MDJ ARBORICULTURAL CONSULTANCY LIMITED

Institute of Chartered Foresters

Arboricultural ASSOCIATION Professional Member

ARBORICULTURAL IMPACT ASSESSMENT

Sheldon House, Cromwell Road, Teddington, TW11 9EJ

Prepared For: RHP Develop Limited

For submission to: London Borough of Richmond Upon Thames

Reference: MDJAC-22.143-AIA-01

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EXECUTIVE SUMMARY

S1. This Arboricultural Impact Assessment (AIA) has been instructed by RHP Develop Limited. This report is intended to be submitted to London Borough of Richmond upon Thames as part of the supporting technical information for a planning application and has been prepared in accordance with British Standard BS5837:2012 *'Trees in relation to design, demolition and construction – Recommendations'*.

S2. I am in receipt of a screenshot of the London Borough of Richmond upon Thames interactive TPO map of the site and surrounding area. This suggests that one off-site sweet chestnut (T9) is protected as designation 'T69' of TPO reference T0015. The site is not within a designated conservation area.

S3. A total of six individual trees and one group of trees will be removed as part of the proposed re-development. The principal arboricultural features of the site, set out at **Table 2** above, will be retained. The removal of the trees identified for removal will not result in the loss of trees of high amenity value or trees which make an essential contribution to the street scene and will not result in a significant, long-term or irreversible impact on the arboricultural character of the site. Therefore, the proposals comply with local planning policies contained within The London Plan 2021, and the London Borough of Richmond upon Thames Local Plan 2018 in this regard.

S4. The proposed pruning is minor in extent and will not have a significant adverse impact on the physiology, morphology or stability of the four trees shown at ***Table 5***. All work will be undertaken in accordance with the recommendations set out in British Standard BS 3998:2010 '*Tree work – Recommendations*'.

S5. The pruning will go largely unnoticed from the surrounding publicly accessible locations and will be screened by either the remainder of the tree's canopy, or the canopies of the surrounding specimens. Once the pruning has been completed, no buildings, structures or areas of hard surfacing will be within 2m of the extents of the retained trees.

S6. Assessment of the current physiological condition of the subject trees, their relative tolerance of root pruning and disturbance, existing and proposed finished levels, and the protective measures prescribed above, suggests that there will be no lasting or irreversible damage to the trees to be retained, subject to full compliance with the TPP at **Appendix 2**.

S7. In light of my assessments, there is no reason to suggest that the construction of the new block and its associated communal gardens will result in an unsustainable relationship with the retained tree stock, despite their proximity.

S8. Based on the above considerations, I conclude that the overall arboricultural magnitude of the proposed scheme is **low**, as defined at **Table 1**. There will be minor alterations to the existing tree stock, but the principal arboricultural features of the site will be retained and protected throughout. Consequently, the post-planning context will be comparable to the existing.

1 INTRODUCTION

1.1 INSTRUCTION

1.1.1 This Arboricultural Impact Assessment (AIA) has been instructed by RHP Develop Limited.

1.2 TERMS OF REFERENCE (TOR)

1.2.1 This report is intended to be submitted to London Borough of Richmond upon Thames as part of the supporting technical information for a planning application and has been prepared in accordance with British Standard BS5837:2012 *'Trees in relation to design, demolition and construction – Recommendations'*.

1.2.2 The agreed scope of work is outlined below:

1. To undertake a site visit and tree inspection of the trees within influencing distance of the proposals, in accordance with BS5837:2012;
2. To produce a package of documents to enable the design team to produce a site layout that respects the above and below ground constraints associated with the existing tree stock; and
3. To produce this arboricultural impact assessment; identifying the impact of the proposals and what working methodologies or protection measures should be adhered to, to ensure successful integration of the proposals into the existing landscape.

1.2.3 This report should be read in conjunction with the documents and plans listed below for context:

- The tree survey schedule (ref. MDJAC-22.143-TSS-01); and
- ACS Trees Tree Survey Schedule

1.3 AUTHOR

1.3.1 I am Matthew Jones BSc (Hons), MArborA, the Director and Principal Arboriculturist of MDJ Arboricultural Consultancy Limited.

Formal qualifications

1.3.2 I hold a Bachelor of Science Degree with Honours in Arboriculture and Urban Forestry, awarded by The University of Central Lancashire (UCLan) in 2022. This is a top up degree following successful completion of a Foundation Degree in Arboriculture, also awarded by UCLan in 2020. I have also completed the National Diploma (RQF Level 3) in Arboriculture and Forestry at Merrist Wood College, Guildford in 2009.

Industry-related accreditations

1.3.3 During the course of my career I have attended various CPD events and courses. I hold the Professional Tree Inspection accreditation awarded by LANTRA and I am a registered user of The International Society of Arboriculture (ISA) Tree Risk Assessment Qualification (TRAQ) methodology.

Professional memberships

1.3.4 I am a Professional Member of the Arboricultural Association (The AA) and an Associate Member of The Institute of Chartered Foresters (The ICF). I am therefore bound by the code of ethics and required to uphold the professional standards expected of both professional bodies.

Overview

1.3.5 I am regularly instructed to carry out appraisals of various sizes of tree stocks in relation to development, health and safety considerations, and the potential impact of trees on the built environment; and I am required to provide considered tree management recommendations as necessary during the course of these instructions.

