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ASSESSMENT OF ONE CHERRY TREE AND ITS POSSIBLE IMPLICATION IN THE DRIVEWAY DAMAGE AT NO. 20 WOODSTOCK DRIVE, ICKENHAM, UXBRIDGE UB10 8EF

CLIENT:	**Mr Satish Mistry**
CLIENT REF:	**SM/WDIU**
AAAL REF:	**SAL/KMA/11568**
AAAL CONSULTANT:	**Shane A Lanigan**
REPORT DATE:	**19th June 2023**

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SUMMARY

I inspected one cherry tree on this site: it is growing within the curtilage of No. 20 Woodstock Drive immediately adjacent to the northwestern boundary which abuts No. 18. Upheave type direct damage has been caused to the driveway of No. 20 which Mr Mistry believes is attributable to the growth of tree roots emanating from the cherry tree. He has received a complaint from his neighbour – the owner of No. 18 about similar disturbance evident to the driveway surface of that property. Having visited site, inspected the tree, and considered my findings I concluded that the cherry tree is the cause of the uplift to both driveways. It is also a potential threat to the structural integrity of No. 20 and possibly the drainage infrastructure serving this property. Mr Mistry has made two applications to Hillingdon Borough for consent to remove the tree both of which have been refused. I found that the cherry tree is not protected under the 'Area Tree Preservation Order' because it would not have been in place when the order was made in 1951.

S.A. Lanigan – Chartered Arboriculturist
MICFor, Dip.Arb. (RFS), M.Arbor A, RCArborA – ISA, BCMA, CUEW,
ASCA Registered Consulting Arborist #588

Reference publications are listed at the back of this report (Appendix 3)

1. INTRODUCTION

1.1 **Instruction**: I am instructed by Mr Satish Mistry to inspect the tree and establish whether it has been, or could be the cause of the upheave apparent on the driveways of No. 20 and No. 18 Woodstock Drive.

1.2 I made my site inspection on Friday 16th June 2023 beginning at 9.51 am and concluding at 10.28 am. Throughout my time on site the weather was dry, bright and very warm. Visibility was good.

1.3 The arboricultural issues in relation to this site are highlighted below with accompanying recommendations provided in Section 7.

1.4 **Documents provided**: None

1.5 **Ecological Constraints**: Impacts on wildlife must be considered prior to and during any tree works deemed necessary. Such matters are governed by various pieces of primary legislation, specifically:

Conservation of Habitats and Species Regulations 2019
EC Habitats Directive
Environment Act (2021) – Schedule 14 Para 6 2006
ODPM Circular O6/05 Para 99
Natural Environment and Rural Communities (NERC) Act
Natural Planning Policy Framework (as amended 2021) Clause 15 Paras 174, 180 & 188
Town and Country Planning (Environmental Impact Assessment Regulations 2017)
Town and Country Planning Act 1990
Town and Country Planning (Trees) (England) Regulations 2012
Wildlife and Conservation Act (1981)
Additional Subordinate legislation and guidance should be considered including:
- Ancient Woodland Inventory (Natural England)
- Ancient Tree Inventory (Woodland Trust)

Chartered Institute of Ecology and Environmental Management (CIEEM) Guidance
Biodiversity 2020 'A Strategy for England's Wildlife and Ecosystem Services (2011)'
BS 42020: 2013 Biodiversity: Code of Practice for Planning and Development
(The) England Tree Strategy
Forestry Commission Standing Advice
(A) Green Future: Our 25 Year Plan to Improve the Environment (UK Government)
Natural Forest Strategy (National Forest Company)
Natural Vegetation Classification (NVC) JNCC
Natural England Standing Advice
UK Biodiversity Action Plan (UKBAP)
UK Forestry Standard
UK Woodland Assurance Standard

1.1 **Statutory Tree Protection**: I have made enquiries of the Local Planning Authority which in this instance is the London Borough of Hillingdon, to ascertain the existence or otherwise of any Tree Preservation Orders which may be applied to this site, or whether the site falls within a designated conservation area. The local authority's web site shows that the tree identified in this report is growing within the area covered by Tree Preservation Area Order Ref: W25 – Gospel Oak Covert & Harefield Plantation, Ickenham – 24/01/1951 but the site does not appear to lie within a designated conservation area (see Appendix 3 'A Brief Explanation of Tree Preservation Orders/Conservation Areas' at the back of this report). The status of the tree preservation order and conservation area legislation is only confirmed at the time of writing.

