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ARBORICULTUAL REPORT:

ARBORICULTURAL IMPACT ASSESSMENT and ARBORICULTURAL METHOD STATEMENT

In relation to a Planning Application

at:

Brookmans Park Golf Course, Golf Club Rd, Brookmans Park, Hertfordshire, AL9 7AT

Compiled by:
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October 2022

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1.0 Instruction

1.1 I have been instructed by my client – Brookmans Park Golf Club - to provide an appraisal of the likely impact to, and implications for trees on, or adjacent to, `Brookmans Park Golf Club, Golf Club Road, Brookmans Park, Hertfordshire, AL9 7AT' in relation to a planning application on the site.

1.2 This is an outline application for 9 detached dwellings with all matters reserved, except for access.

2.0 Introduction

2.1 Qualifications and Experience

2.1.1 I am David Clarke, I have a Bachelor of Science Honours Degree in Landscape Management from Reading University and I am a Chartered Landscape Architect and Chartered Member of the Chartered Landscape Institute (1998). I hold the Professional Diploma in Arboriculture (RFS) (2012) and I am a Professional Member of the Arboricultural Association. I have 31 years' experience of working in both the private and public sector in relation to arboricultural and landscape issues.

2.2 Scope of this Report

2.2.1 This Arboricultural Impact Assessment and Arboricultural Method Statement form the Arboricultural Report for the Planning Application. They should be read in conjunction with:

- Tree Protection Plan – TPP/BPGCGCRBPH/010 A and
- Arboricultural Survey (Appendix A).

The Arboricultural Report is aimed at identifying and addressing those matters concerning trees in relation to the proposed planning application. It will clarify these issues:

- The principles and procedures to be applied to achieve a harmonious and sustainable relationship between retained trees and structures.
- The species, size, position and condition of those trees within the area of the proposed development where trees may potentially have some significance to the proposed development. The full survey schedule is set out in Appendix A.

- The impact of the proposed development upon these trees (and vice versa) including those trees to be removed due to the proposed development.

- Any measures that are required to protect retained trees during the proposed works.

2.2.2 The trees have been assessed (see Arboricultural Survey – Appendix A) as set out in BS BS5837: 2012 `Trees in relation to design, demolition and construction. Recommendations.' An Arboricultural Survey was undertaken by myself in August 2022 in relation to this planning application.

2.2.3 Tree numbers within the text (T1-T3 and G1-G4 and W1) relate to numbers designated as part of the Arboricultural Survey unless otherwise stated. The trees are plotted on Tree Protection Plan – TPP/BPGCGCRBPH/010 A - which accompanies the planning application.

2.2.4 BS 5837: 2012 `Trees in relation to design, demolition and construction. Recommendations' provides recommendations for the assessment of trees on development sites and suggests four categories into which trees should be placed for assessment purposes. These categories have been used as part of the assessment of trees within this report.

2.3 Relevant Background Information

2.3.1 It is understood from my Client that none of the trees on the site are protected by a Tree Preservation Order (TPO) and that the site is not located within a Conservation Area.

2.3.2 It is recommended that this information on protected trees be confirmed by anyone proposing to undertake any (future) works to trees – both inside and outside the application site. This should be undertaken in writing with the Local Planning Authority (LPA) before proceeding with any tree works unless works within this report are agreed as part of a Planning Approval.

2.4 Documents and Information Provided

2.4.1 All plans within this report are based upon drawings supplied by AT Architecture Ltd.

2.4.2 This document has been prepared in accordance with guidance set out in British Standard BS 5837: 2012 `Trees in relation to design, demolition and construction. Recommendations' (BS 5837:2012).

3.0 Report Limitations

3.1 The report is for the sole use of the client and its reproduction or use by anyone else is prohibited unless written consent is given by the author.

3.2 The report observations are to be considered as correct at the time of inspection only. Trees are a growing, living organism, and are readily affected by many environmental factors. As such their condition and circumstances can change in a very short period of time. Therefore this report should be construed as valid for an absolute maximum of 12 months from the date of the Arboricultural Survey provided all factors remain unchanged.

3.3 This is an arboricultural report and as such no reliance should be given to comments relating to buildings, engineering, soils or other unrelated matters. The inspection of trees was undertaken from ground level and they were not climbed. No samples of wood, roots, soils or fungus were taken for analysis. Observations of the trees were confined to what was visible from within the site and surrounding public places. A full hazard risk assessment of the trees was not undertaken.

3.4 The presence of TPOs, a Conservation Area, or other designations, may affect the use of the site and the management of trees on the site. These designations can be served on the application, or adjacent, sites at any time. The landowner, or his representatives, should therefore satisfy themselves as to the presence (or absence) of these designations prior to:

- Undertaking any works to trees on, or adjacent to, the site. Where necessary written permission from the Local Authority will be required prior to undertaking tree works.
- Undertaking any of the works specified in this Arboricultural Report before planning permission is granted.

4.0 Brief Description of the Application Site and the Proposed Development

4.1 This application is a former paddock located adjacent to the operational part of Brookmans Park Golf Club. Golf Club Road - which serves the Golf Club - is located to the east and residential development to the south. The site is an open area with trees predominately located to the site boundaries. These include a wooded area to the west and individual and groups of trees to the remining boundaries. The site is relatively open to Golf Club Road. The site is relatively level.

4.2 This is an outline application for 9 detached dwellings with all matters reserved, except for access.

Photograph A – Looking towards the residential development outside the southern boundary.

Photograph B – Looking west through the application site from Golf Club Road.

5.0 General principles for protection of trees during development

5.1 It is equally important to ensure the protection of trees both above and below ground. Guidance is provided in BS 5837: 2012 as to the protection of trees, before, during and after development.

5.2 The Arboricultural Impact Assessment will set out the potential impact of the proposals on trees and vice-versa. There is a need to protect trees and provide an Arboricultural Method Statement where proposals will impinge, or impact on the Root Protection Areas (RPAs) of retained trees. Root Protection Areas (RPAs) are a layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority. These are set out as Construction Exclusion Zones and have been calculated as part of the Arboricultural Survey.

