S1206-J2-R2

REPORT

regarding the impact on trees of proposals for a safety net

at

Strawberry Hill Golf Club, Wellesley Road, Strawberry Hill, Twickenham, TW2 5SD

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View of the site from the south

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Contents

1 Instructions

1.1

I am instructed by Tom Wessely of MZA Planning on behalf of clients to make an assessment of tree amenity value and condition of trees at Strawberry Hill Golf Club, Wellesley Road, Strawberry Hill, Twickenham, TW2 5SD and of the impact of a proposal for development (installation of safety netting) on such trees, and to supply an arboricultural methods statement and tree protection plan for use in informing a pre-application meeting with the local planning authority (LPA below). The design and access statement / design summary submitted by MZA Planning describes the scheme.

1.2 Officer comment

I note, as respects pre-application advice:

> There are no statutory tree protections at this site, nor are there any publicly owned trees at or immediately adjacent to this site. There is a row of large trees within and adjacent to the site along the subject boundary nearby the proposed netting.
>
> The documents submitted as part of this request have been reviewed by Council's Tree team. The document 'Report regarding the impact on trees of proposals for a safety net' S1206-J1-R2 identifies trees which require minor pruning works as a result of the proposal. These pruning works are anticipated to be acceptable.
>
> The nets would be supported on poles which would slot into concrete pads 600mm x 600 mm x 1500mm deep within the root protection areas of the retained trees 2, 3, 4, 5 and 6. These pads are to be installed flexibly based on trial hole assessments. We would wish to see the Arboricultural Method Statement stipulating that all work carried out within the Root Protection Area to be carried out under Arboricultural supervision and to accord with British Standard 5837:2012 Trees in relation to design, demolition and construction recommendations submitted with any future application.
>
> The report 'Preliminary Ecology Appraisal and Preliminary Roost Assessment' identifies that five new trees will be planted within the site. Information regarding these trees and their location within the site (shown on plans) should be included as part of any future planning application.

2 Executive summary

The impact on public amenity connected to how trees will be affected by the scheme is found to be negligible.

The scheme will require no trees to be removed.

All retained trees will be easily protected from harm during the project.

Officer concerns are addressed below, specifically at: 5.8 and 9.1, 9.4 and plans S1206-J2-P2 and P3 v1.

3 Introduction

3.1 The environmental role of Local Planning Authorities

LPAs play an important part in the almost continual balancing act that is part and parcel of contemporary local government. They regulate development in the interests of the community. Increasingly, the environment plays a role in our lives, and strongly affects our health, both mental and physical. This is typically recognised in planning policy determined by LPAs, and the formal planning guidance published by them. LPAs process planning applications in line with this policy and guidance.

3.2 British Standards

These continue to play a significant role in the quality of our lives in the UK, by defining minimum standards for many products, and making recommendations where precise, exhaustive specifications are not absolutely possible, for example with services.

3.3 British Standard 5837:2012 'Trees in relation to design, demolition and construction - Recommendations'

BS 5837:2012 (the Standard, below) is the fourth version in a series, the first being in 1980. This Standard provides a framework for the valuation, in ornamental terms, of trees, and gives recommendations for their protection on building sites.

3.4 How the Standard is used by an arboriculturist

It is used as a tool by an arboriculturist, who for the purposes of this type of professional activity, is someone who has, through relevant education, training and experience, gained expertise in the field of trees in relation to construction. This is the profession which is concerned, in a wider sense, with the care and cultivation of trees for amenity (all the benefits). An arboriculturist, then, uses the Standard:

a) to assess the value, in terms of amenity, of the trees on and adjoining a particular site, whether such trees are formally protected or not, for example by reason of being in a Conservation Area or because they are scheduled within a Tree Preservation Order. (Both of these provisions are part of the Town and Country Planning Act 1990, part VIII.);
b) secondly, to help assess the impact upon the trees of the proposal for development;
c) lastly, to give ways of protecting retained trees during construction, should the proposal receive planning consent.

3.5 How the arboriculturist prepares tree protection methods

In practice, as advances in materials and techniques are rapid, the arboriculturist does not necessarily specify a precise commercial product, but defines the essential components of methods of demolition and construction which often make use of specialized materials. These may be termed 'tree-friendly' methods, meaning that they have as their focus the well-being of the tree. These appear on the tree protection plan(s) appended, typically titled: 'Tree Retention and Tree Protection Measures', and within the text below.

3.6 Classification of trees

The Standard recommends a way of classifying trees when assessing their potential value in relation to proposed development. Value means (mainly) *visual* value to the general public. It also allows for other values to be considered such as historic or conservation value. Some surveys may not find any trees of one or more categories.

Table 1 describes, as: 'U', a low-value tree; denoted by a dark red outline on plans, the shape of the edge of the tree's crown typically more or less concentric to the trunk position.

It also shows 'A', 'B' and 'C', in descending merit:

- 'A' category, green crown outline, are trees of high vitality or good form, or of particular visual importance.
- 'B' category, blue crown outline, are good trees but may be of slightly poorer form or be not sited as importantly as 'A' category trees.
- 'C' category, grey crown outline are trees of no particular merit, but in adequate condition for retention.

A minimum expected safe useful life is also assessed. Please note that a low value tree may have a very long life expectancy. The two factors are only linked in that, for example, a very high value tree cannot also have a very low life expectancy.

3.7 Root protection area

'RPA' below. The RPA is a zone around the trunk of the tree, in which protective measures must be used in order to prevent significant damage to trees.

3.8 Use of appended plans

The appended plans have different applications:

- Plan reference no. S1206-J2-P1, shows the spread of the crowns (the upper, leaf-bearing part of trees), and is intended to indicate the relationship of any neighbouring trees to each other. This plan gives a quick reference assessment of value as per section 4, table 1, page 9 of the Standard.

- S1206-J2-P2 is the 'tree protection plan' (TPP) referred to in the Standard (section 3.11). It is colour-coded to indicate where tree-friendly methods are proposed during the overall construction process, which may involve demolition, main construction and landscaping phases.