1.2 **Qualifications and professional experience**: This report is based on my site inspection and assessment of the existing trees. I hold formal qualifications in arboriculture and have the benefit of fifty-three years professional experience in this discipline. A summary of these matters can be found in Section 10.

1.3 **Background Information**: Mr Mistry owns and occupies No. 20 Woodstock Drive with his family, and has done so for some years. There is a cherry tree growing within the front area of the property: it is located around 5 m from the nearest part of the dwelling house (see photographs 1, 2, 3, 6, 9 & 11, Appendix 1 at the back of this report) which is the northwest corner, and is immediately adjacent to the side boundary. In recent years Mr Mistry has noticed an increasing level of upheave type disturbance on the paved driveway and associated pathway to the front of his property (see photographs 3, 7, 8 & 10, Appendix 1 at the back of this report). He has received a complaint from the owner of the neighbouring property about similar, though less severe damage, to the block paving of that property's driveway. Mr Mistry is concerned about this ongoing damage for several reasons and would like to remove the tree so that he can repair the damage to his driveway and prevent a claim for nuisance by the third-party property owner. He has applied - on two occasions – to remove the tree. Both applications have been refused.

1.4 **Soils**: I accessed the United Kingdom Soil Observatory web site to gain insight into the type of soil present here. The web site showed that the soil depth was Deep with a texture of Clayey Loam to Silty Loam, the parent material from which this has evolved by the 'weathering process' is described as Prequaternary Marine Estuarine Sand and Silt. The web site is generally a good guide to soil type within a general area but is not site-specific. Site soil testing by way of trial pits, boreholes, and technical analysis is the recognized way to obtain truly accurate site-specific results.

2. THE TREE

2.1 **Inspection of tree that is the likely source of the roots**: I saw that there is just one tree growing within the curtilage of No. 20 (see photographs 1, 3 & 6, Appendix 1 at the back of this report). It is a cherry (*Prunus avium* L.) that is growing around 5 m northwest of the first inner corner of the dwelling house (see photographs 3 & 11, Appendix 1 at the back of this report) and is immediately adjacent to the boundary with No. 18 to the west. There is significant disturbance to the driveway of No. 20 which extends in a semi-circle around the tree base from south through southeast to almost due north (see photographs 3, 7, 8, & 10, Appendix 1 at the back of this report). Similar upheave type damage is apparent to the driveway surface within the curtilage of No. 18 though is less severe. Tree details are shown in the tabulation below.

Tree 1	**Wild cherry – *Prunus avium* L.** **Family: Rosaceae**
Ownership:	**No. 20 Woodstock Drive**
Age Class:	**Mature (being within the middle one-third of its life expectancy)**
Physiological condition:	**Good**
Structural condition:	**Poor – multi-stemmed, perhaps a *de-facto* bundle planting**
Height:	**11 m (measured with a 'Haglof' Hypsometer)**
DBH (diameter at breast height)	**Multi-stemmed: 200, 140, 120, 210, 230**
Distance:	**5 m (from the house) – in contact with the adjacent driveway**
TZI (theoretical zone of root influence)	**12.75 mm at full mature height of 18 m – (NHBC Standards 2020)**

3. THE INSPECTION (OF THE TREE AND ROOTS)

4.1 I viewed the cherry tree from within the curtilage of No. 20 Woodstock Drive and measured the height, dbh (diameter at breast height) and distance to the property: in the interests of completeness, I measured the visible extent of uplift to the paviours which form the driveway and path to the front of the property. I found the uplift (direct damage), (see photograph 4, Appendix 1 at the back of this report) to extend to distances from the tree as follows:

- East - 3 m where a 50 mm diameter root is visible 1.5 m from the tree base and further roots can be seen closer to the tree.
- South - 4.5 m
- North - 5 m
- Northwest – 3 m (into the garden of No. 18)

4.2 The tree is a wild cherry which has a species propensity – much more than most other trees – to develop disproportionately large roots: these tend to grow close to, and sometimes partly above the soil surface. This trait is much in evidence on this site (see photographs 5, 6, 7, 8 & 10, Appendix 1 at the back of this report).

4.2.1 Tree one has the appearance of being a self-seeded volunteer, or perhaps is a 'bundle' of such volunteers, likely having arisen from bird-distributed seed (see photographs 1, 3, 8 & 11, Appendix 1 at the back of this report). It is unlikely to be an intentional planting for two reasons:

i) it is of very poor form - such trees would not be sold by a nursery; and
ii) the tree has arisen on an area that would be mostly undisturbed (where self-sets tend to arrive), and is growing immediately next to the edging of the third-party driveway. It would not date back to 1951 when the Area Tree Preservation Order was made.

4. BRIEF EXPLANATION OF TREE ROOTS/FOUNDATION INTERACTION

4.1 Tree roots and soil moisture: Tree roots utilize considerable quantities of soil moisture in their growing seasons. On shrinkable clay soils this action can induce soil drying with resultant volumetric (shrinkage) change in the subsoil. In the dormant season trees are less active and do not utilise soil moisture to any significant degree. Given sufficient winter precipitation the subsoil will then re-hydrate and expand. If the building foundations located in the zone of influence do not extend below the affected area, then building movement can result. Actively growing trees which demand progressively more moisture can induce a persistent soil moisture deficit which prevents the soil from re-wetting fully each winter period. Continued downward movement of the foundations can result should this occur.

4.2 Moisture deficit: Where a persistent moisture deficit has developed over time, particularly in a shrinkable clay soil of high bulk density and low porosity, buildings can be damaged by ground heave. Heave is the result of excessive soil re-hydration and expansion following the removal or death of a tree which pre-dates construction of the building. The most common occurrence of heave is when a tree that pre-dates the building by some years is removed.

4.3 Soil moisture extraction: The effect of tree roots on soil moisture varies considerably. Factors that influence this include tree age, size, vitality, species, type of soil and proximity to building. Certain species tolerate polluted conditions well and can be unexpectedly successful in inhospitable conditions which can lead to a higher level of water usage than might normally be expected.

4.4 Subsidence: Should subsidence occur and be directly linked to water uptake by trees then removal is almost always the only effective solution. Pruning in the form of crown reduction can reduce water uptake in the short term, although if this is to be relied upon in order to maintain reduced levels of water usage then regular cyclical pruning is essential. This is harmful and disfiguring to most trees. Certain species respond to heavy pruning by producing multiple new shoots, often with softer and large leaves (juvenile foliage) than normal. This can be exceptionally effective in transpiring water to the atmosphere, often more so than the previous foliage.

4.5 Patterns and extent of root growth: Tree roots do not generally conform to set patterns of growth but will develop where conditions for growth are suitable. Therefore, it is unwise to rely strongly on published data in respect of zones of root influence of given species. Trees also vary in their rate of water usage at different life stages. A young actively growing tree may utilize appreciably more soil moisture than a large tree which is at a more mature state of life.

4.6 Root influences and built structures: Trees can cause damage to buildings by two primary means. These may be described as direct and indirect damage. The two types of damage are briefly described below.

1. Direct damage: This is commonly the result of physical forces induced by tree growth acting upon a built structure. Damage of this nature usually occurs when trees are located within 0.5m of buildings or other hard landscaping features. Expansion of tree parts, specifically incremental trunk, root and root buttress growth is capable of causing damage by way of uplift or wall distortion to light structures which are built on insubstantial foundations. Buildings of stronger construction are better able to resist the expansion growth and tree parts will commonly deform around structures such as these rather than cause displacement and cracking.