5.3 The RPA for each tree is initially plotted as a circle centered on the base of the stem. Where pre-existing site conditions or other factors indicate that rooting has occurred asymmetrically, a polygon of equivalent area will be produced. These factors include the morphology and disposition of the roots, when known to be influenced by past or existing site conditions - such as the presence of roads and structures - and site topography. Modifications to the shape of the RPA within this report reflect a soundly based arboricultural assessment of likely root distribution. The RPA may change its shape but not reduce its area whilst still providing adequate protection for the root system.

5.4 Proposals may impinge on RPAs but these should be minimal and construction techniques such as specialized foundation designs should be considered to reduce the impact of development. The proposals will relate specifically to the site conditions and each individual tree and its category within the BS 5837 grading system.

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ARBORICULTURAL IMPACT ASSESSMENT

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6.0 Arboricultural Impact Assessment (AIA)

6.1 As stated above British Standard recommendations (BS5837: 2012) provides a formula for calculating the Root Protection Area (RPA) recommended to protect existing trees that are to be retained. The shape of the root protection area and its exact location will depend upon arboricultural considerations but the area will normally be represented on a plan as a circle. The purpose of the RPA is to prevent physical damage to tree roots and to prevent damage to the soil structure in which they live by soil compaction, changes in soil levels or prevention of gas exchange to living roots.

6.2 These RPAs are shown on the Tree Protection Plan (TPP/BPGCGCRBPH/010 A) which also forms part of the Arboricultural Method Statement. Where incursion within the RPA of a retained tree is necessary as part of the construction process then a methodology will be in place to prevent, or reduce to an insignificant level, damage to trees.

6.3 Below I have discussed the significance of the trees and the constraints that they are likely to pose to the proposed development (and vice-versa). Together with the Arboricultural Survey the AIA sets out any tree works required in order to facilitate the development as well as identifying works to trees (including removal) that should be undertaken as part of the management of trees on the site.

6.4 Summary of Tree Impact Assessment

6.5 There are 3 no. individual trees, 4 no. groups of trees and a wooded area which form the basis for this report, and which could potentially be affected by the proposal.

6.6 Trees recommended for removal for Arboricultural Reasons

Of the trees within this report 1 no. within a group (G2) is recommended for removal irrespective of this Planning Application. It is noted that trees within the wooded area are in a range of conditions. A Scot Pine to the eastern edge of the area is in a moderate condition and shows signs of decline – including some dieback. The condition of this tree should be monitored and assessed and this will guide the future management of this and other trees here. They could be retained as a dead wood (wildlife) resource if this is possible within the safe use of the site.

6.7 Schedule of trees recommended for removal for Arboricultural Reasons

Tree No.	Species (Common Name)	BS Category	Reason for recommended removal
G2	1 no. Cypress (part of group)	U	Tree has a limited canopy and limited life expectancy.

6.8 Trees removed due to the application

Of the trees within this report 2 no. individual trees (T1 and T2) will need to be removed, or are proposed to be removed, as part of the implementation of the development.

6.9 These are low quality or unremarkable `C' Category trees as set out in BS 5837:2012. The loss of Elm (T2) may occur regardless of this application due to the prevalence of Dutch Elm Disease. These trees are located internally within the site and are not prominent to the general public due to the existing built form and/or vegetation in the local area. Their removal will not have a substantial impact on the visual amenity of the area or its enjoyment by the general public. They could be replaced as part of landscape proposals for the development so as to maintain a good and viable tree cover within the area. This would include both native and non-native species. The use of species which are beneficial to wildlife will be used to help improve the biodiversity of the site and provide an attractive setting for the proposals.

6.10 On balance the removal of trees should be weighed within the proposals to replace these trees and the benefits arising from the site development. The removal of these trees for the site development is not so significant that it would lead to the refusal of Planning Permission.

6.11 Schedule of trees removed due to the application

Tree No.	Species (Common Name)	BS Category	Reason for removal
T1	Sycamore	C1	As part of the site development.
T2	Elm	C1	As part of the site development.

6.12 Trees potentially affected by the application

Site access will take place outside the RPAs and canopy spreads of retained trees. However, the construction of 1 no. dwelling and 1 no. garage, construction activity and the installation of hardstanding will take place within the RPAs and canopy spreads of retained trees. Additionally, the introduction of boundary treatments and pre-development tree works form part of the site development.

6.13 These potential impacts are set out and evaluated below and measures to prevent, or reduce, the effects of the proposals on these trees are set out in the Arboricultural Method Statement. The impact on retained trees from this development will not be significant as long as the proposals set out in this report are followed.

6.14 Schedule of trees potentially affected by the application

Tree No.	Species (Common Name)	BS Category	Reason for potential impact
T3	Oak	C1	• Construction Activity (Pedestrian movements and/or the erection of scaffolding) within RPA and canopy spread. • Pre-development tree works to shape tree and to prune canopy away from Plot 9.
G1	Several Cypress	C2	• Installation of hardstanding (driveway) within RPAs and canopy spreads. • Construction Activity (Vehicle or machinery movements and/or the storage of materials) within RPAs and canopy spreads. • Pre-development tree works to crown lift canopies above proposed driveway (if required).
G2	1 no. Spruce (part of group)	B2	• Construction Activity (Pedestrian movements) within RPA and canopy spread as part of construction of garage.
	1 no. Oak (part of group)	B2	• Pre-development tree works to selectively prune/reduce canopy over garden area.

G4	1 no. Horse Chestnut	B2/3	• Construction of dwelling within 7% of RPA. • Construction Activity (Pedestrian movements and/or the erection of scaffolding) within RPA and canopy spread. • Pre-development tree works to shape tree and to prune canopy away from Plot 9.
W1	Oak (part of wooded area)	B2	• Construction of a garage within less than 2% of RPA. • Construction Activity (Pedestrian movements) within RPA and canopy spread as part of construction of garage. • Pre-development tree works to prune canopy away from garage.
	1 no. Scots Pine (part of wooded area)	C2	• Installation of hardstanding (driveway) within 12% of RPA and within canopy spread.