- S1206-J2-P3 shows proposed planting positions (5 x 'A') as recommended.

4 Observations

4.1 Site visit

I visited the property on 21 November 2023 in order to carry out an inspection. Weather conditions were fair; they permitted adequate inspection.

4.2 Survey method

I used a tree mallet, spade, diameter tape, laser rangefinder, pocket retractable tape, binoculars, scaling pole, tree data recording software, pen, pencil and paper. No trees were climbed: inspection was from ground level.

4.3 Appraisal identification

My appraisals of observations, discussions and other data are italicised below, in each relevant section and paragraph. This emphasises the clear separation between data and opinion to assist the end-users: client, architect and LPA case and tree officers.

4.4 Amenity / Screening by trees and shrubs

The trees in the cohort are visible from Strawberry Hill Golf Course and from St. James Catholic Primary School, within the grounds of which they stand.

Certain trees listed are of some general amenity value. I do not consider any trees actually on the site to be of any significant general public amenity value, but some of those in the cohort are evidently of high local amenity value to owners / users of the site, and to a lesser extent to those of adjoining residential properties. (See cover photo / photos below).

4.5 Statutory constraints

The site is in the administrative area of London Borough Richmond Upon Thames.

According to the local authority website, the site does not stand within a Conservation Area.

No information on TPOs is available on the local authority website.

4.6 Soil assessment

The British Geological Survey (BGS) information for the area indicates that the underlying sub-soil is Kempton Park Gravel Member - sand and gravel overlying London clay formation-clay and silt.

Topsoil within the site appears to derive from the underlying subsoil. I saw no evidence of soil-stripping, trenching, or level-alteration in the recent past, nor did I observe any apparent compaction or drainage problems.

4.7 Measurements on site

Tree heights estimated by scaling pole.

Tree diameters measured as per the Standard, Annex C.

Tree spreads on the plans below are approximately to scale, determined on site, typically by laser rangefinder, direct measurement, pacing, sighting in relation to site features and architect-supplied plan data.

4.8 Tree data table

This is the core of the report in terms of site observations. In all cases, in the absence of negative comment below on health/vitality and structure of trees, normal physiological condition (health) and structural condition applies. Unless stated otherwise, 'tap tests' on the trunk-bases, etc., for the sonority typically associated with decay in trees were found to be normal. Unless stated otherwise, no signs of protected species were noted; for example, potential bat roost features (PRFs below). Where no height to lowest branch figure is given, the information appears completely irrelevant to planning determination. The matter of clearance above ground level is discussed under the individual tree entries if this is relevant to planning determination. (For information on other data in the columns, see section 3 above.)

Tree number	Tree type	Height (m)	Height to lowest branch (m)	Stem diameters (mm)	Radius of RPA if circle (mm)	RPA (m^2)	Comments	Life expectancy (years)	Assessed BS5837 value category
G1	Lawson cypress line	9		<300	3600	40.7	Not prominent in the landscape.	40+	C2
2	English oak	14	1.6	500, 350	7323	168.5	Crown biased towards the south-east; almost entirely overhanging the Course which is where the trunk is sited; heavy ivy infestation; low branches extend to 1.6m above ground level. Screening function.	40+	B1
3	common lime	14		750	9000	254.5	Outside the site. Regularly reduced in height and spread; little natural form remaining; only very slight contribution to the screen.	40+	C1
4	London plane	21	1.6	850	10200	326.9	Outside the site. Branch of importance about 300mm in diameter at point of origin on trunk, is 220mm in diameter at the relevant point (proposed line of safety net, 2.4m from the boundary fence). This branch, overhanging the course, has a natural arch in it, the underside of which is about 7.5m above ground level: minor branches proposed trimmed to accommodate the line of the fence preserving minor pendulous branches in front of the net as viewed from the Course.	40+	A2
5	silver lime	18		850	10200	326.9	Outside the site. Rather heavily reduced in height and spread but of some landscape importance and a contributor to the screen; usefully dense in crown character	40+	B1
6	English oak	15	7.5	950	11400	408.3	Outside the site. Reduced rather heavily in height and spread; a contributor to the screen. PRF in trunk on eastern side about 3m above ground level	40+	B1
7	small-leafed lime	17	4.0	950	11400	408.3	Outside the site. Good form	40+	A2

4.9 Photos

Note on photo labelling- the colour of the numeral identifying trees matches that used for the four BS 5837:2012 tree value categories (see 3.6 above)

Views of trees from the south

View of scaling pole establishing height of arch in major branch of tree 4 to which the proposed fence has been designed

View of site meeting with the writer (arboriculturist); golf club personnel, planning consultant and ecologist in frame

5 Arboricultural impact assessment (AIA)

5.1 RPAs – modifications to shape

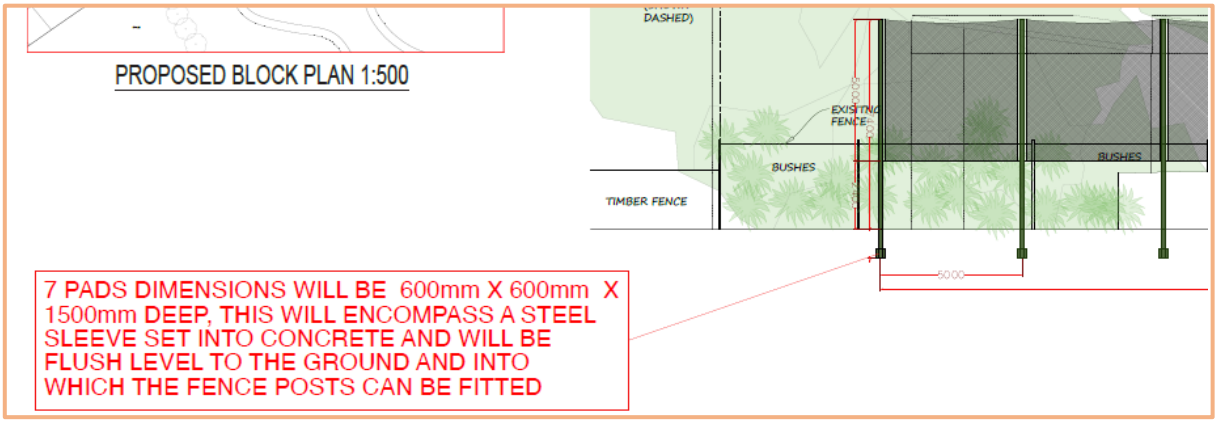
I carried out an assessment as per the Standard (section 4.6.2) in connection with the plotting of the RPAs of all trees. This section requires that site conditions such as the locations of various structures, the internal support mechanisms of various trees, etc., are taken into account in determining the likely position of roots. Adjoining structures and features have been noted in this respect. Where applicable, the modified-shape RPA, of equivalent area, has been plotted on the plans appended (shown as shapes bounded by an orange line). The subsoil is likely to be sand, typically a non-shrinkable medium.

