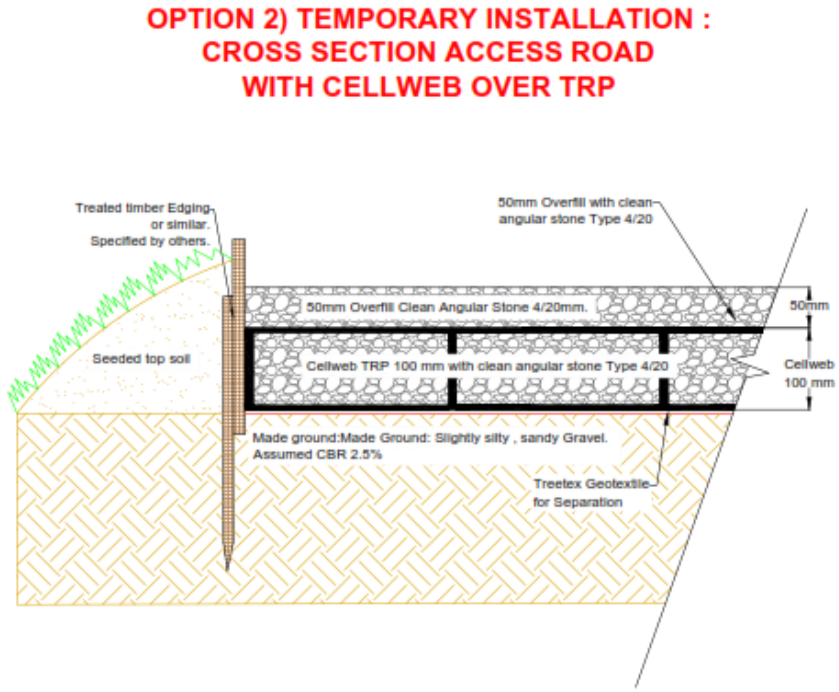
4.1.8 For the other mature trees along Millfield Lane, the majority of which are at least 4 metres from the track and at levels below 1 metres from the existing track ground level, I am of the opinion that whilst the proposed temporary solution (Figure 2 below) with my recommended additions set out in paragraphs 4.1.6 above would, in theory, be more than sufficient to protect any tree roots and their associated rooting environment, the installation process, including surface removal and leveling has the potential to cause more harm to tree roots and the rooting environment than is mitigated by the temporary system.

4.1.9 Other than leveling localized pot holes and depressions (as recommended by Andrew Dawson), my recommendation is to do nothing in the area outside of the Root Protection Areas of trees T1-T3, subject to the following necessary controls:

- Vehicle size, number of vehicle trips and the use of banksmen/bankswomen as set out in the traffic management plan.

- Vehicles to remain in the centre of the lane and not to track over the soft verges
- If it is not possible to track across the soft verges when turning into the Water House or following inspection, it becomes apparent that such has occurred, then all construction traffic ceased until the temporary solution is installed.

Figure 2 the Temporary Solution



To review the construction impacts on trees T5 and T17, situated within the development site.

4.1.10 Landmark Trees have submitted two documents which set out the impacts upon the trees (the Arboricultural Impact Assessment, ref UKE/WHS/AIA/0b1 dated 15th December 2017) and the methods for mitigating impacts (Arboricultural Method Statement UKE/WHS/AIA/0c1 dated 15th December 2017).

4.1.11 The AIA identifies a 'low' impact on tree T17 from the proposed demolition and rebuilding of the outbuilding, with careful demolition and low–invasive foundations proposed in mitigation and for T5, new hard surfaces to be constructed within the RPA of T5, the most significant tree on site, which will be mitigated through the use of a no-dig construction methodology and porous finished surface (not unlike the cellular confinement system proposed by Geosynthetics for Trees T1 –T3). I note the incursion into the RPA represents only 4.36% of the total RPA, which can be described as minimal, with a consequently very low impact.

4.1.12 Landmark Trees indicate that for T17, 14.79% of its RPA will be affected, with low-invasive foundations constructed within it. These low-invasive foundations are described in paragraph 6.14 of the AIA as 'discontinuous footings with suspended beam(s) /raft between) with flexibility of footing placement, relative to root location being built into the design, with pit locations trial –excavated, by hand and under supervision' (presumably by an arboricultural consultant).