2 PLANNING CONTEXT AND LEGISLATION

2.1 THE NATIONAL PLANNING POLICY FRAMEWORK (NPPF), JULY 2021

2.1.1 The NPPF sets out the principles against which LPAs should determine planning applications.

2.1.2 Section 12 'Achieving well-designed places' states:

> *'131. Trees make an important contribution to the character and quality of urban environments and can also help mitigate and adapt to climate change. Planning policies and decisions should ensure that new streets are tree-lined, that opportunities are taken to incorporate trees elsewhere in developments (such as parks and community orchards), that appropriate measures are in place to secure the long-term maintenance of newly planted trees, and that existing trees are retained wherever possible. Applicants and local planning authorities should work with highways officers and tree officers to ensure that the right trees are planted in the right places, and solutions are found that are compatible with highways standards and the needs of different users.'*

2.1.3 Section 15 'conserving and enhancing the natural environment' also states at paragraph 174:

> *'174. Planning policies and decisions should contribute to and enhance the natural and local environment by:*
>
> *174(b). recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland'.*

2.1.4 Furthermore, Paragraph 180 states:

> *'180. When determining planning applications, local planning authorities should apply the following principles:*
>
> *180(c). Development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists'.*

2.2 The London Plan 2021

2.2.1 Policy G7 of The London Plan 2021 set out the city-wide objectives in regard to development. The full policy states:

> *'A. London's urban forest and woodlands should be protected and maintained, and new trees and woodlands should be planted in appropriate locations in order to increase the extent of London's urban forest – the area of London under the canopy of trees.*
>
> *B. In their Development Plans, boroughs should:*
>
> *1) protect 'veteran' trees and ancient woodland where these are not already part of a protected site*
>
> *2) identify opportunities for tree planting in strategic locations.*
>
> *C. Development proposals should ensure that, wherever possible, existing trees of value are retained. If planning permission is granted that necessitates the removal of trees there should be adequate replacement based on the existing value of the benefits of the trees removed, determined by, for example, i-tree or CAVAT or another appropriate valuation system. The planting of additional trees should generally be included in new developments – particularly large-canopied species which provide a wider range of benefits because of the larger surface area of their canopy.'*

2.3 London Borough of Richmond upon Thames Local Plan 2018

2.3.1 Local planning policies are used by the determining LPA to ensure that planning applications meet the specific requirements of the authority. Relevant local planning policies are set out below in full.

2.3.2 Policy LP 16 'Trees, Woodlands and Landscape' states:

> *'A. The Council will require the protection of existing trees and the provision of new trees, shrubs and other vegetation of landscape significance that complement existing, or create new, high quality green areas, which deliver amenity and biodiversity benefits.*
>
> *B. To ensure development protects, respects, contributes to and enhances trees and landscapes, the Council, when assessing development proposals, will:*

Trees and Woodlands

1. resist the loss of trees, including aged or veteran trees, unless the tree is dead, dying or dangerous; or the tree is causing significant damage to adjacent structures; or the tree has little or no amenity value; or felling is for reasons of good arboricultural practice; resist development that would result in the loss or deterioration of irreplaceable habitat such as ancient woodland;

2. resist development which results in the damage or loss of trees that are considered to be of townscape or amenity value; the Council will require that site design or layout ensures a harmonious relationship between trees and their surroundings and will resist development which will be likely to result in pressure to significantly prune or remove trees;

3. require, where practicable, an appropriate replacement for any tree that is felled; a financial contribution to the provision for an off-site tree in line with the monetary value of the existing tree to be felled will be required in line with the 'Capital Asset Value for Amenity Trees' (CAVAT);

4. require new trees to be of a suitable species for the location in terms of height and root spread, taking account of space required for trees to mature; the use of native species is encouraged where appropriate;

5. require that trees are adequately protected throughout the course of development, in accordance with British Standard 5837 (Trees in relation to design, demolition and construction – Recommendations). The Council may serve Tree Preservation Orders or attach planning conditions to protect trees considered to be of value to the townscape and amenity and which are threatened by development.

Landscape

1. require the retention of important existing landscape features where practicable;

2. require landscape design and materials to be of high quality and compatible with the surrounding landscape and character; and

3. encourage planting, including new trees, shrubs and other significant vegetation where appropriate.'

2.4 Tree Preservation Orders (TPOs)

2.4.1 I am in receipt of a screenshot of the London Borough of Richmond upon Thames interactive TPO map of the site and surrounding area. This suggests that one off-site sweet chestnut (T9) is protected as designation 'T69' of TPO reference T0015.

2.5 Conservation Areas (CAs)

2.5.1 The site is not within a conservation area, and therefore there are no arboricultural constraints in this regard.

2.6 WILDLIFE LEGISLATION

2.6.1 The Wildlife and Countryside Act 1981 and the Conservation of Habitats and Species Regulations 2017 provides statutory protection of birds, bats and other species that inhabit trees. Section 41 of the Natural Environment and Rural Communities Act 2006 also places a duty on Local Planning Authorities to consider biodiversity when carrying out their duties.

2.6.2 Avoiding disturbance to those species can be ensured by considering the timing of tree works in order to prevent an offence under the above legislation. Where the presence of such species is suspected, the project ecologist or Natural England should be contacted for clarification and advice.

2.7 FELLING LICENCES

2.7.1 Tree felling is a restricted activity under the Forestry Act 1967. However, an exemption exists from the need for a felling licence for *'Felling trees immediately required for the purpose of carrying out development authorised by planning permission (granted under the Town and Country Planning Act 1990) ...'*

2.7.2 Subject to approval of the planning application to which this report pertains, a felling licence to remove the trees identified for removal within this report, and shown on the appended TPP, will not be required.

3 IMPACT ASSESSMENT METHODOLOGY

3.1.1 In order to systematically assess the overall impact of the scheme, I have devised a series of categories which seek to provide a summary of the likely, post-planning site conditions on the presumption that planning consent is gained, and the proposed scheme as detailed within this report is built out.