The shapes of the root systems of trees have probably been affected by subsoil type. Gravel, and chalk soils typically limit downward penetration of roots. Other soils tend to be less modifying of root behaviour. Adjoining structures have likely not affected the RPAs, as indicated on plans. The factors above have no particular significance in connection with the impact assessment and TPP provided.

5.2 Roots and the design

It is usual for discussions between the arboriculturist and architect/designer to take place at an early stage following the arboriculturist's site survey. Modifications, minor or major, to the proposals as first received are typically discussed, with a view to promoting tree retention and health. I discussed with Golf Club officials and the design support team, on site and thereafter, certain features of the scheme in this case. The outcome of these discussions (minor modifications to footing design) is incorporated in the proposal considered here.

Extracts below from MZA Planning drg 531-EXT-02:



PLEASE NOTE: LOCATION OF PADS TO BE FLEXIBLE, IN HARMONY WITH ARBORICULTURISTS METHOD STATEMENT (AMS), WITHIN (AN APPROPRIATE DIMENSION, FOR EXAMPLE 500MM ALONG THE LINE OF FENCE)

5.3 The static root plate (SRP) compared with RPA

SRP is an abbreviation for static root plate, (Mattheck, 1991, etc.) and means the structurally significant roots nearest the trunk: the principal roots that hold the tree upright. This is derived from a radial dimension based on trunk diameter near ground level. The RPA is a guide to where physiologically significant roots, those necessary for, primarily, water uptake, are likely to be located.

5.4 Assessment of SRP/RPA encroachment by dwelling/structure footprint

No encroachment on the SRP of any retained tree is entailed. Negligible encroachment on the RPA of certain retained trees is entailed, as analysed in the table below:

Tree no.	Tree	RPA area (m^2)	Area affected (m^2)	% affected	Notes
2	English oak	168.52	0.16	0.09%	foundation pads for fence (cyan fill on plan-indicative locations)
3	common lime	254.47	0.16	0.06%	
4	London plane	326.85	0.48	0.15%	
5	silver lime	326.85	0.48	0.15%	
6	English oak	408.28	0.48	0.12%	

In this case all trees to be retained will, in addition to the tiny areas of encroachment, be further protected by tree-friendly methods as proposed below to reduce impacts on root systems of retained trees.

5.5 Perception of trees by building users

The proposed structure is not habited.

In view of the above I conclude that shading by and perception of trees have been considered (as the Standard (sections 5.3.4 and 5.6.2.6) recommends) and are not negative factors.

5.6 Superstructure and tree appraisal – tree pruning

In accordance with the Standard, section 4.4.2.5 (f), I note from the drawings supplied that no significant encroachment by the superstructure on the crowns of retained trees will occur. I noted that the form of the trees is such that only minor branches require pruning. If this is in accordance with the schedule, it will have no significant effect on the form or public amenity value of the trees. It should be noted that it is the view of the Golf Club that retention of as much of the natural screening provided by the trees is highly desirable.

The species involved all respond well to pruning. The pruning required can easily be addressed by tree surgery in accordance with the Standard (section 5.3.4 (c) NOTE 2, section 7.7.3, etc.), *and is within the bounds of good arboricultural practice.*

(See British Standard 3998:2010 'Tree work – Recommendations'.) A schedule for the use of a contractor appears within the AMS below.

5.7 Access clearance

I note from my site visit and the plans received that no retained tree conflicts with pedestrians, construction traffic, nor end-user vehicles, such as golf buggies or maintenance vehicles.

5.8 Planting

Please see tree data table above for comments on the individual trees proposed for removal. See plan S1206-J2-P3 for the locations of proposed planting, which is particularly suited to the soil type:

A = small-leafed lime (*Tilia cordata* 'Greenspire') 6-8cm girth, 15L pot (2 no.)
B = crab apple (*Malus* 'Golden Hornet' 6-8cm girth, 15L pot
C = thorn (*Crataegus persimilis* 'Prunifolia' 6-8cm girth, 15L pot (2 no.)

The soil type indicated by BGS data and soil condition as appraised places no significant constraint on species selection for tree and other planting. Overall, appropriate replacement tree planting will play some role in providing for future mainly local amenity.

5.9 Policy compliance

The LPA website was searched for relevant policy documents and supplementary planning documents (SPDs). I am aware of

- London Borough of Richmond Upon Thames Local Plan (adopted 2018)
- Design Quality SPD

It is of course ultimately for planners to determine compliance with planning policy.

I submit that the proposals in this report, encompassing tree protection methods in accordance with the principles of British Standard 5837:2012, will, if implemented, facilitate fair compliance with relevant policies relating to trees.

6 Conclusion

6.1 Summary

I conclude that the impact by the scheme proposed on the amenity provided by trees, subject to implementation of the arboricultural method statement's contents, will, overall be negligible.