4.1.13 The AIA in paragraph 6.1.7 notes that surface water drains are routed through the RPA's of T5 and T17 and foul water drains through the RPA of T17. It is unfortunate that despite the design team's best efforts, it has not been possible to route the drains outside of the RPA's, but I note that provisions detailed in both BS5837 and the National Joint Utilities Group Volume 4, namely airspade excavation and retention of significant (+25 mm roots) will reduce the impacts significantly. It is apparent that the design team have considered alternative routing and taken care to

minimize potential impacts to trees wherever feasible.

4.1.14 No tree work to T5 or T17 is recommended to facilitate the development proposals.

4.1.15 I understand that Landmark Trees are to be retained as the Arboricultural Consultants responsible for monitoring the trees during the development (pre development through to final landscaping) , with regular site visits, including unannounced visits to monitor compliance with tree protection measures as detailed in the Arboricultural Method Statement.

4.1.16 I am of the opinion that Landmark Trees AIA is accurate (as within the guidelines set out in BS 5837 Trees in Relation to Design, Demolition and Construction – Recommendations) and that the protection measures set out in the AIA and further in the AMS ensure that detrimental impacts remain at acceptable minimal levels.

4.1.17 I note from Landmark Trees findings and my own observations, that tree T17, the Hornbeam is in only a 'fair to low' physiological condition. I note too that Landmark Trees noted the presence of the pathogen honey fungus (*armillaria* species), which is often associated with trees already under stress and which could hasten its decline irrespective of the proposed development.

5 Statements

5.1 Statement of Compliance

5.1.1 I understand my duty as an expert witness is to the court. I have complied with that duty will continue to comply with it. This report includes all matters relevant to the issues on which my expert evidence is given. I have given details in this report of any matters which might affect the validity of this report. I have addressed this report to the court. I further understand that my duty to the court overrides any obligation to the party from whom I received instructions.

4.1 Statement of Conflicts

5.2.1 I confirm that I have no conflict of interest of any kind, other than any which I have already set out in this report. I do not consider that any interest which I have disclosed affects my suitability to give expert evidence on any issue on which I have given evidence and I will advise any party by whom I am instructed if, between the date of this report and any trial, there is any change in circumstances which affects this statement.

5.3 Declaration of Awareness

5.3.1 I confirm that I am aware of the requirements of Part 35 and Practice Direction 35, and the Guidance for the Instruction of Experts in Civil Claims 2014.

5.4 Statement of Truth

5.4.1 I can confirm that I have made clear which facts and matters referred to in this report are within my own knowledge and which are not. Those that are within my own knowledge I confirm to be true. The opinions I have expressed represent my true and complete professional opinions on the matter to which they refer.

Signed:  Date: 13/02/18

Treework Environmental Practice

Appendix A

My Experience and Qualifications

A1 Qualifications

A1.1. My qualifications are as follows; I have a BSC (Hons) Environmental Planning Degree from Anglia Polytechnic University and BTEC National Diploma in Arboriculture and Amenity Tree Management.

A1.2 I have been a Chartered Arboriculturist (MICFor), since 2011 and a Chartered Town Planner since 2013.

A1.3 I have held the Cardiff University Law School Bond Solon Expert Witness Certificate (Civil and Criminal) since May 2016.

A1.4 I have worked as a Principal Arboricultural Consultant with Treework Environmental Practice since August 2014. My main responsibilities are navigating clients through the planning process in relation to trees, providing clients with risk management information in relation to trees and assessing veteran trees (leading two current projects with Cambridge City Council and at Mote Park in Kent).

A1.5 Before my current role, I worked for Essex County Council for 16 years as an

Arboricultural officer, Principal Arboricultural officer, head of the Natural Environment team and Head of Place Services, an Environmental Planning team. During this time and particularly between 2003 – 2011, my main responsibilities pertinent to this case was managing the County Council's Arboricultural Advisory and Inspection Service on behalf of all council departments, which included a significant risk and contract management element.