3.1.2 Our conclusions relating to the overall arboricultural impact of the scheme are summarised at **Table 1** below.

Impact category	Description
High	Total or extensive alteration to the existing arboricultural character of the site, or the principal arboricultural features on or adjacent to it. The post-planning situation is significantly and adversely different.
Medium	Partial alteration to the existing arboricultural character of the site, or the principal arboricultural features on or adjacent to it. The post-planning situation is partially different.
Low	Minor alteration to the existing arboricultural character of the site, or the principal arboricultural features on or adjacent to it. The post-planning changes will be distinguishable, but comparable to the existing context.
Negligible	No or very minor alteration to the existing arboricultural character of the site, or the principal arboricultural features on or adjacent to it. The post-planning situation is not readily distinguishable from the existing context with no material adverse impact.

Table 1: MDJAC magnitudes of impact summary.

4 SITE ASSESSMENT

4.1 SITE VISIT AND TREE INSPECTION

4.1.1 I undertook a site inspection and tree survey on 11 February 2021, on behalf of ACS Trees which was the instructed arboricultural practice at that time. A copy of the ACS Trees survey schedule is appended to this report.

4.1.2 The dimensions and assessments of the trees contained within this document reflect their condition at the time of the survey. I surveyed the trees from within the boundaries of the site only. The presence of additional physiological or structural defects that are only visible from restricted-access viewpoints cannot be discounted. All trees were surveyed from ground level only, aided by the use of binoculars where considered necessary. Other aids included an acoustic hammer and a steel probe, both of which were used where necessary to confirm the extent of any dysfunctional wood, cavities or other morphological defects. The information contained within this document does not constitute a full hazard or risk assessment, and therefore MDJ Arboricultural Consultancy Limited makes no guarantee of their stability of safety.

4.1.3 I collected the baseline data using a handheld tablet, which was then exported to Microsoft Excel to produce the tree survey schedule at **Appendix 1**. The locations of the trees have been plotted using measurements taken on site. This information was exported to produce a Tree Constraints Plan (TCP), onto which the proposed layout has been overlaid to produce the Tree Protection Plan (TPP) at **Appendix 2**.

4.2 DESCRIPTION OF SITE

4.2.1 The site is a triangular plot situated to the south of the junction between Cromwell Road and Fairfax Road. It currently comprises the multi-storey residential apartments known as Sheldon House, with associated hard surfacing to provide car parking to the front (north) and a private, communal garden to the rear (south).

4.2.2 Mature trees, including a prominent cedar specimen, are located along the frontage of the site which provide amenity value in views from Cromwell and Fairfax Roads. The situation is similar within the rear garden where mature boundary trees provide screening from the adjacent properties.

4.3 EXISTING TREE STOCK

4.3.1 All trees have been categorised in accordance with the cascade chart at Table 1 of British Standard BS 5837:2012; justification for the categorisation is provided within the comments for each tree in the tree survey schedule at **Appendix 1**.

4.3.2 One sweet chestnut (T12) has been assessed at category 'U'. These are trees that are unsuitable for retention irrespective of the proposed re-development, as they are in such poor condition and therefore have a remaining life expectancy of less than 10 years.

4.3.3 None of the trees surveyed have been assessed as category 'A'. These are trees of high quality and an estimated life expectancy of more than 40 years and either particularly good examples of their species, rare or unusual specimens, essential components of groups, semi-formal or formal arboricultural features, or of particularly visual importance; or a combination of these.

4.3.4 Ten trees have been assessed as category 'B', being of moderate quality with a remaining life expectancy of at least 20 years. These include trees that have been downgraded from category 'A' due to impaired condition, including significant but remediable defects such that they are unlikely to be suitable for retention for more than 40 years; those that are present in numbers, groups or woodlands and so attract a higher collective value; and those with material or other cultural value; or a combination of these.

4.3.5 The remaining specimens have been assessed as category 'C', being of either low value with a remaining life expectancy of between 10 and 20 years; young trees with trunk diameters below 150mm; those growing in groups of trees without conferring any significance to the collective landscape; or those providing low or temporary landscape benefits.

4.4 PRINCIPAL ARBORICULTURAL FEATURES (PAFS)

4.4.1 The tree survey schedule at **Appendix 1** contains 17 individual trees and three groups of trees. Of these, I consider the trees identified below to be the principal arboricultural features (PAFs):

Tree no.	TPO no.	Species	Contribution to landscape	BS5837 category
T3	n/a	Common lime	Mature rear garden boundary trees of prominence within the landscape.	B12
T4	n/a	Atlas cedar		B12
T5	n/a	Sycamore		B12
T6	n/a	Common lime		B12
T8	n/a	Sweet chestnut		B12
T9	T69	Sweet chestnut		B12
T14	n/a	Sweet chestnut	Mature trees growing at the front of existing building and of prominence in views from Cromwell Road and Fairfax Road to the north.	B2
T17	n/a	Atlas cedar		B12

Table 2: Principal Arboricultural Features (PAFs).

4.5 DESCRIPTION OF PROPOSALS

4.5.1 The proposals comprise the demolition of the existing block, and replacement with a new block, under croft parking and associated landscaping.

5 ARBORICULTURAL IMPACT ASSESSMENT

5.1 TREES TO BE REMOVED

Details

5.1.1 The proposed re-development will require the removal of six individuals and one group of trees (G18), either because they are located within the footprint of the proposed buildings and areas of hard surfacing, or because the proximity of the proposals to the trees is likely to significantly damage them and increase the likelihood of premature failure or mortality. The proposed tree removals are shown at **Table 3** below.

Tree no.	Species	Trunk diameter	Age class	Category
T1	Silver birch	205mm 200mm 2 stems @ 180mm 210mm	Semi-mature	C12
T2	Yew	320mm	Semi-mature	C1
T10-T11	Lawson cypress	#T10 325mm #T11 2 stems @ 90mm	Semi-mature	C1
T12	Sweet chestnut	620mm	Semi-mature	U
T13	Atlas Cedar	810mm	Mature	C2
G18	Holly	Min 75mm Max 170m (est.)	Young	C1

Table 3: Trees to be removed.