6.2 Note to LPA

I invite the LPA to consider, if it is minded to grant consent, the incorporation of the specific *order of implementation* of the **Arboricultural method statement** below into any Conditions applied. Such measures are likely to maximise tree protection. Finalised details of tree-handling on site during construction is typically a matter requiring the input of a contractor perhaps within CDM regulations, and these matters in practice almost always follow planning consent, as it is typical for no contractor to have been appointed prior. The writer is willing to prepare a Construction Issue version of the AMS in due course, if required.

7 Sources and relevant documents used

- Ground-level inspection
- Supplied plans:
    - MZA Planning drg. no.: 531-EXT-02

8 Copyright

Copyright of the report above is retained by the writer. It is a report for the sole use of the client(s) named above. It and associated plans may be copied and used by the client and the LPA in connection with the above instruction only. Its reproduction or use in whole or in part by anyone else without the written consent of the writer is expressly forbidden. The AMS below, including schedule of tree work and the plan or plans, may be reproduced to contractors for the purpose of tendering, and for setting out and maintaining tree protection measures on site.

9 Arboricultural method statement (AMS)

9.1 Overview

The methods required involve not only physical arrangements on site but effective administration prior to implementation. Trees that have been the recipients of careful handling during construction add considerably to the appeal and value of the finished development. If conflicts between any part of a tree and the building(s) arise in the course of building works these can often be resolved quickly and at little cost if an arboriculturist is consulted promptly. Lack of such care is often apparent quickly and decline and death of such trees can wreck design aims. It can of course also affect saleability, and reflects poorly on the construction and design personnel involved.

I propose that arboricultural administration takes place as outlined below. Needless to state the MC must fully comply with these proposals for them to be effective. This involves proper initial contact with the retained arboricultural consultant, followed by persisting contact, throughout the contract, until at least late landscaping stage. All works to be carried out in accordance with BS 3998:2010 'Tree Work - Recommendations', and, as appropriate, where within RPAs, British Standard 5837:2012 'Trees in relation to design, demolition and construction - Recommendations'.

9.2 Administration

A. Identification of key personnel in order of responsibility for tree protection on site

Role	Name	Company	E-mail	Mobile	Landline
main contractor	Cambridge Fencing		info@cambridgefencingservices.co.uk	07811 123 763	020 8943 2844
arboriculturist	John Cromar	John Cromar's Arboricultural Co. Ltd.	johncromar@treescan.co.uk	07860 453072	01582 808020
planning consultant	Tom Wessely	MZA Planning	office@mzaplanning.com		020 8995 7848

B. Induction and personnel awareness of arboricultural matters

Prior to commencement a meeting will be held on site between the arboriculturist and the site manager (who will be required to sign the awareness document 9.4 below) and during which meeting all the tree protection methods, materials, order and integration with the build programme will be considered. This document, confirming awareness on the part of personnel of the various items, will be retained for the LPA.

C. Inspection of and supervision schedule for tree protection measures, frequency and methods of site visiting and record keeping

At site possession, the tree protection measures applicable to the works, as detailed in this report will be inspected by the arboriculturist and signed off if compliant. An initial inspection will take place; a monthly inspection will take place routinely; unannounced site inspections may also be carried out. Additionally, the arboriculturist shall attend site as required by architect, or site agent, or the LPA. *All reports on site visits to be copied to the LPA within 5 days of site visit.* These reports to be compiled,

and an end of project summary produced, together with any recommendations for future action.

D. Procedures for dealing with variations and incidents

As C above. Additionally, the architect shall inform the arboriculturist of any design variations or variation intention of tree protection; also, the site manager shall inform the arboriculturist if he intends to vary or deviate from the agreed tree protection methods or timing. Action in response to incidents will be commensurate with and appropriate to the nature of any such incident.

E. The order of work on the site, including demolition, clearance and building

As per tree protection methods below.

F. How problems will be reported and solved

Any breaches of tree protection measures shall constitute a Tree-Related Incident ('TRI'), a report on which will be copied to architect, client and LPA. A remedial action notice will be served by the arboriculturist and copied to all parties. Timescales for remediation completion shall be monitored. *All reports on site visits will be copied to the LPA within 5 days of site visit.* Action in response to incidents will be commensurate with and appropriate to the nature of any such incident. Any breach of the stipulated timescale for remediation will trigger a further TRI report.

G. How accidents and emergencies involving trees will be dealt with

Dependent on nature of incident; as above; an e-mail with photographic inclusion will be sent by the site agent. The arboriculturist or staff will attend site to appraise the situation and determine remedial action. A TRI report will be issued, as above.

9.3 Implementation on site

It is proposed that the methods specified below are followed in their entirety. Please note that the methods are referenced by various colours, lines and hatches on the tree protection plans appended. The scale of the plans is dependent on the paper size on which any hardcopy is produced.

It is highly important to tree health and vitality that construction activities are carried out strictly in accordance with the tree-friendly construction methods below. It is widely not understood outside the arboricultural profession, for example, that a single traverse of a root protection area by a mechanical excavator can cause significant and permanent damage to trees, even if this is not visible immediately afterward.

N.b. The methods below are intended to be read not only by the instructing client, but also by all others concerned with processing and determining of the application. Following planning approval, the methods are finally intended for full implementation on site by the main contractor. Familiarity with building techniques is, naturally, assumed.

I will of course explain any unfamiliar term – see contact details on cover page, and at the end of the report.

9.4 Tree-friendly construction methods and awareness document

Section 9.4 including all the methods below should be printed out; the plans to full scale, and kept readily to hand on site. (To be read and duly completed:) I the undersigned builder / site agent / main contractor have been given a copy of the tree protection measures reproduced below and the plans S1206-J2-P1 v1, S1206-J2-P2 v1 and S1206-J2-P3 v1 with which they are to be read. I have studied these tree protection measures on site with the arboriculturist. I have asked questions if I have been unsure about the practicability or safety of any measure. Any queries arising have been resolved. I see no reason why the tree protection should not be implemented as outlined below and undertake to take all reasonable steps within my remit to promote their installation and retention for the duration required, as outlined below.