6.15 <u>Assessment of potential impacts on retained trees</u>

6.16 <u>Assessment of Distribution of Roots of Trees</u>

As set out above the RPAs have been calculated as part of the Arboricultural Survey. The shape of the RPA and its exact location will depend upon arboricultural considerations but the area will normally be represented on a plan as a circle. Pre-existing site conditions – such as building footprints, hard surfacing and changes in levels - or other factors may indicate that rooting has occurred asymmetrically.

6.17 With regard to some of the retained trees within this report there are potential restrictions on their root activity. This relates to:

- The surfaces adjacent to the site: Golf Club Road – T3 and G3;

The exact construction of these elements is unknown but some fundamental principles will apply:

6.18 The capping of the soils by the hardstanding will reduce the availability of resources (such as water) to potential root activity and reduce gaseous exchange between the soils and the atmosphere. Factors such as soil compaction during the construction of the hardstanding and its physical presence would also significantly reduce or prevent rooting activity in these areas. However, it is assumed that the surfacing of Golf Club Road has been constructed to

a standard that will have some permeability which would encourage root growth beneath this area. Circular RPAs are therefore shown for trees within this report. The exact distribution of roots could only be confirmed by undertaking further site investigations such as trial trenches. In relation to the site development and the potential impact on trees it is considered that these are not required at this stage.

6.19 Site Access

During the site development access will be from the proposed site access from Golf Club Road. This is outside the RPAs of retained trees. Therefore, no Ground Protection Measures are proposed to protect trees as part of this element of the development.

6.20 Demolition

No buildings or structures will need to be removed as part of the site development.

6.21 Removal of Hard Standing within RPAs

No hardstanding will need to be removed within the RPAs of retained trees.

6.22 Installation of Hard Standing within RPAs

New areas of hardstanding will need to be introduced within the RPAs of trees to be retained. These are a driveway within the RPAs of a Cypress screen (G2) to the site boundary and within 12% of the RPA of a Scots Pine within W1. The use of standard (excavated) techniques has the potential to sever roots and affect the long-term viability of these trees. The use of `no dig' surfacing is therefore proposed as part of the site development. A specification for this is set out in the Arboricultural Method Statement.

6.23 Construction within RPAs

The construction of the majority of the dwellings will take place outside the RPAs of trees. Therefore, the use of standard construction techniques is considered to be acceptable in this instance.

6.24 However the construction of Plot 9 will take place within 7% of the RPA of a Horse Chestnut within G4. The dwelling is located at over 8.0 m from the trunk of the tree. At this distance the majority (if not all) of roots will be fibrous roots under 20 mm diameter. Additionally as set out in BS 5837:2012 there are soil volumes contiguous with the RPAs that this tree can exploit. This incursion could therefore be considered to be minimal and not significant to the long-term retention of this tree. However, this is a mature tree of good value within the area. It is therefore proposed to use specialised foundations so that the construction will have a

minimal impact on this tree. A specification for these is set out in the Arboricultural Method Statement and will include Further Site Investigations to establish the distribution of roots of the tree.

6.25 A garage will be constructed within less than 2% of the RPA of an Oak within W1. This is considered to be a minor and insignificant to the long-term retention of this tree. Additionally, as set out in BS 5837:2012 there are soil volumes contiguous with the RPAs that this tree can exploit. Therefore, the use of standard construction techniques is considered to be acceptable in this instance.

6.26 <u>Construction Activity</u>

Uncontrolled construction activity could lead to direct or indirect damage to trees - both above and below ground. Therefore, Tree Protection Fencing is proposed within the Arboricultural Method Statement to restrict and control construction activity, contain the development footprint and protect retained trees during the works.

6.27 The movements of vehicles, machinery or pedestrians, the storage of materials or the erection of scaffolding may take place within the RPAs of trees during the site development. Ground Protection Measures are proposed to protect the underlying soil profiles and any roots that may be present.

6.28 <u>Canopy Spreads and Presence of Trees</u>

The canopies of trees within this report are outside the footprints of the proposed dwellings. However, tree works are proposed to:

- prune and shape the canopy of Oak (T3) away from Plot 9 by up to 1.5-2.0 m to leave a canopy spread of at least 4.0 m to each aspect;
- Prune the canopy of a Horse Chestnut within G4 by 1.5-2.0 m to the southern aspect to leave a separation of 3.5-4.0 m to the flank wall of Plot 9;
- Crown lift the canopies of Cypress within G1 by up to 3.0-3.5 m above grund level over the proposed driveway (if required);
- Selectively prune or reduce the canopy of an Oak within G2 away from the garden area by 3.5 m to the northern aspect to leave a canopy spread of 5.5 m to this aspect;
- Selectively prune an Oak within W1 by up to 2.0 m to the eastern aspect away from a garage.

These works are considered to be minor and insignificant within the existing structure and condition of these trees.

6.29 All proposed pruning works would follow guidance set out in the relevant British Standard (BS 3998:2010 - `Tree work - Recommendations') and will be carried out by a qualified tree surgeon/arboricultural contractor to ensure that the health, amenity and viability of the trees is maintained. All Arboricultural works should also comply with relevant bio-security measures – such as those set out in the Arboricultural Associations position statement `Biosecurity in Arboriculture and Urban Forestry'. Initial tree works are specified in the Arboricultural Method Statement.

6.30 Shading

The retained trees within this report are located to the site boundaries and/or to the north of the development. The trees form an important part of the character of the area. There will be a sufficient separation between their canopies and the proposed dwellings. The site is generally open to the east and good light penetration will be allowed to both the garden areas and the dwellings. This will mean that trees will not be dominant to the development and will not have a detrimental impact on the site or its users. There will therefore be no future pressure to prune or fell trees through shading issues.