Report of: Matthew James Searle
Specialist Field: Arboriculture and Amenity Tree Management
On behalf of: City of London and Mr. Lewis (Single Joint Witness)

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Appendix B Tree Schedule

The Water House, Millfield Lane, N6 6JA
Tree Survey BS5837-2012

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Tree/Group Reference	Tree Count	Species	Height (m)	Stem Count	Stem Diameter (cm)	Crown Radius (m)	Crown Clearance Height (m)	Lowest Branch Height (m)	Life Stage	Physiological Condition	Observations and Recommendations	RPA (m^2)	RPR (m)	Remaining Contribution (Years)	Retention Category	Retention Sub-category
T1	1	*Quercus robur* English Oak	13.0	1	94	N E S W 2.0 2.0 0.5 1.0	7.0		Ancient or Veteran	Poor	Historically pollarded at 6m x3 snall live limbs (at heights of apporx 6-8 m and diamters under 6cm).	399.7	11.3	10-20	B	2 3
T2	1	*Quercus robur* English Oak	24.0	1	90	N E S W 7.0 7.1 8.0 7.0	5.0		Ancient or Veteran	Fair	Historically pollarded at 15m	366.4	10.8	20-40	A	2 3
T3	1	*Quercus robur* English Oak	25.0	1	95	N E S W 8.0 7.5 7.0 8.0	4.0		Ancient or Veteran	Fair		408.3	11.4	20-40	B	2 3
G1	1	*Aesculus sp.* Horse Chestnut	18.0	1	75	N E S W 5.0 5.0 5.0 5.0			Mature	Good	Approx. x12 Horse chestnut	254.5	9.0	40+	B	1 2
T5	1	*Quercus robur* English Oak	20.0	1	136	N E S W 8.1 8.2 8.0 8.0	5.0		Ancient or Veteran	Good	Crown reduction - Historic. Decay / structural defect - Bole.	706.9	15.0	40+	B	1
T17	1	*Carpinus betulus* Hornbeam	18.0	1	66	N E S W 6.0 6.0 6.0 6.0	5.0		Early Mature	Poor	Decline - Evident / observed. Deadwood - Major. Honey fungus observed at base (according to Landmark Trees report (UKE/WHS/AMS/0tc)	197.1	7.9	10-20	C	1