There are 6no. methods in this set, to be implemented in the order given unless stated otherwise.

PREPARATION / DEMOLITION

Please read with tree protection plan, S1206-J2 P2, appended.

Method 1: ***SCHEDULE OF TREE WORK (Aim of method: to ensure only appropriate tree work is carried out)*** This work shall be carried out under an arboriculturist's supervision. Tree work shall be in accordance with the schedule below, and to BS 3998:2010 'Tree Work - Recommendations'. Heights are in metres; diameters are in millimetres.

Tree number	Tree type	Height (m)	Height to lowest branch (m)	Stem diameters (mm)	Comments
4	London plane	21	1.6	850	The branch of importance is about 300mm in diameter at point of origin on trunk, and is about 220mm in diameter at the relevant point (proposed line of safety net, 2.4m from the boundary fence). This branch, overhanging the course, has a natural arch in it, the underside of which is about 7.5m above ground level: Remove minor branches (less than about 50mm diameter) to accommodate the line of the proposed netting, the top of which is designed to lie immediately under the arch, preserving carefully all minor pendulous branches to the south-east of the line of the net, that is, in front of the netting-line as viewed from the course.
5	silver lime	18	7	850	Prune to clear 7.5m above ground level in the zone 2.4m to 3m to the south-east of the boundary fence. (Minor branches only require pruning)
6	English oak	15	5	950	

NOTES:

- In Conservation Areas, in accordance with TCP Act 1990 Section 211, a formal notification to the LPA is required of intention to prune or remove any trees, where these actions are not strictly required for the construction proposed to take place. 42 days after formal notification should be allowed before proceeding with the notified

work, during which time (and after) the LPA may place a Tree Preservation Order (TPO) on the tree, thus requiring a formal application for any works to living wood.
- If a tree is the subject of a TPO a formal application must be made to the LPA for consent for any work to the living wood of trees, if that work is not strictly required for the construction proposed to take place.
- The Wildlife and Countryside Act 1981 protects with certain exceptions all birds and their nests. It is an offence to destroy such nests or take or injure such birds in the course of tree works operations.
- If a tree is a bat-roost, a licence to work on the tree must first be obtained from the relevant Statutory Nature Conservation Organization (in England: Natural England 0845 601 4523.) Acting without a licence is likely to be justifiable only in acute emergencies threatening human life and where all other legally available option such as footpath diversion, fencing and warning signs cannot be applied.

Arisings shall be chipped and removed from site, or stockpiled outside RPAs for possible later use as mulch. No vehicles shall stand or operate in any of the RPAs of retained trees. Any traversing of RPAs shall be preceded by laying of temporary trackway, such as TuffTrak® Euromat ground guards or similar appropriate temporary trackway sections. The temporary trackways shall be fixed together with manufacturers' approved fixings. This protective layer shall stay in place throughout arboricultural site preparation phase. Alternatively, tree pruning operations shall be carried out with foot access only.

Method 2: ***GROUND SURFACE HANDLING and PROTECTION (Aim of method: to provide protection for roots during preparation and construction)***
This work shall be carried out under an arboriculturist's supervision. This method shall apply in the zone hatched blue on plan. NO levels reduction shall take place. This includes no 'scraping up' with a mechanical excavator or otherwise. An impermeable membrane of HDPE shall be laid. Continuously abutted scaffold boards or manufactured boards shall be laid so as to completely cover this area. This area shall be used for pedestrian access only.

OR

To handle loads imposed by pedestrian-operated plant up to 1 tonne gross weight, an impermeable membrane of HDPE shall be laid. Continuously abutted scaffold boards and a layer of manufactured board at least 25mm thick screwed to the underlying scaffold boards shall be laid.

OR

To handle loads exceeding 2 tonnes an impermeable membrane of HDPE shall be laid. The ground surface shall be covered with TuffTrak® Euromat ground guards or similar appropriate temporary trackway sections. The temporary trackways shall be fixed together with manufacturers' approved fixings. On completion of build phase the ground guards shall be lifted by hand or by plant standing outside the zone.

Any scaffold erection or building tower shall take its bearing directly off the ground surface via spreader plates/scaffold boards. All concrete mixing, materials storage and handling shall take place within this zone.

Method 3: *ACCESS WAY DEFINITION*

This work shall be carried out under an arboriculturist's supervision, where within RPAs. This method applies as per the layout shown on plans (red dotted lines), and is to define the contractor access route, prevent unnecessary straying into root protection areas and minimise landscape disturbance.

- 100mm diameter tops fencing stakes placed at 4m intervals shall be driven at least 0.3m into ground.
- Plastic barrier material 1m in height (see right) shall be stapled to the stakes.

CONSTRUCTION

Method 4: *ROOT PRUNING (Aim of method: to limit and control root cutting during below-ground installation/construction)*

This work shall be carried out under an arboriculturist's supervision. This method shall apply within only the RPAs (orange shapes/circles) of trees nos. 2, 3, 4, 5, 6.

N.b. The precise location of pads for fence posts is flexible within 500mm in either direction along the line of the fence, as confirmed by contractor. In the uppermost 600mm of topsoil/subsoil probes such as screwdrivers or steel rod <10mm diameter to determine root presence ahead of digging shall be used. The work shall proceed cautiously with hand tools only. No roots over 20mm diameter shall be cut. Roots 20mm or more in diameter unearthed shall be temporarily protected with bubble-wrap and insulating or gaffer tape while rest of hole is dug. It shall be borne in mind that the presence of large numbers of roots >20mm in diameter may effectively prevent completion of trial pit, as this would be sufficient reason to terminate the operation and consider its purpose complete or would entail the moving of the trial pit to a different location, as outlined above. If a root > 20mm diameter is inadvertently damaged, it shall be retained *in situ* for appraisal by the arboriculturist. Trial pits to determine suitable pad locations shall be taken to 0.6m below ground level. When trial pits are complete and pad locations have been fixed, the whole area shall be treated as per Method 2 above. The pit shall be lined with an impermeable membrane to prevent contact between wet concrete and root-bearing soil. The concrete pads shall be cast, and the post and fence superstructure put in place.