6.31 Levels

No ground level changes are currently proposed or should take place within the RPAs of retained trees except any discussed and assessed within this report.

6.32 Herbicides and Pesticides

The use of herbicides and pesticides is not proposed within the RPAs of retained trees as part of this application. Should this change then chemicals will be specified which will not have an impact on retained trees.

6.33 Utility Routes

The exact location of services is not confirmed at this stage. However it is assumed that existing service runs within the adjacent access road will be used and upgraded as required. Given the position of trees to the site boundaries all new services to the site should be able to be located outside the RPAs of retained trees. It is essential that early design coordination and discussions are undertaken to ensure that the proposed utility layout does not have a negative impact on trees to be retained. If required specialised

techniques – such as those set out in *'NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees' 2007* National Joint Utilities Group (NJUG) Volume No. 4: No. 1 – will be used.

6.34 Temporary Site Buildings and Storage of Materials and Plant

Poor placement of temporary site buildings (including latrines), contractors parking, materials and plant can lead to direct damage to retained trees or indirect damage such as through the compaction of soils. The layout and operation of the site has therefore been considered and planned at this early stage to reduce or prevent any potential and significant damage to retained trees. This includes the erection of Tree Protective Fencing as set out above and in the Arboricultural Method Statement.

6.35 Erection of Boundary Treatments

New or replacement boundary treatments (fences) may take place within the RPAs of trees in order to define and secure the site boundaries. These are considered to be minor and insignificant to the long-term retention of these trees. However they must be undertaken in a controlled and planned way to ensure that these trees are not damaged by the works.

6.36 End Use of the Proposal

The proposals will have a residential use at the end of the project.

7.0 Recommendations

7.1 All tree works – removal and pruning – should be undertaken prior to the start of the site development so as to avoid any conflict between trees and contractors during the implementation of the project.

7.2 Existing trees can be easily damaged directly through root severance and, inadvertently, through soil compaction which disrupts the soil structure causing asphyxiation of roots and subsequent root dysfunction. Spillage of toxic materials can cause root death. Protection for retained trees is essential to ensure they are not affected by the development.

7.3 Specifications for the protection of trees are proposed in the Arboricultural Method Statement. These include the use of Tree Protection Fencing and should be implemented to prevent, or limit, any significant damage to the roots of trees. Protective fencing should be erected as shown on the Tree Protection Plans.

7.4 The phasing of the operations should follow that set out in the Arboricultural Method Statement to ensure that the protection of trees is prioritised.

7.5 The location and siting of all utilities should be outside of the RPAs of retained trees as enforced on site. If incursions within RPAs are unavoidable then specialised installation techniques will need to be agreed with an Arboriculturist before proceeding.

7.6 An Arboriculturist should be the main contact with the Local Authority Tree Officer and notify them of the proposed schedule prior to work commencing on site. Where necessary Arboricultural Supervision of the site should be undertaken on a schedule to be agreed with the site owner.

Photograph C – Looking east towards Golf Club Road. Showing Oak (T3) and G3.

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ARBORICULTURAL METHOD STATEMENT

In relation to a Planning Application

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8.0 General

8.1 This document sets out the methodologies for proposed works that affect trees on, and adjacent to, the site. These follow the granting of Planning Permission by the Local Planning Authority. Compliance with this (and subsequent) method statement(s) will be a requirement of all relevant contracts associated with the development proposals. Copies of this document will be available for inspection on site. The developer will inform the local planning authority if the arboricultural consultant is replaced. This method statement should be read in conjunction with Tree Protection Plan (TPP/BPGCGCRBPH/010 A).

9.0 Phasing of the Works

9.1 The works are proposed to be undertaken in the following phases:

- Pre-Development Works
  Confirm temporary site structures, contractors parking and storage areas can be accommodated outside the Construction Exclusion Zones prior to start of the site development. Ensure these will be located so that they do not have to be relocated during the development – or that any change is minimal - thereby avoiding unnecessary vehicle movements on site.

- Confirm operation of the development site with relevant contractors and thereby ensure that proposed tree protection measures are suitable and `fit for purpose'. If required modify proposed measures whilst still ensuring the protection of trees.

- Initiate early design coordination and discussions to ensure that the proposed utility layout does not have a negative impact on trees to be retained. These should be undertaken well in advance of construction work commencing on site. To confirm and agree layout and specification for utility runs with project Arboriculturist.

- Undertake pre-development tree works: removal and pruning of trees. Remove any vegetation not being retained as part of the site development.

- Undertake Further Site Investigations – as set out in the Arboricultural Method Statement - in relation to Horse Chestnut in G4 and Plot 9. Use this information to guide the foundation design of this property.

- Construction Phase
  Confirm Tree Protection Fencing is in place and `fit for purpose' prior to the start of the Construction Phase. Confirm Ground Protection Measures are in place prior to the start of the relevant part of the Construction Phase.

- Confirm temporary site structures - such as site huts and latrines – contractors parking and storage areas are outside the Construction Exclusion Zones.

- Commence Construction Phase.

- Undertake regular monitoring of the Tree Protection Measures to ensure they remain fit for the purpose of preventing unnecessary damage to trees. Should any unforeseen damage occur then this should be reported to the Local Planning Authority. Remedial tree surgery should be undertaken at the earliest opportunity as approved by a competent and qualified Arboriculturist.

- Completion of Construction Phase and removal of any temporary site structures and stored materials. Remove temporary Ground Protection Measures.

- Removal of Tree Protection Fencing.

- Landscaping of the site including refurbishment or installation of boundary treatments and installation of `no dig' hardstanding.

- It is advisable to carry out a further tree survey to identify any remedial trees surgery that may be required following the completion of the development. This will include any changes in the condition of the trees that may have occurred from the original survey.

9.2 It is noted that some phases of the work may overlap. For instance some landscaping of the site may occur whilst Tree Protection Measures are still in place.