2. Indirect damage: Subsidence and heave are two types of indirect damage which trees may be party to. Clay type shrinkable soils are a prerequisite for indirect damage to occur. Indirect damage most commonly occurs when trees of high-water demand are growing on shrinkable soil types near to buildings which are built on foundations of insubstantial or less than optimal design. Essentially, if trees extract significant amounts of water from a clay soil close to or under building foundations, and if this soil water is not fully replenished each year, then a persistent soil moisture deficit may develop. Over time the lower soil moisture levels lead to a reduction in soil volume which can in turn, induce movement of building foundations. Ground heave is essentially the opposite, being an expansion of shrinkable soils that have rewetted due to trees that were formerly using local soil moisture being removed.

5. DISCUSSION

5.1 This species is inherently unsuitable to be grown near to hard landscaping features or buildings. Wild cherry trees almost always cause direct damage (see photograph 4, Appendix 1 at the back of this report) to nearby hard landscaping. Such damage is caused by the roots' incremental secondary thickening which is quite capable of displacing such features and even light structures that are shallowly founded. These trees can cause indirect damage too (see photograph 4, Appendix 1 at the back of this report). This is a more complicated mechanism than direct mechanical damage. It is usually in the form of subsidence caused by tree roots taking up soil moisture and causing a shrinkable clay soil to reduce in volume: as the soil volume reduces foundations bearing on the soil rotate – usually outwards – and this leads to localised building subsidence.

5.2 Tree 1 is a wild cherry which is a large growing species. NHBC Standards: Building Near Trees 2020 ascribes a 17 m top height to this species. A simple calculation using data within the standards results in a Theoretical Zone of Root Influence (TZI) of 12.75 m for wild cherry trees. Being rooted at 5 m form the front northwest corner of No. 20, which is founded on shrinkable clay soil means that there is a risk of building subsidence (indirect damage) should the tree be allowed to remain and grow on.

5.2.1 My own empirical experience is that P. avium can attain a top height close to 30 m with a commensurately large trunk diameter (in optimum woodland conditions). It is more usual than not that wild cherry trees will cause direct damage to nearby garden infrastructure.

5.3 A simple site inspection showed that roots of the cherry tree have uplifted a large area of the driveway within the curtilage of No. 20 and have similarly damaged a smaller area of the front block-paved area of No. 18 (see photograph 11, Appendix 1 at the back of this report). I lifted paviours to the front of no. 20 and found cherry tree roots beneath them: it is probable that the damage – which is already significant – will increase. This area is no longer serviceable, the damage means that Mr Mistry cannot fulfil his duty to users of his land under both the:

- Common Law Duty of Care; and the
- Occupiers Liability Act 1957 (as amended 1984).

5.4 This tree has caused, and continues to cause, direct damage to both driveways: it has potential to exacerbate any existing damage to the foul water drainage system which passes immediately east of the tree base (see photograph 4, Appendix 1 at the back of this report). Moreover, it is a large-growing, likely self-seeded tree which has arisen in a wholly inappropriate location. It has a calculated TZI of 12.75 and so has potential to cause subsidence (indirect damage) to No. 20 (see photographs 1 & 2, Appendix 1 at the back of this report).

6. CONCLUSION

6.1 This tree is an unsuitable species which has likely self-seeded in a wholly inappropriate location. It has caused, and is continuing to cause direct damage to the driveway areas of both No. 20 and No. 18 Woodstock Drive; and has the potential to cause indirect to damage to the first property. It is within the theoretical coverage of Area Tree Preservation Order – Ref: WD25 Gospel Oak Covert & Harefield Plantation, Ickenham – 24/-1/1951. Tree 1 would not have been in place when the order was made so is not protected. It should be removed.