LATE CONSTRUCTION and LANDSCAPING PHASE

Method 5: *TREE PLANTING AREAS (Aim of method: to ensure thrift of new planting)*

This method shall apply after completion of main build only. Ground preparation for tree planting areas shall entail removal of hard surfacing using hand tools or hand-held power tools only, the removal of degraded or compacted or contaminated soil to a depth of at least 0.45m below finished surrounding ground level. The base and sides of the pit shall be forked over to at least one hand fork's spit in depth. Screened topsoil (to BS3882: 2015 topsoil) with biochar (such as https://www.soilfixer.co.uk/biochar-article) - 5% of the topsoil volume shall be used as planting medium. This equates to about 20 kgs of product per cubic metre of topsoil (to BS3882: 2015 topsoil) to a maximum depth of 0.45m within 1.3m of the trunk location of each tree to be planted. Soil handling of any kind shall take place only after a minimum of 3 days after heavy rain, and shall where possible be carried out 7 days or more

after such rainfall. Tree planting shall be in accordance with British Standard 8545:2014 'Trees: from nursery to independence in the landscape - Recommendations'. - Recommendations' ('the Standard' below). This enshrines good arboricultural practice: the tree shall be planted so that the root collar lies at finished ground level, shall be short-staked and tied with proprietary tree tie or otherwise stabilised in accordance with the Standard, section 10.5. The ground surface shall be mulched within 0.75m of the trunk location in accordance with the Standard, section 11.5.7, with composted organic material.

Any whips shall similarly be planted so that the root collar lies at finished ground level, and shall be protected with proprietary growing tube (staked). The ground surface shall be mulched within 0.75m of the trunk location in accordance with the Standard, section 11.5.7, with composted organic material.

Method 6: *LANDSCAPING PREPARATION IN ROOT PROTECTION AREAS (Aim of method: to ensure thrift of topsoil)*

This work shall be carried out under an arboriculturist's supervision. This method shall apply after completion of the construction. Operations shall take place only after a minimum of 3 days after heavy rain, and shall where possible be carried out 7 days or more after such rainfall. Ground preparation within root protection areas shall entail use of hand tools only. The ground surface shall be thoroughly hand-forked over in vertical mode only to one spit's depth (250mm). Care shall be taken not to damage tree roots greater than 20mm diameter. The finishing soil horizon where additional planting medium is required shall be composed of biochar (see: https://www.soilfixer.co.uk/biochar-article) mixed with topsoil (to BS3882:2015 topsoil) - 5% by volume (equating to 20 kgs of product per cubic metre of topsoil), which shall be laid by hand-barrow: no mechanical plant shall over-run the loose-tipped material. All handling of soils/soil-mix shall take place only after a minimum of 3 days after heavy rain, and shall where possible be carried out 7 days or more after such rainfall. The mix shall be laid to finish to required levels and allowed to settle via mist irrigation / watering-in / natural rainfall. The ground surface shall be worked to a fine tilth with hand tools prior to any planting. No mechanical compaction whatever shall be used. Levelling and minimal consolidation shall be by hand tools / foot and board only, or naturally.

(All design subject to engineering approval, but used on other sites and known to be practicable and reliable).

Name [print]:

For construction company:

Date:

Signature……

S1206-J2-R2

End of section 9.4 document

End of main body of report – plans appended.

Dated: 30th July 2024

Signature (for John Cromar's Arboricultural Co. Ltd.)

John Cromar

Dip. Arb. (RFS), FArborA

JOHN CROMAR'S
ARBORICULTURAL
COMPANY LTD

www.treescan.co.uk
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01582 808020
07860453072

10 Plans

N.b. The scale of the plans is dependent on the paper size on which any hard copy is produced.

S1206-J2-P1 v1

S1206-J2-P2 v1

S1206-J2-P3 v1

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KEY TO COLOURS / LINETYPES USED IN RELATION TO TREES

GREEN - High Value (A)
BLUE - Moderate Value (B)
BLACK - Low Value (C)
RED - Very short life expectancy (U)
ORANGE SHAPES: Root Protection Areas

Spread and trunk colours correspond directly to those used in British Standard 5837:2012, Table 2.

TOOTHED LINE: Tree spread line

DRG. NAME
TREE VALUE ASSESSMENT (AS PER BS 5837:2012) & ROOT PROTECTION AREAS

NOTES
Do not use for setting out purposes.
All dimensions to be checked on site.

Any scale referenced below applies **ONLY** when plan **printed at ISO A1 size.**

The original of this drawing was produced in colour - a monochrome copy should not be relied upon.

TEXT
FOR FULL DETAILS OF TREE VALUE PLEASE SEE REPORT

BASED ON
MZA PLANNING DRG. NO.:
531-EXT-02 SUPPLIED

SITE ADDRESS
Strawberry Hill Golf Club, TW2 5SD

DRG. REF.	REV. NO.
S1206-J2-P1	v1
SCALE & SIZE	DATE
1:200 @ A1	29-Jul-24

0 5 10

The methods below typically each have a unique colour code and hatch or other reference to the plan, for example, pink lines indicate where fences to protect trees should be positioned.

PREPARATION / DEMOLITION

Method 1: ***SCHEDULE OF TREE WORK***
Tree work shall be in accordance with the schedule within report and to BS 3998:2010 'Tree Work - Recommendations', and in accord with spread line(s) marked on plan.

Method 2: ***GROUND SURFACE HANDLING and PROTECTION (Aim of method: to provide protection for roots during preparation and construction)***

This work shall be carried out under an arboriculturist's supervision. This method shall apply in the zone hatched blue on plan. NO levels reduction shall take place. This includes no 'scraping up' with a mechanical excavator or otherwise. An impermeable membrane of HDPE shall be laid. Continuously abutted scaffold boards or manufactured boards shall be laid so as to completely cover this area. This area shall be used for pedestrian access only.