Tree Schedule Key

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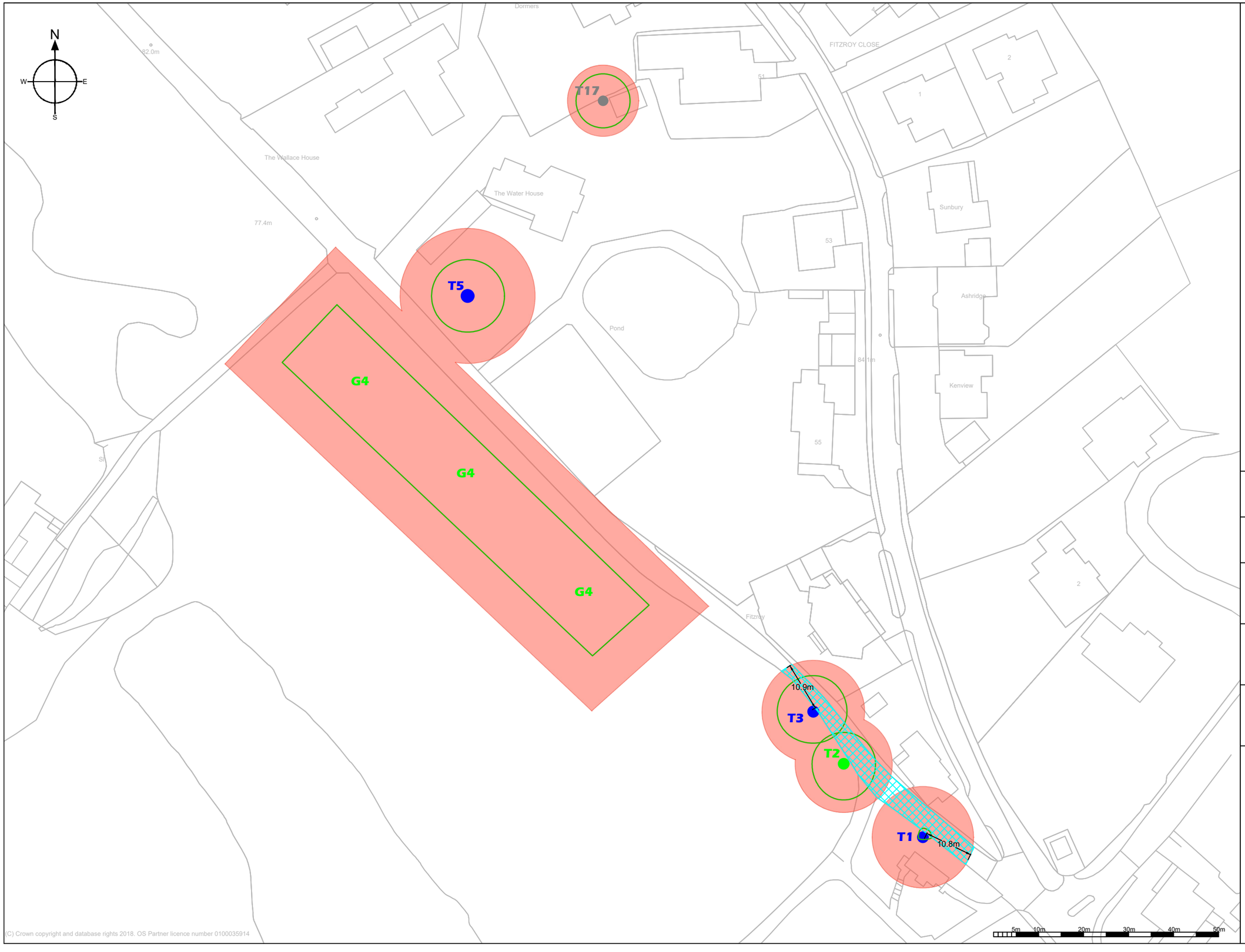
Tree/Group Reference	Reference number for individual trees or groups of trees, prefixed by T (Tree), G (Group), W (Woodland), H (Hedge) or S (Shrub) to indicate the type of feature.
Tree Count	Number of trees of a particular species recorded within a group feature, with the default value of 1 for single trees.
Species	Scientific name followed by common name (where available).
Height (m)	Tree height estimated to the nearest metre. Tree height for group records refers to the estimated average height of trees within the group (unrepresentative trees may be excluded from this estimate).
Stem Count	Number of stems. Stem count indicates whether the tree is single-stemmed or multi-stemmed and informs the RPA calculation.
Stem Diameter (cm)	Stem diameter estimated to the nearest 5cm, measured at approximately 1.5m above ground level. Estimated diameter taken at the base for multi-stemmed trees. Stem diameter for group records refers to the estimated average stem diameter of trees within the group (unrepresentative trees may be excluded from this estimate).
Crown Radius (m)	Distance from stem position to crown periphery in either the four cardinal or four ordinal directions, estimated to the nearest half metre. Crown spreads for group records refer to the estimated average spreads of trees within the group (unrepresentative trees may be excluded from this estimate).
Crown Clearance Height (m)	Distance between the ground and the lowest point of the crown periphery, estimated to the nearest half metre.
Lowest Branch Height (m)	Height of the lowest branch, the removal of which is considered likely to have a significant negative effect on the tree in terms of physiology or in terms of the size of wound created.
Life Stage	Young, Semi-mature, Early Mature, Mature, Late Mature, Ancient or Veteran.
Physiological Condition	Good, Fair, Poor, Dead.
Observations	Description of the tree or trees within a group in terms of basic features and morphology as well as structural and physiological attributes, together with a description of the context in which the tree is growing; specifically growing conditions and other site features pertinent to potential development proposals.
Recommendations	Management recommendations for tree works to address immediate unacceptable risks, or to facilitate development proposals.
RPA (m^2)	Minimum area around a tree deemed to contain sufficient roots and rooting soil volume to maintain the tree's viability, in which the protection of roots and soil structure is treated as a priority. Calculated from the stem diameter according to the formulae in BS5837:2012. RPA for group records is based on the estimated average stem diameter of trees within the group (unrepresentative trees may be excluded from this estimate).
RPR (m)	Radius in metres of the RPA, when this is plotted as a circle around the tree stem.
Remaining Contribution (years)	Estimated number of years for which the tree will continue to make a positive contribution to the site, banded as < 10, 10-20, 20-40, 40 +.
Retention Category	Quality and value category (**A**, **B**, **C** or **U**) as defined in Table 1 of BS5837: 2012 (reproduced below), where **A** = high quality and value; **B** = moderate quality and value; **C** = low quality and value and **U** = tree identified for removal due to poor condition regardless of development proposals.
Retention Sub-category	One or more sub-categories (1-3) as defined in Table 1 of BS5837: 2012 (reproduced below), assigned for Categories **A**, **B** or **C** where 1 = arboricultural qualities, 2 = landscape qualities and 3 = conservation and cultural value.