10.0 Construction Site Access

10.1 The access for construction site vehicles and contractors will follow the Designated Access Route which is from Golf Club Road. This is outside the RPAs and canopy spreads of retained trees. Therefore, no Ground Protection Measures are required as part of this element of the development.

11.0 Pre-Development Tree Works

11.1 (i) Selective Pruning or Reduction – Oak (G2) and Oak (W1)

It is proposed to selectively prune the canopies of these trees – where required:

- Selectively prune or reduce the canopy of an Oak within G2 away from the garden area by 3.5 m to the northern aspect to leave a canopy spread of 5.5 m to this aspect;
- Selectively prune an Oak within W1 by up to 2.0 m to the eastern aspect away from a garage.

11.2 Pruning will involve the removal of secondary branches or branch shortening rather than removal of branches back to the stem. The amount of material to be removed and the diameter(s) of the pruning cut(s) will be the minimum required for the purpose.

11.3 (ii) Crown Lifting – G1 (Cypress)

It is proposed to crown lift the canopies of these trees – where required – to 3.0-3.5 m above the proposed driveway. These works will be undertaken before the start of the Construction Phase to avoid any potential conflict with contractors during the site development. This will ensure an adequate and harmonious separation between the tree canopies and the site users. This separation will be maintained in the future.

11.4 Crown lifting will not result in the removal of more than 15% of the live crown height and the remaining live crown will make up at least two-thirds of the height of the tree. It will involve the removal of secondary branches or branch shortening rather than removal of branches back to the stem. The amount of material to be removed and the diameter(s) of the pruning cut(s) will be the minimum required for the purpose.

11.5 (iii) Pruning – Oak (T3) and a Horse Chestnut (G4)

These following works are proposed:

- prune and shape the canopy of Oak (T3) away from Plot 9 by up to 1.5-2.0 m to leave a canopy spread of at least 4.0 m to each aspect. The canopy will be balanced and shaped to leave a natural flowing form;
- Prune the canopy of a Horse Chestnut within G4 by 1.5-2.0 m to the southern aspect to leave a separation of 3.5-4.0 m to the flank wall of Plot 9.

11.6 These works are considered to be minor and insignificant within the existing structure and condition of these trees. These works will be undertaken before the start of the Construction Phase to avoid any potential conflict with contractors during the site development. This will ensure an adequate and harmonious separation between the tree canopies and the site users. These separations will be maintained in the future. All proposed pruning works would follow guidance set out in the relevant British Standard (BS 3998:2010 - `Tree work - Recommendations') and will be carried out by a qualified tree surgeon/arboricultural contractor to ensure that the health, amenity and viability of the trees is maintained. All Arboricultural works should also comply with relevant bio-security measures – such as those set out in the Arboricultural Associations position statement `Biosecurity in Arboriculture and Urban Forestry'.

12.0 Tree Protective Fencing

12.1 Root Protection Areas (RPAs) are the minimum areas (in m^2) which should be left undisturbed around each retained tree as Construction Exclusion Zones. These areas have been calculated as part of the Arboricultural Survey. The protective distances where possible will be enforced by the use of robust protective fencing as outlined in BS 5837: 2012. The fencing will be fit for the purpose of excluding construction activity and appropriate to the degree and proximity of work taking place around the trees.

12.2 In this instance it is proposed to use the following methods:

- Timber hoarding will be fixed to timber posts set at 2.0-3.0 m centres (See Photograph D below) may be used to secure the site boundary. If applicable post holes for the timber hoarding will be hand dug using hand held tools and avoiding severance of significant roots of adjacent trees.

- 2.0 m high metal mesh panels within the site. Examples would include Heras fencing (See Photograph E below). The panels will be joined together using a minimum of two anti-tamper couplers to prevent access except for maintenance operations. The distance between the fence couplers will be at least 1.0 m and they will be uniform throughout the fence. Where space does not allow for a full panel to be erected then panels may overlap each other to fill a gap. The panels should be supported on the inner side by stabilizer struts, which should normally be attached to rubber blocks. Where required the site the panels will be staked and secured in place so that they do

not move during the development process. Dust' netting may be fixed to the fencing to prevent airborne material generated during the site development from coating the leaves of trunks of trees.

12.3 The exact composition of the soil is unknown. Clay soil, for instance, compacts very easily when wet, so it is essential that fenced areas remain undisturbed before and during construction to prevent root asphyxiation.

12.4 Laminated site warning signs will be attached to the fencing. These signs will state:

'CONSTRUCTION EXCLUSION ZONE – NO ACCESS

No storage of materials or use of machinery should take place within this area. These fences should remain intact unless under instruction from the site foreman following consultation with an Arborist.'

Photograph D – Example of Timber Hoarding Tree Protective Fencing.

Photograph E – Example of Heras Tree Protective Fencing

12.5 Tree Protection Fencing - as stated above - will be used to protect trees within the site. This fencing will be erected to protect retained trees before any machinery or pedestrians enter the site in connection with the Construction Phase. The position of the fencing is shown on Tree Protection Plan (TPP/BPGCGCRBPH/010 A). It will not be removed or relocated except to allow for grounds maintenance operations. Once the main construction phase is complete it may be removed to allow for the installation of boundary treatments and any landscaping of the site.

13.0 Ground Protection Measures

13.1 Vehicle, machinery and pedestrian movements, the storage of materials and the erection of scaffolding may occur within the RPAs of trees. Ground Protection Materials – as set out below - will be introduced to protect the roots of these trees. These will be retained and maintained during the duration of the site development.

13.2 The structure of any protection measures will be designed to avoid localised compaction, by evenly distributing the carried weight over the Ground Protection Materials. They will cater for the `worse-case' scenario:

13.3 (i) Vehicle or Machinery Movements and/or Storage of Materials – G1

For pedestrian-operated plant and machinery up to a gross weight of 2 t, proprietary, inter-linked ground protection boards placed on top of a compression-resistant layer (150 mm depth of woodchip), laid onto a geotextile membrane will be used.