7. RECOMMENDATIONS

7.1 **Tree 1 – Wild cherry** – fell and treat against regrowth by the following methodology:

i) Treat with herbicide in the growing season of 2023 or 2024
ii) Fell tree at least six months later when no new root sucker growth is apparent.

8. ASSUMPTIONS AND LIMITING CONDITIONS

8.1 Any legal description provided to the consultant/appraiser is assumed to be correct. Any titles and ownerships to any property are assumed to be good and marketable. No responsibility is assumed for matters legal in character. Any and all property is appraised or evaluated as though free and clear, under responsible ownership and competent management.

8.2 Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible, however, the consultant/appraiser can neither guarantee nor be responsible for the accuracy of information provided by others.

8.3 The consultant/appraiser shall not be required to give testimony or attend court by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services as described in the fee schedule and contract of engagement.

8.4 Loss or alteration of any part of this report invalidates the entire report.

8.5 Possession of this report or a copy thereof does not imply right of publication or use for any purpose by any other than the person to who, it is addressed, without the prior expressed written or verbal consent of the consultant/appraiser.

8.6 Neither all nor any part of the contents of this report, nor copy thereof, shall be conveyed by anyone, including the client, to the public through advertising, public relations, news, sales or other media, without the prior expressed written or verbal consent of the consultant/appraiser particularly as to value conclusions, identity of the consultant/appraiser, or any reference to any professional society or institute or to any initialed designation conferred upon the consultant/appraiser as stated in his qualification.

8.7 This report and values expressed herein represent the opinion of the consultant/appraiser, and the consultant's/appraiser's fee is in no way contingent upon the reporting of a specified value, a stipulated result, the occurrence of a subsequent event, nor upon any finding to be reported.

8.8 Sketches, diagrams, graphs, and photographs in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural reports or surveys.

8.9 Unless expressed otherwise, (1) information contained in this report covers only those items that were examined and reflects the condition of those items at the time of inspection; and (2) the inspection was by means of visual examination of accessible items.

9. CERTIFICATE OF PERFORMANCE

I, Shane A. Lanigan, certify that:

9.1 I have personally inspected the trees and the property referred to in this report and have stated my findings accurately. The extent of the evaluation or appraisal is stated in the attached report and the Terms of Assignment.

9.2 I have no current or prospective interest in the vegetation or the property that is the subject of this report and have no personal interest or bias with respect to the parties involved.

9.3 The analysis, opinions and conclusions stated herein are my own and are based on current scientific procedures and facts.

9.4 My analysis, opinions, and conclusions were developed and this report has been prepared according to commonly accepted arboricultural practices.

9.5 No one provided significant professional assistance to me, except as indicated within the report.

9.6 My compensation is not contingent upon the reporting of a predetermined conclusion that favours the cause of the client or any other party nor upon the results of the assessment, the attainment of stipulated results, or the occurrence of any subsequent events.

9.7 I further certify that I am a Chartered Arboriculturist being a professional member of the Institute of Chartered Foresters and a Registered Consultant of that professional body. I am a Registered Consultant of the Arboricultural Association, and a Registered Consulting Arborist (#588) of the American Society of Consulting Arborists. I am also an ISA Board-Certified Master Arborist and hold the Royal Forestry Society Professional Diploma in Arboriculture. In matters of tree inspection, I hold the International Society of Arboriculture 'Tree Risk Assessment Qualification' (TRAQ) and have completed the LANTRA Professional Tree Inspection Module with integrated assessment and update training. I have worked full time in the field of Arboriculture for a period of fifty-three years.

S.A. Lanigan – Chartered Arboriculturist
MICFor, Dip.Arb.(RFS), M.Arbor A, RCArborA – ISA, BCMA, CUEW,
ASCA Registered Consulting Arborist #588

10. PROFESSIONAL DETAILS OF SHANE A LANIGAN

Qualifications: I hold the City and Guilds Certificate in Tree Surgery and am an International Society of Arboriculture Certified Arborist, also holding the International Society of Arboriculture Municipal Arborist Accreditation and being a Board- Certified Master Arborist of that professional body.