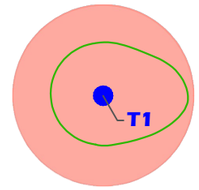
Appendix C

Tree Location Plan

Appendix C

Tree Location Plan





T1 Tree or Group Reference Number

Tree Crown

Root Protection Area

Tree Survey Boundary

Cellular confinement system

Tree Stem Position A Category Tree

Tree Stem Position B Category Tree

Tree Stem Position C Category Tree

Tree Stem Position U Category Tree

Date:
February 2018

Scale:
1:800 @ A3

Project Name:
The Water House, Millfield Lane, N6 6JA

Drawing Title:
Tree Constraints Plan

Drawing Number:
180223-1.1-TWHML-TCP-MM

Treework Environmental Practice

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Appendix D

Images

Image 1: Millfield Lane at the junction with Merton Lane and Fitzroy Park (Trees T1 & T2)

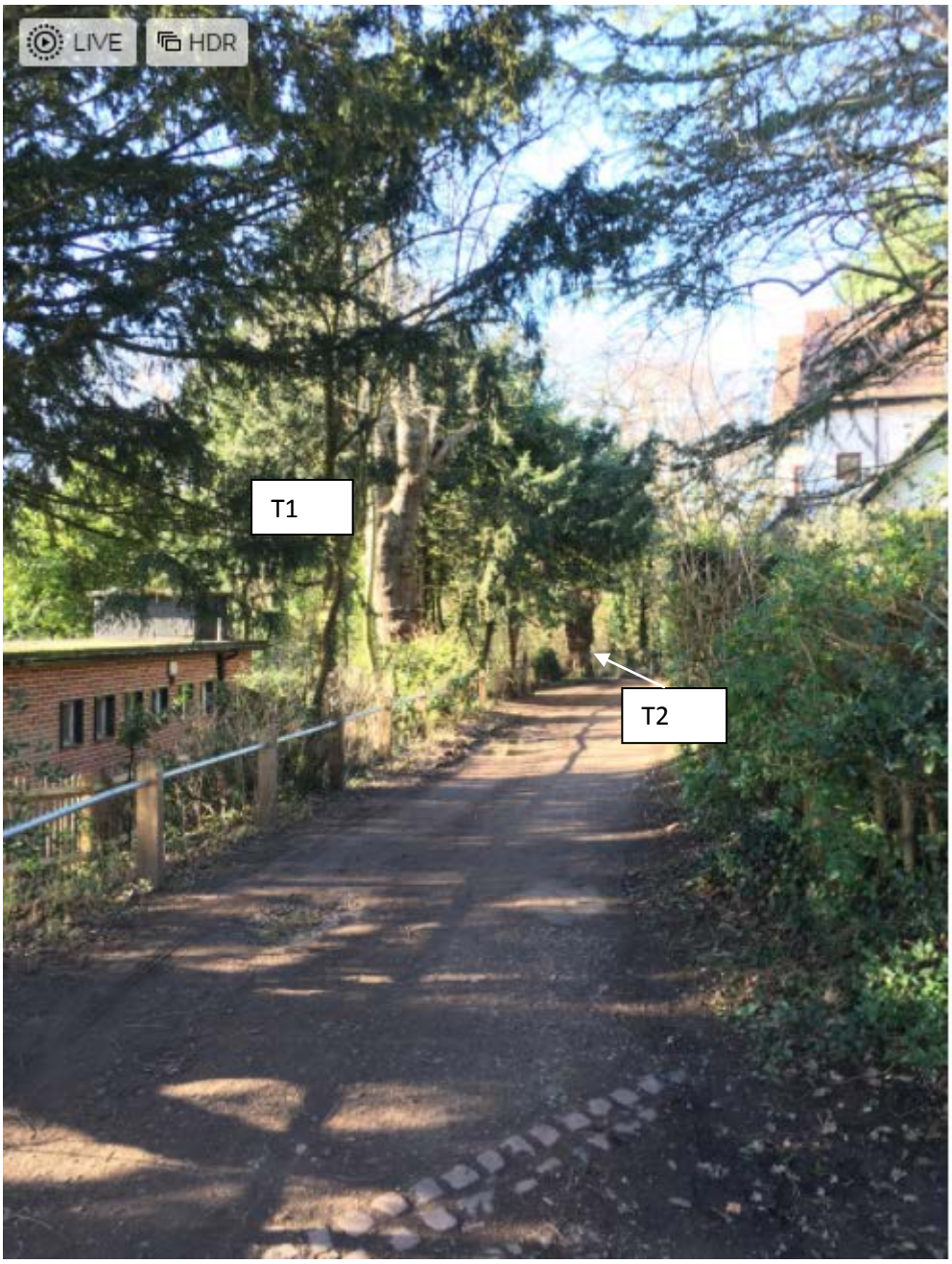


Image 2: Tree T1

Image 3: Tree T2

Image 4: Tree T3

Image 5: Group 1 (part of) looking south east

Image 6: Tree T5 looking south west

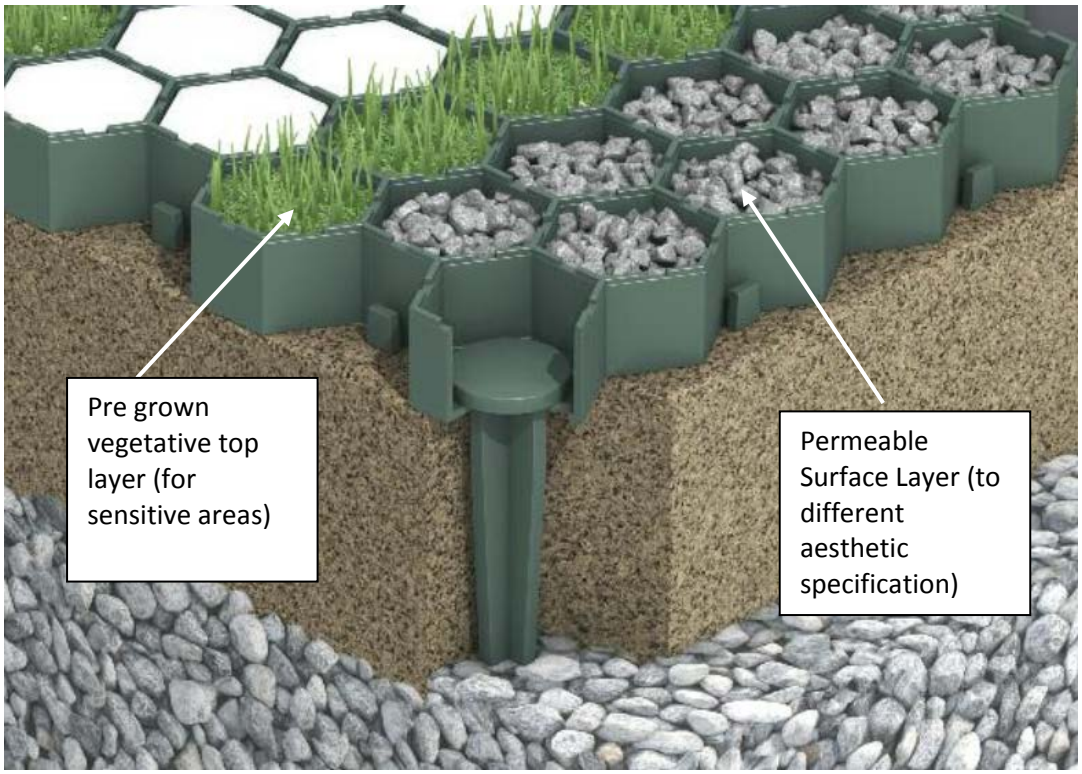
Image 7: Tree T17 looking north

Image 8: Typical vehicle tyre rutting

Image 9: Vehicle using the lane

Appendix E

Golpla System Surface Finish (Geosynthetics Ltd)



Appendix F

List of Documents I have examined

Provided by SM Planning:

1. Developers schedule of vehicle movements and maximum loading capacities.
2. Developers CMP
3. CBR data from the City of London
4. Developers Arboricultural report (Landmark Trees AIA, 15TH December 2017)
5. Developers Arboricultural report (Landmark Trees AMS, 15TH December 2017)
6. Andrew Dawson' s report
7. Geosyntheticas Limited proposed Cellular Confinement Systems
8. Topographical Survey of Millfield Lane
9. Tree Radar Report by Sharon Hosegood Associates
10. Developers Planning Application and various submissions on Camden Council's website.

Appendix G

Literature I have relied upon

1 BS 5837 Trees in Relation to Design, Demolition and Construction – Recommendations) 2012.

2 Specialist Survey Method, English Nature, Veteran Tree Initiative

3 Tree Roots in the Built Environment, J Roberts, N Jackson & M Smith, Research for Amenity Trees No. 8, Centre for Ecology & Hydrology, 2006

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