Discussion

5.1.2 There are no category 'A' trees within or immediately adjacent to the site, so no such trees will be removed. All ten category 'B' specimens will be retained and protected as part of the proposals. None of the trees to be removed are covered by a TPO.

5.1.3 The five category 'C' trees (T1, T2, T10-T11 and T13) to be removed are either of low value, have a limited life expectancy remaining, are young trees with trunk diameters below 150mm, grow in groups without conferring any significance to the local landscape, or provide only low or temporary landscape benefits. Whilst the Atlas cedar (T13) is a large example of its species, it is in poor structural condition having been colonised by the decay fungus Dyer's Mazegill *(Phaeolus schweinitzii)* and this will likely significantly reduce its safe useful life expectancy. With the exception of T13, the removal of the category 'C' trees identified above will not have a significant adverse impact on the quality or value of the surrounding arboricultural landscape and complies with local planning policies.

5.1.4 The sweet chestnut (T12) is a category 'U' tree which is in such a condition that it cannot realistically be retained for longer than 10 years, irrespective of the proposed development, but it will also be removed as part of the proposals.

5.1.5 One group of holly (G18) will be removed entirely to facilitate the re-development of the site.

Replacement tree planting

5.1.6 A formal landscaping strategy has been devised by the project landscape architect, Outerspace, as shown within the Landscape Report dated 14 December 2022 and summarised below.

Figure 1: excerpt from the Outerspace Landscape Report, showing the locations and numbers of proposed replacement tree planting.

5.1.7 These plans show provision for 25 replacement trees, including ornamental and larger-growing species such as Norway maple, and this represents a replacement ratio of approximately 3.8 trees for every individual tree to be removed. The locations of the proposed planting will enhance the existing arboricultural character, particularly within the rear garden, where the new trees will infill the existing mature trees.

Conclusions

5.1.8 A total of six individual trees and one group of trees will be removed as part of the proposed re-development. The principal arboricultural features of the site, set out at **Table 2** above, will be retained. The removal of the trees identified for removal will not result in the loss of trees of high amenity value or trees which make an essential contribution to the street scene and will not result in

a significant, long-term or irreversible impact on the arboricultural character of the site. Therefore, the proposals comply with local planning policies contained within The London Plan 2021, and the London Borough of Richmond upon Thames Local Plan 2018 in this regard.

5.2 TREES TO BE PRUNED

Details

5.2.1 Four retained trees require pruning as part of the proposed re-development of the site, as shown at ***Table 5*** below.

Tree no.	TPO no.	Species	Pruning specification	BS5837 Category
T3	n/a	Common lime	Reduce canopy on NE quadrant by up to 3m to previous pollard points, to provide construction clearance and scaffold erection.	**B12**
T9	T69	Sweet chestnut	Reduce canopy on NW quadrant by up to 2m to provide construction clearance and scaffold erection.	**B12**
T14	n/a	Sweet chestnut	Reduce canopy on SW quadrant by up to 3m to provide construction clearance and scaffold erection.	**B2**
T17	n/a	Atlas cedar	Reduce canopy on SW quadrant by up to 2m to provide construction clearance and scaffold erection.	**B12**

Table 4: Proposed tree pruning.

Discussion

5.2.2 The proposed pruning is necessary to allow a suitable construction margin to be formed, and this will in turn provide sufficient space for scaffolding to be erected. Common lime and sweet chestnut are both very vigorous species and are able to tolerate pruning to significant extents by re-shooting, which often occurs within the same growing season.

5.2.3 Whilst cedar does not generally tolerate heavy pruning, the minor reduction of selected branches in the southern portion of the canopy of T17 is likely to be tolerated, as this coniferous species is also able to re-shoot to recover the lost needle area.

Conclusions

5.2.4 The proposed pruning is minor in extent and will not have a significant adverse impact on the physiology, morphology or stability of the four trees shown at ***Table 5***. All work will be undertaken in accordance with the recommendations set out in British Standard BS 3998:2010 '*Tree work – Recommendations*'.

5.2.5 The pruning will go largely unnoticed from the surrounding publicly accessible locations and will be screened by either the remainder of the tree's canopy, or the canopies of the surrounding specimens. Once the pruning has been completed, no buildings, structures or areas of hard surfacing will be within 2m of the extents of the retained trees.

5.3 Root Protection Area (RPA) conflicts

Details

5.3.1 The RPAs of five of the trees identified for retention will be impacted by the proposals, as detailed at below.

Tree no.	TPO no.	Species	Cause of incursion	% of total RPA
T3	n/a	Common lime	Proposed building foundations and replacement hard surfacing	14.5%
T8	n/a	Sweet chestnut	Proposed building foundations	3.1%
T9	n/a	Sweet chestnut	Proposed building foundations	6.6%
T14	n/a	Sweet chestnut	Proposed building foundations	6%
T17	n/a	Atlas cedar	Proposed building foundations	4.8%

Table 5: RPA conflicts, cause and percentage of total RPA affected.

Discussion

5.3.2 Section 5.3 of BS5837:2012 recommends that the default position of structures should be outside of the defined RPAs, and further recommends that justification for demolition or construction work abutting or within the RPAs should be provided if the default position cannot be accommodated. The successful retention and protection of retained trees is dependent upon several factors. I have therefore developed a systematic scoring system to aid in the calculation of cumulative impacts within the RPAs of retained trees, based on the following factors:

1. **Distance.** The distance of construction activities from the trunk of the tree;
2. **Biological characteristics.** Consideration of the subject tree's age class, physiology, vigour, and genetic tolerance of disturbance (Matheny & Clark, 1998);
3. **Extent of impact.** The extent of the RPA affected by construction activities, given as a percentage of the total area;
4. **Construction intensity.** Consideration of the likely depth and nature of any excavations;
5. **Mitigation.** Consideration of existing root barriers and associated alterations to likely root morphology, and the availability or appropriateness of contiguous areas into which the construction impacts can be mitigated; or the application of improvements.