In addition, I hold the Royal Forestry Society's Professional Diploma in Arboriculture which is a degree level qualification rated as level 6 on the qualifications and curriculum framework. It is a qualification specific to the arboricultural profession. In matters of tree safety and risk assessment I have undertaken and completed the LANTRA Awards Professional Tree Inspection Course and integrated assessment, I also hold the International Society of Arboriculture Tree Risk Assessment Qualification (TRAQ).

I am a registered consultant of the American Society of Consulting Arborists (ASCA RCA#588) and a Chartered Arboriculturist, being a Professional Member of the Institute of Chartered Foresters and a Registered Consultant of the Arboricultural Association.

Regarding legal issues, I am also a Cardiff University Law School Certified Expert Witness in both civil and criminal proceedings.

My professional memberships include:

- The American Society of Consulting Arborists
- The Arboricultural Association
- The Consulting Arborist Society
- The International Society of Arboriculture
- The Institute of Chartered Foresters
- The Royal Forestry Society

Career details: I am a second- generation arborist having worked from 1971 to 1979 for a private tree care company before forming my own arboricultural company in 1979.

Continuing professional development: I maintain and improve my professional knowledge by being an active member of the five professional bodies referred to above. In addition, I attend a high number of arboriculture related seminars and the annual conferences of the International Society of Arboriculture, the Arboricultural Association, and the Institute of Chartered Foresters (ICF). I am also privileged to serve on the credentialing council of the International Society of Arboriculture educational certification department.

Currently, I am the senior consultant within Abbots Arboricultural Advice Limited. This is my consulting practice which is a forward-looking operation. In order to keep abreast of changes in arboriculture and consulting practice I attend many conferences and seminars which contribute to my CPD/CEU obligations.

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APPENDIX 1

Photographs 1 – 11

PHOTOGRAPH NO. 1 - T1 – cherry viewed from the northeast

PHOTOGRAPH NO. 2 - T1 – cherry viewed from the northwest

PHOTOGRAPH NO. 3 – base of T1 with visible uplift of the nearby paviours

PHOTOGRAPH NO. 4 – foul water drain cover around 1 m southeast of the tree base

PHOTOGRAPH NO. 5 – large lateral root growing from the northeast side of the tree northwards toward the roadway

PHOTOGRAPH NO. 6 – large lateral root growing from the northeast side of the tree northwards toward the roadway