OR

To handle loads imposed by pedestrian-operated plant up to 1 tonne gross weight, an impermeable membrane of HDPE shall be laid. Continuously abutted scaffold boards and a layer of manufactured board at least 25mm thick screwed to the underlying scaffold boards shall be laid.

OR

To handle loads exceeding 2 tonnes an impermeable membrane of HDPE shall be laid. The ground surface shall be covered with TuffTrak® Euromat ground guards or similar appropriate temporary trackway sections. The temporary trackways shall be fixed together with manufacturers' approved fixings. On completion of build phase the ground guards shall be lifted by hand or by plant standing outside the zone.

Any scaffold erection or building tower shall take its bearing directly off the ground surface via spreader plates/scaffold boards. All concrete mixing, materials storage and handling shall take place within this zone.

Method 3: ***ACCESS WAY DEFINITION***

This work shall be carried out under an arboriculturist's supervision, where within RPAs. This method applies as per the layout shown on plans (red dotted lines), and is to define the contractor access route, prevent unnecessary straying into root protection areas and minimise landscape disturbance.

- 100mm diameter tops fencing stakes placed at 4m intervals shall be driven at least 0.3m into ground.
- Plastic barrier material 1m in height shall be stapled to the stakes.

CONSTRUCTION

Method 4: ***ROOT PRUNING (Aim of method: to limit and control root cutting during below-ground installation/construction)***

This work shall be carried out under an arboriculturist's supervision. This method shall apply within only the RPAs (orange shapes/circles) of trees nos. 2, 3, 4, 5, 6.

N.b. The precise location of pads for fence posts is flexible within 500mm in either direction along the line of the fence, as confirmed by contractor. In the uppermost 600mm of topsoil/subsoil probes such as screwdrivers or steel rod <10mm diameter to determine root presence ahead of digging shall be used. The work shall proceed cautiously with hand tools only. No roots over 20mm diameter shall be cut. Roots 20mm or more in diameter unearthed shall be temporarily protected with bubble-wrap and insulating or gaffer tape while rest of hole is dug. It shall be borne in mind that the presence of large numbers of roots >20mm in diameter may effectively prevent completion of trial pit, as this would be sufficient reason to terminate the operation and consider its purpose complete or would entail the moving of the trial pit to a different location, as outlined above. If a root > 20mm diameter is inadvertently damaged, it shall be retained *in situ* for appraisal by the arboriculturist. Trial pits to determine suitable pad locations shall be taken to 0.6m below ground level. When trial pits are complete and pad locations have been fixed, the whole area shall be treated as per Method 2 above. The pit shall be lined with an impermeable membrane to prevent contact between wet concrete and root-bearing soil. The concrete pads shall be cast, and the post and fence superstructure put in place.

LATE CONSTRUCTION and LANDSCAPING PHASE (see also plan S1206-J2-P3)

Method 5: ***TREE PLANTING AREAS (Aim of method: to ensure thrift of new planting)***

This method shall apply after completion of main build only. Ground preparation for tree planting areas shall entail removal of hard surfacing using hand tools or hand-held power tools only, the removal of degraded or compacted or contaminated soil to a depth of at least 0.45m below finished surrounding ground level. The base and sides of the pit shall be forked over to at least one hand fork's spit in depth. Screened topsoil (to BS3882: 2015 topsoil) with biochar (such as https://www.soilfixer.co.uk/biochar-article) - 5% of the topsoil volume shall be used as planting medium. This equates to about 20 kgs of product per cubic metre of topsoil (to BS3882: 2015 topsoil) to a maximum depth of 0.45m within 1.3m of the trunk location of each tree to be planted. Soil handling of any kind shall take place only after a minimum of 3 days after heavy rain, and shall where possible be carried out 7 days or more after such rainfall. Tree planting shall be in accordance with British Standard 8545:2014 'Trees: from nursery to independence in the landscape - Recommendations', - Recommendations' ('the Standard' below). This enshrines good arboricultural practice: the tree shall be planted so that the root collar lies at finished ground level, shall be short-staked and tied with proprietary tree tie or otherwise stabilised in accordance with the Standard, section 10.5. The ground surface shall be mulched within 0.75m of the trunk location in accordance with the Standard, section 11.5.7, with composted organic material.

Any whips shall similarly be planted so that the root collar lies at finished ground level, and shall be protected with proprietary growing tube (staked). The ground surface shall be mulched within 0.75m of the trunk location in accordance with the Standard, section 11.5.7, with composted organic material.

Method 6: ***LANDSCAPING PREPARATION IN ROOT PROTECTION AREAS (Aim of method: to ensure thrift of topsoil)***

This work shall be carried out under an arboriculturist's supervision. This method shall apply after completion of the construction. Operations shall take place only after a minimum of 3 days after heavy rain, and shall where possible be carried out 7 days or more after such rainfall. Ground preparation within root protection areas shall entail use of hand tools only. The ground surface shall be thoroughly hand-forked over in vertical mode only to one spit's depth (250mm). Care shall be taken not to damage tree roots greater than 20mm diameter. The finishing soil horizon where additional planting medium is required shall be composed of biochar (see: https://www.soilfixer.co.uk/biochar-article) mixed with topsoil (to BS3882:2015 topsoil) - 5% by volume (equating to 20 kgs of product per cubic metre of topsoil), which shall be laid by hand-barrow: no mechanical plant shall over-run the loose-tipped material. All handling of soils/soil-mix shall take place only after a minimum of 3 days after heavy rain, and shall where possible be carried out 7 days or more after such rainfall. The mix shall be laid to finish to required levels and allowed to settle via mist irrigation / watering-in / natural rainfall. The ground surface shall be worked to a fine tilth with hand tools prior to any planting. No mechanical compaction whatever shall be used. Levelling and minimal consolidation shall be by hand tools / foot and board only, or naturally.

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KEY TO COLOURS / LINETYPES USED IN RELATION TO TREES

GREEN - High Value (A)
BLUE - Moderate Value (B)
BLACK - Low Value (C)
RED - Very short life expectancy (U)
ORANGE SHAPES: Root Protection Areas

Spread and trunk colours correspond directly to those used in British Standard 5837:2012, Table 2.