Tree no.	Species	Distance	Biological	Extent	Intensity	Mitigation	Total
T3	Common lime	2	3	3	1	3	**12**
T8	Sweet chestnut	4	3	4	1	3	**15**
T9	Sweet chestnut	2	3	4	1	2	**12**
T14	Sweet chestnut	2	3	4	1	2	**12**
T17	Atlas cedar	3	3	4	1	2	**13**

Table 6: Cumulative-factor impact assessment.

Explanatory notes

- **Distance.** Work within the canopy merits 0-2 points; works within 2m of the canopy merits 3 points; works greater than 2m from the canopy merits 4 points.
- **Biological.** Veteran or over-mature trees, or trees in poor physiological condition merit 0-2 points; mature trees with good or fair physiological condition merit 3 points; other age classes with good or fair physiological condition merit 4 points.
- **Extent.** If more than 20% of the total RPA is affected, 0-2 points are awarded; if 10-20% of the total RPA is affected, 3 points are awarded; if less than 10% of the RPA is affected, 4 points is awarded.
- **Intensity.** Extensive excavation to depths beyond 1m from existing ground level or through the entire rooting profile merits 0-2 points; moderate excavation to 500mm, or approximately 50% of the rooting profile merits 3 points; minor excavation to less than 250mm or 'no-dig' solutions merit 4 points.
- **Mitigation.** If up to 50% of the RPA is unaffected and available for mitigatory works but no contiguous soft landscaping exists 0-2 points is awarded; if more than 50% of the RPA is available for improvement and contiguous soft landscaping exists 3 points are awarded; if 100% of the RPA is available for improvement and contiguous soft landscaping exists 4 points are awarded.
- **Total.** Trees cumulating less than 10 points are unlikely to be suitable for retention. Trees cumulating 11-20 points could be retained subject to appropriate protection measures.

5.3.3 The impacts identified at **Tables 6 and 7** above affect five individual trees, resulting in a maximum incursion of 14.5% of individual RPAs. However, these impacts can be successfully mitigated in the following ways.

Manual excavation

5.3.4 To prevent heavy machinery causing extensive damage to roots, the first 750mm of excavation will be undertaken by manually under the direct control and supervision of the arboricultural consultant; these areas are shown in **orange hatching** on the TPP. Where the consultant considers it feasible and necessary, excavation may be aided by the use of a compressed air soil pick or a suitably sized excavator fitted with a toothless bucket.

5.3.5 During the course of our assessment, I have considered the relative tolerance of the species affected to root pruning and disturbance. The *Tilia* genus has been identified as moderate at tolerating root pruning and disturbance (Matheny & Clark, 1998); Atlas cedar is not cited, but Deodar cedar

(Cedrus deodara) is also identified as moderate. Sweet chestnut is not cited, but in my experience, this is a robust species able to tolerate moderate root pruning if necessary, and this principle is demonstrated through its ability to regenerate from above-ground pruning wound throughout its canopy.

5.3.6 If roots with a diameter of less than 25mm are encountered they will be cut back to the face of the excavation using a handsaw, irrespective of the number and distribution of the roots, and they will be protected from direct sunlight by wrapping the exposed ends in hessian sacking; during periods of prolonged dry weather, the hessian sacking will be irrigated periodically to prevent the roots from drying out.

5.3.7 If roots in excess of 25mm diameter are encountered they will be retained in situ and prevented from desiccation by wrapping them in hessian sacking which will be watered periodically during periods of sustained dry weather. The arboricultural consultant will then consider the number, sizes, depths and condition of the roots, and whether their pruning is likely to lead to a significant adverse impact on the tree's ability to complete its biological processes. Should the location of the proposed bored piles not be able to be moved to avoid such roots, the arboricultural consultant will prepare a report detailing the roots with appropriate recommendations, and this will be submitted to the local planning authority for approval. **Under no circumstances will such roots be pruned without the prior written consent of the local planning authority.**

5.3.8 On completion of manual excavation, the arboricultural consultant will compile a brief supervision report summarising the findings, and this will be kept on file for future reference and forwarded to the relevant parties.

New and replacement hard surfaces

5.3.9 With regards to RPA of the common lime (T3), 8.4% of the total incursion (14.5%) is caused by the replacement of existing hard surfacing. Existing hard surfaces will be removed under arboricultural supervision using hand-held machinery such as a concrete breaker or similar. Additionally, the proposed levels are such that it is likely that these new surfaces could be constructed no deeper than the subbases of the existing to minimise disruption to the underlying soil. This area is depicted as **dark green zig-zag hatching** on the TPP.

5.3.10 Where areas of existing soft landscaping are to become surfaced, every attempt will be made to either construct these above existing soil levels, or with minimum excavation. Where excavation is required, the methodology described at paragraphs 5.3.4 – 5.3.8 above, will be followed.

5.3.11 As these areas equate to only 8.4% of the tree's RPA, the proposals comply with Section 7.4.2 of BS5837:2012, which states: *'New permanent hard surfacing should not exceed 20% of any existing*

unsurfaced ground within the RPA.' Therefore, as there will be little or no excavation of the underlying soil, no significant damage to the rooting environment is likely to occur, and there will be little impact on the long-term health or stability of the tree.

Tree Protection Fencing (TPF)

5.3.12 The rooting environments of trees identified for retention will be safeguarded by the erection of temporary tree protection fencing to the default specification provided in BS5837:2012 (The British Standards Institution, 2012) and set out below. These locations are denoted by bold red lines on the appended TPP.