(ii) For wheeled or tracked construction traffic exceeding 2 t gross weight a system will be proposed to an engineering specification designed in conjunction with arboricultural advice. This system could include a proprietary system such as heavy duty metal or plastic trackway which will accommodate the likely loading to which it will be subjected. The structure of this temporary surface will be designed to avoid localised compaction, by evenly distributing the carried weight over the track width and wheelbase of any vehicles or plant that are proposed to use the area. In this instance the final design of the system used would be confirmed as part of a Planning Condition for a Planning Approval.

(iii) Pedestrian Movements and/or the Erection of Scaffolding

For pedestrian use either concrete laid on a suitable geo-textile layer or inter-linked ground protection boards placed on top of a compression-resistant layer (150 mm depth of woodchip), laid onto a geotextile membrane will be used.

(iv) For the erection of scaffolding only, a single thickness of scaffold boards placed on top of a driven scaffold frame, so as to form a suspended walkway, will be used.

13.4 The position of Ground Protection Measures is shown on the Tree Protection Plan. These measures will only be removed once the relevant part of the Construction Phase is complete.

14.0 Further Site Investigations and Foundation Design

14.1 Plot 9 will be located within 7% of the RPA of a Horse Chestnut within G4. It is proposed to use specialised foundations so that the construction will have a minimal impact on this tree. This will include Further Site Investigations to establish the distribution of roots of this tree and confirm the design of the foundations.

14.2 Further Site Investigations (FSI)

The existing vegetation within the area of the proposed dwelling will be removed to ground level. The line of the proposed dwelling nearest to the tree will be marked out on site. A trial trench will be hand dug along this line to a depth of 500-600 mm which is a reasonable depth for roots to be discovered if present. Care will be taken to ensure that any roots (including root bark) which are present are not damaged. The trial holes will be assessed by an Arboriculturist and the Local Planning Authority Tree Officer will be invited to attend and undertake their own assessment. If significant roots – those over 25 mm diameter or root masses (as determined by the Arboriculturist) – are found then these will be noted and will guide the design of the specialised foundations. It is noted that if no significant roots are found then a standard (trench) construction could be used.

14.3 Foundation Design

The foundations could include a pile and raft foundation but this would be confirmed by the project Structural Engineer. The position of the piles would be designed to avoid any significant roots as confirmed from the FSI. The position of the piles would be marked out on site prior to the work commencing. The smallest practical pile diameter would be used, as this reduces the possibility of striking major tree roots and reduces the size of the rig required to sink the piles. The depth of the piles will be confirmed as part of the design process. Due to the highly alkaline leachate produced during the curing of wet concrete, concrete will not be poured within the RPA unless an impermeable liner has been installed.

15.0 Installation of `No Dig' Hardstanding

15.1 Driveways will be installed within the RPAs of G2 (Cypress) and a Scots Pine within W1. In order to protect the rooting areas of these trees the following `no dig' specifications will be used:

15.2 A permeable surface set on a suitable free draining sub-base will be used. The structure of the hard surface will be designed to avoid localised compaction, by evenly distributing the carried weight of any pedestrians using these footpaths. These surfaces will be installed once development is complete with these areas being protected by Tree Protection Fencing or Ground Protection Measures in the interim.

15.3 The surfaces would be constructed from outside the RPAs using the laid surfacing for support to prevent damage to RPAs during the works. The 'no dig' approach may continue outside the RPAs of retained trees or revert to a standard construction. This will, in part, depend on levels within the site and the final design of the surfacing. Care will be taken during the works to prevent compaction of soils and therefore to ensure that roots are not damaged.

15.4 For the driveways a Terram 1000 geotextile membrane and a 150mm deep Erocell 25/15 Geocell containment grid with block paviours on top (to a total depth of approximately 215 mm) would be a suitable solution but the final design will be confirmed as part of the information required for conditions for a Planning Approval. The surface will therefore have a limited impact upon retained trees.

16.0 Site Organisation and Storage of Materials and Plant

16.1 During the proposed construction works attention will be paid to the protection and well being of retained trees. The site will be organised in such a manner so as to minimise the effects of the construction work on trees. This will include defining and containing the development footprint with Tree Protection Fencing.

16.2 All materials and plant to be used during, or generated by, the Development Phase will be stored outside the enforced tree protection areas. The operation of the site will be undertaken within the constraints imposed by the protection of trees. Where necessary materials will be brought to site in loads which are applicable to that phase of the works. This would help to minimise the development footprint within the site.

16.3 All toxic substances such as oils, bitumen's and residues from concrete mixing will be retained by effective catchment areas. No toxic material will be discharged within 10 m of a tree stem. No fires will be lit within 10 m of a tree stem.

16.4 All access onto and from the site will be via the Designated Access Route. Temporary site buildings, temporary latrines and any other temporary structures will be outside the Construction Exclusion Zones.

17.0 Landscape Proposals Including Erection of Boundary Treatments

17.1 Any landscaping will avoid soil re-grading and unnecessary disturbance within the RPAs of retained trees. Any ground works, such as planting of trees or shrubs or the spreading of top soil, within the RPAs of trees will be undertaken using hand held tools.

17.2 Boundary Treatments

Existing fencing may be repaired or replaced as part of the proposed development to form defined or secure garden or site boundaries.

17.3 Care will be taken when digging new holes and these will be undertaken by hand within these RPAs. Where roots larger than 25 mm are encountered the post hole (where possible) will be moved to ensure the roots are not affected. Where it is not possible to move the post hole roots larger than 25 mm will only be severed following consultation with an Arboriculturist, as they may be essential to the tree's health and stability. Roots smaller than 25 mm may be pruned back to create a clean cut, preferably to a side branch, using a proprietary cutting tool such as bypass secateurs or handsaws.