PHOTOGRAPH NO. 7 – upheaved and disturbed surface of the driveway

PHOTOGRAPH NO. 8 – cherry tree root 1.5 m southeast of the tree base

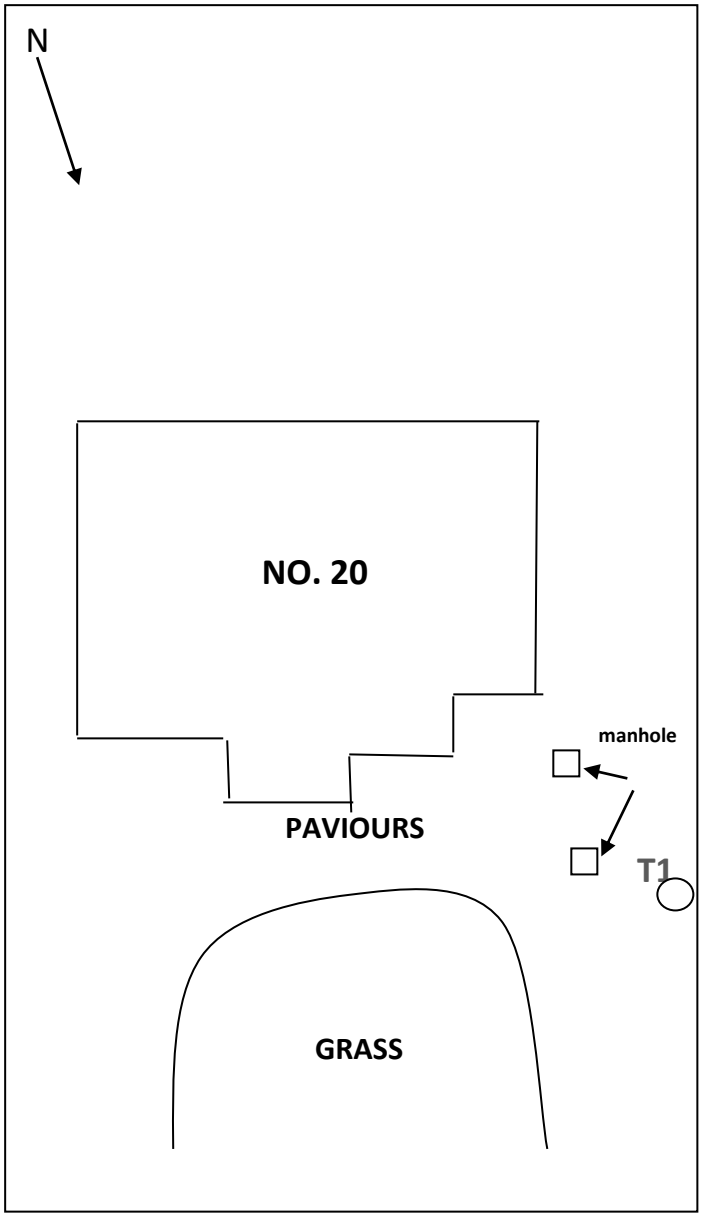
PHOTOGRAPH NO. 9 – base of T1 viewed from the southwest showing proximity to the boundary fence

PHOTOGRAPH NO. 10 – cherry tree root 1 m east of the tree base (arrowed)

PHOTOGRAPH NO. 11 – uplift of the driveway of No. 18 – likely due to tree root growth

APPENDIX 2

SITE PLAN: NO. 20 WOODSTOCK DRIVE, ICKENHAM, UXBRIDGE UB10 8EF



F R O N T

This sketch plan is not to scale and may exclude certain features that are on site.

APPENDIX 3

References:

BS 5837:2012 British Standards Limited (2012) *Trees in relation to design, demolition and construction – Recommendations* 4th ed. 2 Park Street, London W1A 2BS. British Standards Institution.

Hillier J G (2014). *The Hillier Manual of Trees and Shrubs*. 14th ed. 80 Vincent Square, London SW1P 2PE;(Hillier Nurseries and The Royal Horticultural Society,).

NHBC Standards (2020). *NHBC Standards Effective 1 January 2020*. NHBC House, Davy Avenue, Knowhill, Milton Keynes MK5 8FP: NHBC.

UK Soil Observatory – British Geological Survey - https://www.bgs.ac.uk/map-view - accessed June 2023

APPENDIX 4

Statutory Tree Protection

Tree Preservation Orders/Conservation Areas

Tree Preservation Orders are made under Section 198C of the Town & Country Planning Act and applied by the 2012 Tree Regulations. They effectively prohibit unauthorised removal and pruning of trees identified within the order. Conservation areas are designated areas defined by geographic limits within which any tree with a stem diameter of more than 75mm (measured at breast height or 1.5m above ground level) is effectively protected. Certain exceptions exist under both sets of legislation, though these are limited and ideally require interpretation by a suitably qualified arboriculturist.

Felling Licenses

Felling licenses may apply for felling significant volumes of timber on sites without full planning permission. The statutory legislation in this case is the Forestry Act 1967 which is administered by the Forestry Commission.

Faculties

Faculties may be required for significant tree works on sites that fall under the jurisdiction of the church authorities. The local Parochial Church Council can advise on the need and requirements for faculties.

Hedgerow Management and Removal Notices

A hedgerow removal notice will be required for the removal of almost any hedge growing in a rural area. Certain works are permitted without notification including “for the proper management of the hedgerow”. The applicable statutory legislation may be cited as “The Hedgerow Regulations 1997” (Statutory Instrument 1997 No. 1160).