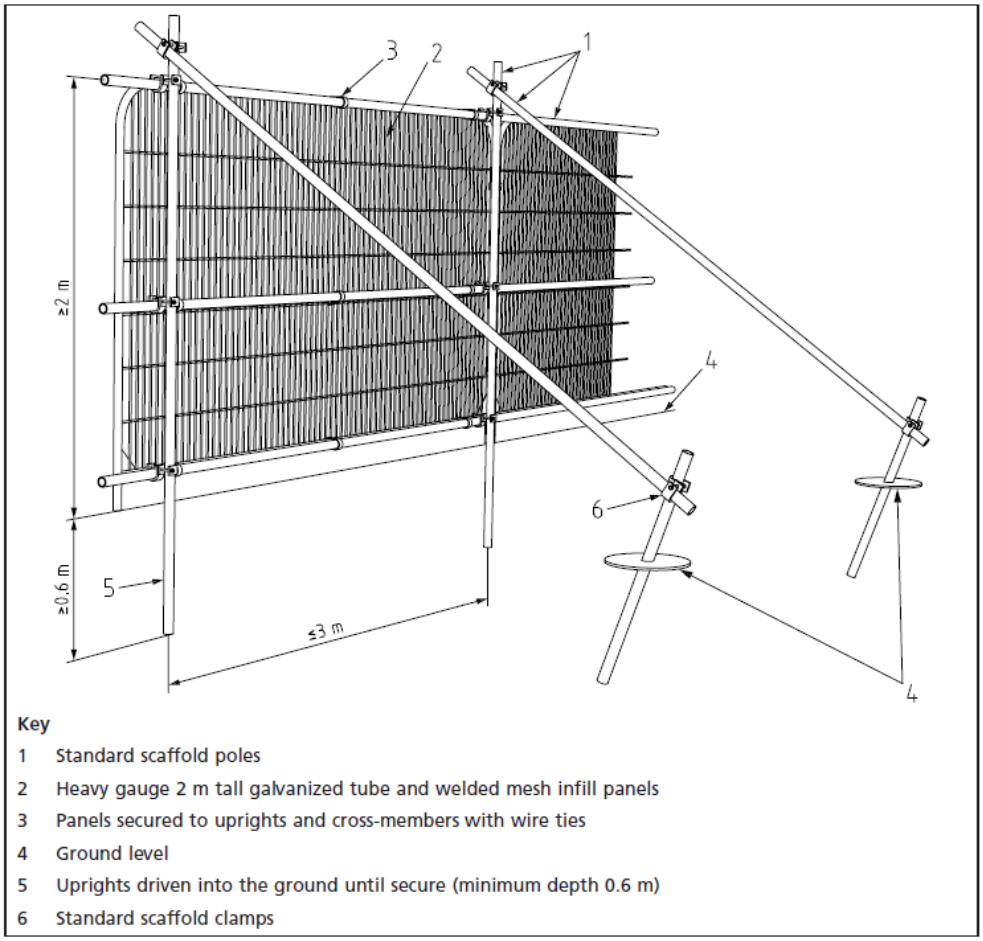

Figure 2: Alternative fencing specification for protective barrier (The British Standards Institution, 2012).

5.3.13 The default specification comprises a scaffold framework, onto which 2m tall, welded mesh panels such as 'heras' panels will be secured to uprights and cross-members with suitable wire ties. Upright scaffold posts will be driven into the ground to a minimum depth of 600mm, taking care to avoid damage to the roots of retained trees.

5.3.14 Existing vegetation will be removed by hand to enable the location of the TPF to be accurately set out by an appropriately qualified engineer. Where the TPF is located on existing hard surfaces to

be retained, the 45° stabilising struts may be attached to rubber feet or similar to negate the requirement for minor excavation.

5.3.15 The TPF will be erected prior to the commencement of works and remain in place to serve as physical protection for retained trees for the duration of the demolition and construction activities and will only be removed immediately prior to the landscaping phase once all large plant and machinery have been removed from site.

5.3.16 Temporary signage will be secured to the fencing at appropriate intervals to inform site operatives of the purpose of the fencing. Signage will read **'TREE PROTECTION FENCING – KEEP OUT'** or similar, as shown below.

Figure 3: Example protective fencing signage.

5.4 Construction Exclusion Zones (CEZs)

5.4.1 Construction exclusion zones will be formed by the erection of the tree protection fencing to the specification set out above. Within the CEZs, the following principles will be observed for the duration of the project:

- No plant or machinery will access the CEZ
- No mechanical excavation will take place
- Unplanned excavations will be limited to hand-digging and will be considered by the project arboriculturist before commencement

- Existing soil levels will not be altered in any way, unless for the removal of existing turf layers, which will be undertaken using hand tools only
- No machinery or materials of any kind will be stored
- No liquids or chemicals including fuels, oils, builders' sand or concrete mix will be stored
- No fires will be permitted.

Conclusions

5.4.2 Assessment of the current physiological condition of the subject trees, their relative tolerance of root pruning and disturbance, existing and proposed finished levels, and the protective measures prescribed above, suggests that there will be no lasting or irreversible damage to the trees to be retained, subject to full compliance with the TPP at **Appendix 2**.

5.5 POST-OCCUPATION PRESSURE ON TREES

Details

5.5.1 Whilst the proposed building has been designed to take account of the trees to be retained, the southern flank of the proposed block will be within the shadow patterns of a common lime (T3) and sweet chestnut (T9) located to the south of the building. This is depicted by the shadow patterns shown as **magenta arcs on the TPP**. The shadow pattern is used to indicate the likely shade a tree will cause during the main part of the day by drawing an arc from north-west to east of the trunk, at a distance equivalent to the current height of the tree (The British Standards Institution, 2012).

Discussion

5.5.2 As the proposals comprise a replacement building within a similar location to the existing, it is not possible to radically improve the fundamental relationship between it and the retained tree stock. While a number of trees require facilitative pruning in order to provide sufficient working space as detailed above, the previous arboricultural management requirements are unlikely to significantly increase as a result of the proposals.