PROPOSED NEW PLANTING:
Where applicable, this is indicated by green stipple within roundels (trees) or other shapes, e.g., for hedges. For key to the letters designating locations, please see report.

DRG. NAME
TREE RETENTION & TREE PROTECTION MEASURES

NOTES
Do not use for setting out purposes.
All dimensions to be checked on site.

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TEXT
FOR FULL METHOD DETAILS PLEASE SEE REPORT

BASED ON
MZA PLANNING DRG. NO.: 531-EXT-02 SUPPLIED

SITE ADDRESS
Strawberry Hill Golf Club, TW2 5SD

DRG. REF.	REV. NO.
S1206-J2-P2	v1
SCALE & SIZE	DATE
1:200 @ A1	29-Jul-24

0 5 10

LATE CONSTRUCTION and LANDSCAPING PHASE (see also plan S1206-J2-P2)

Method 5: ***TREE PLANTING AREAS (Aim of method: to ensure thrift of new planting)***

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Method 6: ***LANDSCAPING PREPARATION IN ROOT PROTECTION AREAS (Aim of method: to ensure thrift of topsoil)***

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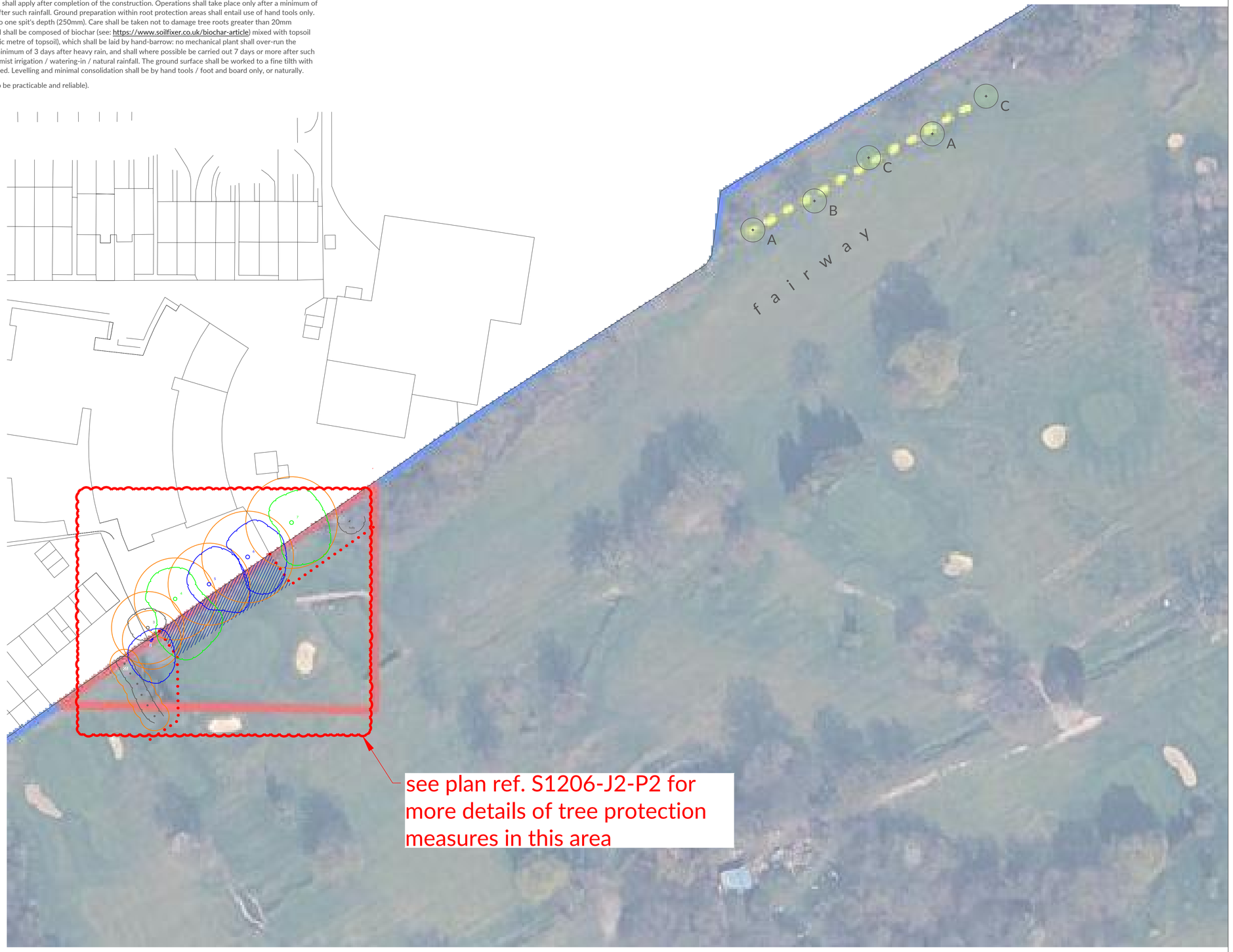

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Spread and trunk colours correspond directly to those used in British Standard 5837:2012, Table 2.

PROPOSED NEW PLANTING:
Where applicable, this is indicated by green stipple within roundels (trees) or other shapes, e.g., for hedges. For key to the letters designating locations, please see report.

DRG. NAME
TREE RETENTION & TREE PROTECTION MEASURES (Proposed Planting)

NOTES
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TEXT
FOR FULL METHOD DETAILS PLEASE SEE REPORT

BASED ON
MZA PLANNING DRG. NO.: 531-EXT-02, ARBTECH PEA RPT APPENDIX 5 SUPPLIED

SITE ADDRESS
Strawberry Hill Golf Club, TW2 5SD

DRG. REF.	REV. NO.
S1206-J2-P3	v1
SCALE & SIZE	DATE
1:500 @ A1	29-Jul-24

0 20