17.4 Roots which are exposed, but are to be retained, will be wrapped in dry, clean hessian sacking to prevent desiccation and to protect from rapid temperature changes. Prior to backfilling, any Hessian wrapping will be removed and retained roots should be surrounded with sharp sand or other loose granular fill, before soil or other material is placed over the roots. This material should be free of contaminants and other foreign objects potentially injurious to tree roots.

17.5 At this point it is recommended that these treatments are erected at the end of the Construction Phase when the majority of construction works have occurred. Tree Protection Fencing will be removed whilst this element of the work is carried out.

18.0 Conclusion

18.1 This is an outline application for 9 detached dwellings with all matters reserved, except for access.

18.2 As part of the assessment of trees on the site 1 no. trees within a group (G2) is recommended for removal irrespective of this Planning Application. This tree has a limited life expectancy.

18.3 Of the trees within this report 2 no. individual trees (T1 and T2) will need to be removed, or are proposed to be removed, as part of the implementation of the development. These are low quality or unremarkable `C' Category trees as set out in BS 5837:2012. The loss of Elm (T2) may occur regardless of this application due to the prevalence of Dutch Elm Disease. These trees are located internally within the site and are not prominent to the general public due to the existing built form and/or vegetation in the local area. Their removal will not have a substantial impact on the visual amenity of the area or its enjoyment by the general public. They could be replaced as part of landscape proposals for the development so as to maintain a good and viable tree cover within the area. This would include both native and non-native species. The use of species which are beneficial to wildlife will be used to help improve the biodiversity of the site and provide an attractive setting for the proposals.

18.4 On balance the removal of trees should be weighed within the proposals to replace these trees and the benefits arising from the site development. The removal of these trees for the site development is not so significant that it would lead to the refusal of Planning Permission.

18.5 There will be incursions within, or adjacent to the RPAs and canopy spreads of trees as part of the development of the site. These include for the construction of a dwelling and a garage, the installation of hardstanding and construction activity. Overall, the incursions within the RPAs have been assessed within the Arboricultural Impact Assessment to either have a minimal and insignificant impact on retained trees or can be reduced to an insignificant level through the use of relevant construction techniques. These are set out within the Arboricultural Method Statement. These will ensure that the development will be completed without having any undue impact on retained trees.

18.6 Retained trees will be protected during the site development. This report sets out how retained trees are an important part of the development of the site and how protection and retention of trees will be achieved. The effect on retained trees from the proposals will be minimal given the proposed site layout and conditions and providing that the Arboricultural Method Statement is implemented.

18.6 The development is therefore acceptable in arboricultural terms and should receive planning consent.

Appendix A
Arboricultural Survey
Brookmans Park Golf Course, Golf Club Rd, Brookmans Park, Hertfordshire, AL9 7AT

1.0 Introduction

1.1 I visited the application site in August 2022 to inspect relevant trees in relation to a Planning Application on the site. These trees are within the area of the proposed development and may potentially have some significance to the proposed development. The survey includes the species, size, position and condition of these trees. A full list and description of Survey Terms is given below. The position of these trees has been noted on the accompanying Tree Protection Plan.

1.2 This survey has been prepared following guidance set out in BS 5837: 2012 `Trees in relation to design, demolition and construction. Recommendations'. It seeks to offer guidance in relation to planning application discussions or designs for the site. As suggested by BS5837: 2012 all trees with a stem diameter of less than 75 mm at 1.5 m above ground level were excluded from the survey. It does not include trees that have subsequently been removed by the site owner (or adjacent land owners) as part of their management of the site(s),

2.0 Description of Survey Terms

2.1 **Tree Reference Number** is the number allocated as part of this Arboricultural Survey. This may be different from other surveys undertaken on the site and the tree may, or may not, be tagged on site.

2.2 **Height** of the tree is measured in metres to the centre of the crown or the highest point of the tree. There is a tolerance of plus or minus 1.0 m.

2.3 **Crown Spread** is taken at compass points N, E, S and W from the centre of the tree stem. This is to the nearest 0.5 m. Where tree canopies spread off-site then estimations (est) have been made. With regard to groups the average canopy spread is given. Where individuals within the group are significantly different from this these are shown on the plan and the maximum spread stated within the report.

2.4 **Stem Diameters** are taken at 1.5 m above ground level unless otherwise stated. Where measurements of trunk diameter are not possible then estimations (est) have been made. This may be due to ivy on the trunk or where trees are not on the application site. The annotation ms refers to multi-stemmed trees.

2.5 **Root Protection Areas** (RPAs) are calculated from stem diameter measurements as set out in BS5837: 2012 `Trees in relation to design, demolition and construction. Recommendations'. RPAs are the areas (in m^2) around each retained tree which contain sufficient rooting volume to ensure the survival of the tree. The area will normally be represented on a plan as a circle or polygon. If shown as a circle the **Radius of Root Protection Area Zone** is included.

2.6 **Age Class** - A young tree (Y) is within its first 1/3rd of life expectancy. A middle aged tree (MA) is within its second 1/3rd of life expectancy and a mature tree (M) is within its final third of life expectancy. An Over Mature tree (OM) is beyond its average life expectancy and a Veteran (V) is usually beyond the typical age range for the species but of biological, cultural or aesthetic value.

2.7 **Physiological and Structural Condition** - Trees in a Good Physiological or Structural Condition have no visible problems or significant defects. Those in a Fair Condition have remedial symptoms or defects or where these symptoms or defects are not remedial but will not affect the **Estimate Remaining Useful Contribution** and those in a Poor Condition have defects which are not remedial and removal of the tree should be considered.

2.8 **Comments** give a description of the tree including its general form, description of any physical defects, disease or decay and other appropriate details based on the health, vitality and overall structural integrity. It also includes the environment in which the tree is growing. **Recommendations** for the management of the tree or group will be given where required. Any proposals for removal of trees will need to be agreed with the tree owner.