5.5.3 The common lime (T3) has been pruned back from the existing building in the past by 'pollarding'. Pollarding involves the removal of all live growth back to form a scaffold framework from which the canopy can regrow. Re-pollarding on a cyclical basis, which can vary depending on the juxtaposition, is usually undertaken every three to seven years as necessary. Therefore, the re-pollarding of this tree in the future to mitigate the apprehension it may cause to incoming occupiers is in accordance with its existing management irrespective of the proposed re-development, as established by its previous pruning. Consequently, there is little arboricultural impact from the proposals in this regard.

Photograph 1: showing the existing branch framework of the common lime (T3); previous pollard points highlighted for clarity.

5.5.4 By contrast, the sweet chestnut (T9) growing near the south-east corner of the proposed block has not been significantly cut back in the past. However, as with lime, this species is readily able to tolerate general canopy reductions, and even pollarding if necessary.

5.5.5 To mitigate the impact of shade cast by these trees, the proposed windows have been designed to be as large as possible, and dual fenestration has been incorporated into the apartments immediately adjacent to the trees.

5.5.6 As these are also deciduous species, they will be dormant for a significant proportion of the year and sunlight will also be able to spill through the branch framework when the sun appears lower in the sky. The combination of these factors will ensure that there is likely to be satisfactory levels of light ingress into the main habitable rooms of these properties throughout the year, and no additional apprehension regarding the proximity of the trees should result.

Conclusions

5.5.7 In light of my assessments, there is no reason to suggest that the construction of the new block and its associated communal gardens will result in an unsustainable relationship with the retained tree stock, despite their proximity.

6 CONCLUSIONS AND RECOMMENDATIONS

6.1 CONCLUSIONS

6.1.1 A total of six individual trees and one group of trees will be removed as part of the proposed re-development. The principal arboricultural features of the site, set out at **Table 2** above, will be

retained. The removal of the trees identified for removal will not result in the loss of trees of high amenity value or trees which make an essential contribution to the street scene and will not result in a significant, long-term or irreversible impact on the arboricultural character of the site. Therefore, the proposals comply with local planning policies contained within The London Plan 2021, and the London Borough of Richmond upon Thames Local Plan 2018 in this regard.

6.1.2 The proposed pruning is minor in extent and will not have a significant adverse impact on the physiology, morphology or stability of the four trees shown at ***Table 5***. All work will be undertaken in accordance with the recommendations set out in British Standard BS 3998:2010 '*Tree work – Recommendations*'.

6.1.3 The pruning will go largely unnoticed from the surrounding publicly accessible locations and will be screened by either the remainder of the tree's canopy, or the canopies of the surrounding specimens. Once the pruning has been completed, no buildings, structures or areas of hard surfacing will be within 2m of the extents of the retained trees.

6.1.4 Assessment of the current physiological condition of the subject trees, their relative tolerance of root pruning and disturbance, existing and proposed finished levels, and the protective measures prescribed above, suggests that there will be no lasting or irreversible damage to the trees to be retained, subject to full compliance with the TPP at **Appendix 2**.

6.1.5 In light of my assessments, there is no reason to suggest that the construction of the new block and its associated communal gardens will result in an unsustainable relationship with the retained tree stock, despite their proximity.

6.1.6 Based on the above considerations, I conclude that the overall arboricultural magnitude of the proposed scheme is **low**, as defined at **Table 1**. There will be minor alterations to the existing tree stock, but the principal arboricultural features of the site will be retained and protected throughout. Consequently, the post-planning context will be comparable to the existing.

6.2 RECOMMENDATIONS

1. Ensure that the protective measures set out within this report and shown on the accompanying tree protection plan are erected prior to commencement, or followed throughout the project, as prescribed.

Matt Jones

Matthew Jones, BSc (Hons), MArborA
Director & Arboriculturist
16 December 2022

7 REFERENCES

Helliwell, R. (2008). *Guidance note 4: visual amenity valuation of trees and woodlands* (4 ed.). Romsey, UK: Arboricultural Association.

Matheny, N., & Clark, J. R. (1998). *Trees and Development: a technical guide to preservation of trees during land development.* Champaign, Illinois, USA: International Society of Arboriculture.

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UK Government. (2014). *Guidance: Tree preservation orders and trees in conservation areas*. Retrieved April 2021, 18, from https://www.gov.uk/guidance/tree-preservation-orders-and-trees-in-conservation-areas#tree-preservation-orders--general

MDJ ARBORICULTURAL CONSULTANCY LIMITED

Institute of Chartered Foresters

Arboricultural ASSOCIATION Professional Member

APPENDIX 1: THIRD-PARTY TREE SURVEY SCHEDULE

15 Windsor Close
Southwater
West Sussex
RH13 9XH

www.mdjac.co.uk | info@mdjac.co.uk

Company Registration No.
(England & Wales): 13900533

No.	Species	Height	Trunk Dia.	Radial Crown Spread	Crown Clear-ance	Height to 1st Branch	Life Stage	Physi-ology	Struct. Condition	Landscape Value	Est. Years	Cate-gory	Comments
1	Silver birch *(Betula pendula)*	13m	205mm 200mm 2 stems @ 180mm 210mm	N5.25m E5.25m S5.5m W6.25m	3.5m	4m	Semi-mature	Normal	Good	Low	40+	C (12)	Multi-stemmed from base; growing within planting pit in cark park.
2	Yew *(Taxus baccata)*	9m	320mm	N2.75m E3.75m S4m W4m	3m	4m	Semi-mature	Normal	Good	Low	40+	C (1)	Established specimen growing within shrub bed and offering some boundary screening of car park.
3	Common lime *(Tilia x europaea)*	17m	725mm	N6.5m NE5.5m E5.75m S7.5m W6m	5m	5m	Mature	Normal	Good	Medium	40+	B (12)	Profuse basal suckers and epicormic growth on trunk; twin-stemmed from 4m; the most significant specimen on the western boundary but screened in views from the north-east by the existing building.
4	Atlas Cedar *(Cedrus atlantica)*	18m	815mm	N11.5m E6.5m S8.5m W8m	8m	9m	Mature	Normal	Good	Medium	40+	B (12)	Apical dominance appears to have been assumed by a sub-dominant shoot historically; decurrent canopy shape as a result; 13m end of garden; largely screened by the existing building in views from the north. 3.8 parallel wall.
5	Sycamore *(Acer pseudoplatanus)*	19m	670mm	N4.5m E5m S6m W6m	8m	8m	Mature	Normal	Good	Medium	40+	B (12)	Member of a group of mature trees on the eastern boundary of the site. Significant component from internal viewpoints but largely screened from the surrounding publicly accessible viewpoints.