2.9 A tree of good form has a shape that is typical of the species or has amenity in its own right. A tree with moderate form has been affected by its environment and is not typical of the species and has limited amenity value on its own right though it may have a collective amenity with adjacent trees. A tree with poor form has low quality and may also have structural defects which will affect its long term retention. **Canopy height above ground level** is given where this is applicable.

2.10 **Estimated Remaining Useful Contribution** is the estimated number of years that the tree will continue to make a safe and useful contribution to its surroundings, taking into account its current age, physiological and structural condition and its current location or environment. This assumes that there will be no changes within its immediate environment.

2.11 **Category Grading** - trees have been categorised in accordance with the cascade chart set out within BS5837: 2012 `Trees in relation to design, demolition and construction. Recommendations'.

2.12 The trees inspected as part of this report were inspected from the ground only. No samples were taken for analysis. Observations were confined to what was visible from within the site and surrounding public places. A full hazard risk assessment of the trees was not undertaken.

Tree Schedule

Tree Ref No.	Species Common Name (Scientific Name)	Height (m)	Stem Diameter (mm) ***Root Protection Area (m^2)***	Radius of Root Protection Area zone (m)	Branch Spread (m)	Age Class	Physiological/ structural Condition	Comments ● Preliminary Management Recommendations within Current Environment	Estimated Remaining Useful Contribution (years)	Category Grading
T1	Sycamore (Acer pseudoplatanus)	12	429 est (6 x 175 mm diameter stems {mean}) **83.3**	5.1	N – 5.0 E – 5.5 S – 5.0 W – 5.0	MA	Fair/Fair	Multi-stem tree growing within paddock area. Upright form. Previously pruned. Wounds to south side of tree. Brambles and Holly to base of tree. Canopy to 1.8 m above ground level at lowest point over site (to north). • No preliminary management recommendations at time of survey.	10+	C1
T2	Elm (Ulmus spp)	8	240 **26.1**	2.9	N – 4.0 E – 3.0 S – 2.0 W – 2.5	MA	Fair/Fair	Some wounds to trunk. Growing to north. Moderate form. • Monitor condition of the tree and manage accordingly.	10+	C1
T3	Pedunculate Oak (Quercus robur)	12	573 (1 x 400 mm and 1 x 410 mm diameter stems) **148.6**	6.9	N – 6.0 E – 4.5 est S – 6.5 W – 5.0	MA	Fair/Fair	Multi-stem tree growing adjacent to boundary fence. Previously pruned – with some wound occluded. Some dieback in the crown. Canopy to 3.5 m above ground level at lowest point (to west). • Monitor condition of the tree and manage accordingly.	10+	C1

Tree Ref No.	Species Common Name (Latin Name)	Height (m) range	Stem Diameter (mm) **Root Protection Area (m^2)** *Radius of Root Protection Area zone (m)*	Branch Spread - general (max) **(m)**	Age Class (general)	Physiological/ Structural Condition (general)	Comments (general) ● Preliminary Management Recommendations	Estimated Remaining Useful Contribution (years)	Category Grading
G1	8 no. Leyland Cypress (x Cuprocyparis leylandii)	6-14	125 – 450 **7.1 – 91.6** *1.5 – 5.4*	N – 2.5 (3.5) E – 2.5 (3.5) S – 2.5 (3.5) W – 2.5 (3.5) all est	Y-M	Fair-Good/Fair	Growing closely together to site boundary. Probably planted as a hedge and allowed to establish as a high screen. Canopies to below 1.5 m above ground level at lowest point over application site. • Monitor condition of the trees and manage accordingly.	10+	C2
G2	3 no. Oak (Quercus spp), 4 no. Norway Spruce (Picea abies), 2 no. Lawson Cypress (Chamaecyparis lawsoniana) and 1 no. Yew (Taxus baccata)	4-14	150 – 460 **10.2 – 95.7** *1.8 – 5.5*	N – 1.0 (9.0) E – 2.0 (6.0) S – 2.0 (9.0) W – 2.0 (6.0) all est	Y-MA	Poor-Good/Poor-Good	Trees growing in a line along the site boundary. Some trees previously pruned. 1 no. Cypress has poor form and condition. The Yew is leaning to the north. Ivy to the trunks of some trees. • Recommend removal and replacement of poor quality Cypress.	Less than 10/10+/20+	U/C2/B2
G3	4 no. Pedunculate Oak (Quercus robur)	8-12	350 – 650 **55.4 – 191.2** *4.2 – 7.8*	N – 4.0 E – 5.5 S – 4.5 (5.0) W – 4.0 all est	MA-M	Fair/Fair	Trees of moderate form growing closely together. • Monitor condition of the trees and manage accordingly.	10+	C2

G4	1 no. Pedunculate Oak (Quercus robur) and 2 no. Horse Chestnut (Aesculus hippocastanum)	14	1130 – 1200 **577.7 – 651.5** *13.6 – 14.4*	N – 7.0 (8.0) E – 6.0 (7.5) S – 6.5 (8.0) W – 6.0 (8.0) all est	M/V	Fair-Good/Fair-Good	Trees growing together to the north of the site. Previously pruned. Some damage within the crowns which is to be expected of trees of this age and life stage. Wound to southern side of Horse Chestnut to south of group and damage to branch junction of Oak. • Monitor condition of the trees and manage accordingly.	20+	B2/B3
W1	Several trees including Holly (Ilex spp), Oak (Quercus spp), Sycamore (Acer pseudoplatanus), Pine (Pinus spp) and Hawthorn (Crataegus monogyna)	6-20	75 – 675 **2.5 – 206.1** *0.9 – 8.1*	N – 2.0 (8.0) E – 2.0 (8.0) S – 2.0 (8.0) W – 2.0 (8.0) all est	Y-M	Fair-Good/Fair-Good	Trees growing within a wooded area outside the site boundary. 1 no. Scots Pine to east side of area shows signs of decline – dieback and deadwood. • Monitor condition of the trees and manage accordingly	10+/20+	C2/B2