Note: Trunk Diameter (e) = Estimated

Refer also to 'Notes to the Schedules'

No.	Species	Height	Trunk Dia.	Radial Crown Spread	Crown Clear-ance	Height to 1st Branch	Life Stage	Physi-ology	Struct. Condition	Landscape Value	Est. Years	Cate-gory	Comments
6	Common lime *(Tilia x europaea)*	20m	615mm	N4.25m E7m S6m W6.25m	N4.5m	4m W	Mature	Normal	Good	Medium	40+	B (12)	Unoccluded trunk cavity at 4m on N aspect; significant component of the line of trees in which it stands.
7	Sycamore *(Acer pseudoplatanus)*	18m	540mm	N4m E5.5m S3m W4.25m	10m	10m	Semi-mature	Normal	Good	Medium	40+	B (12)	Trunk leans slightly to E; unbalanced crown biased to the E due to suppression from larger trees within line; inessential component of the group.
8	Sweet chestnut *(Castanea sativa)*	20m	1190mm	N8m E8m S1m W7.75m	W4.5m	6m	Mature	Normal	Good	Medium	40+	B (12)	Heavily burred trunk; unbalanced crown but a significant member of the line of trees in which it stands.
9	Sweet chestnut *(Castanea sativa)*	16m	725mmest.	N4.75m E5m S5m W5.5m	W2m	2m W	Mature	Normal	Good	Medium	40+	B (12)	Survey and observations limited to survey site only; contributes to continuous canopy cover along the eastern boundary.
10-11	Lawson cypress *(Chamaecyparis lawsoniana)*	8.5m	#T10 325mm #T11 2 stems @ 90mm	N1.5m E1.25m S2m W2m	2m	2m	Semi-mature	Normal	Good	Low	40+	C (1)	Aerodynamic and meshing canopies; inessential components of the landscape.
12	Sweet chestnut *(Castanea sativa)*	12m	620mm	N5.75m E4.5m S4m W5m	4m	4m	Semi-mature	Normal	Poor	Medium	<10	U	Displaced organic matter surrounding base; trunk cavity at 2.5m on S aspect, probable to 200mm with screwdriver, confirming active hollowing; canopy largely offset from base and liable to torsional stress failure.

No.	Species	Height	Trunk Dia.	Radial Crown Spread	Crown Clear-ance	Height to 1st Branch	Life Stage	Physi-ology	Struct. Condition	Landscape Value	Est. Years	Cate-gory	Comments
13	Atlas Cedar *(Cedrus atlantica)*	19m	810mm	N4.5m E8m S6.25m W2.5m	9m	9m	Mature	Normal	Good	Medium	10-20	C (2)	Historical basal wound on E aspect (750mm x 285mm); unoccluded wound at 3m on SW aspect with protruding fruiting bodies, likely Dyer's maze gill (*Phaeolus schweinitzii*); extent of underlying dysfunction not quantifiable from ground level.
14	Sweet chestnut *(Castanea sativa)*	13m	980mm	N8m E6m S8m W4.5m	3m	4m	Mature	Normal	Good	Medium	40+	B (2)	Well-rounded canopy; a focal point at end of car park on approach; somewhat overtopped by taller trees within canopy but provides moderate boundary screening.
15	Holly *(Ilex aquifolium)*	5m	280mm	2.5m	2m	2.5m	Semi-mature	Normal	Good	Low	40+	C (1)	Typical of size, age species and location.
16	Lawson cypress *(Chamaecyparis lawsoniana)*	17m	620mm	N0.5m E2.25m S2.75m W1.5m	6m	6m	Mature	Normal	Good	Medium	40+	B (12)	Growing in car park; canopy screened by adjacent cedar in views from the north and north-west; inessential component of the immediate landscape.
17	Atlas Cedar *(Cedrus atlantica)*	20m	810mm	N9m E9.75m S5m W7.5m	8m	8m	Mature	Normal	Good	High	40+	B (12)	Growing within car park; hard surfacing covers the majority of the structural root plate; very prominent in views from the north; provides screening of the existing building.
G18	Holly *(Ilex aquifolium)*	7m	Min 75mmest. Max 170mmest.	2.5m	1.5m	1.5m	Young	Normal	Good	Low	40+	C (1)	Several planted specimens within a shrub bed; of only low-level screening value.

Note: Trunk Diameter (e) = Estimated

No.	Species	Height	Trunk Dia.	Radial Crown Spread	Crown Clear-ance	Height to 1st Branch	Life Stage	Physi-ology	Struct. Condition	Landscape Value	Est. Years	Cate-gory	Comments
G19	Sycamore *(Acer pseudoplatanus) and La* wson cypress *(Chamaecyparis lawsoniana)*	7m	Avg 180mmes t.	2m	2m	2m	Young	Normal	Good	Low	40+	C (1)	Self-seeded trees both on and off-site that have become established and now provide boundary screening value.
G20	Yew (Taxus baccata)	3m	Avg 100mm est.	2m	0m	0m	Young	Normal	Good	Low	40+	C (1)	Of some boundary screening value.

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Institute of Chartered Foresters

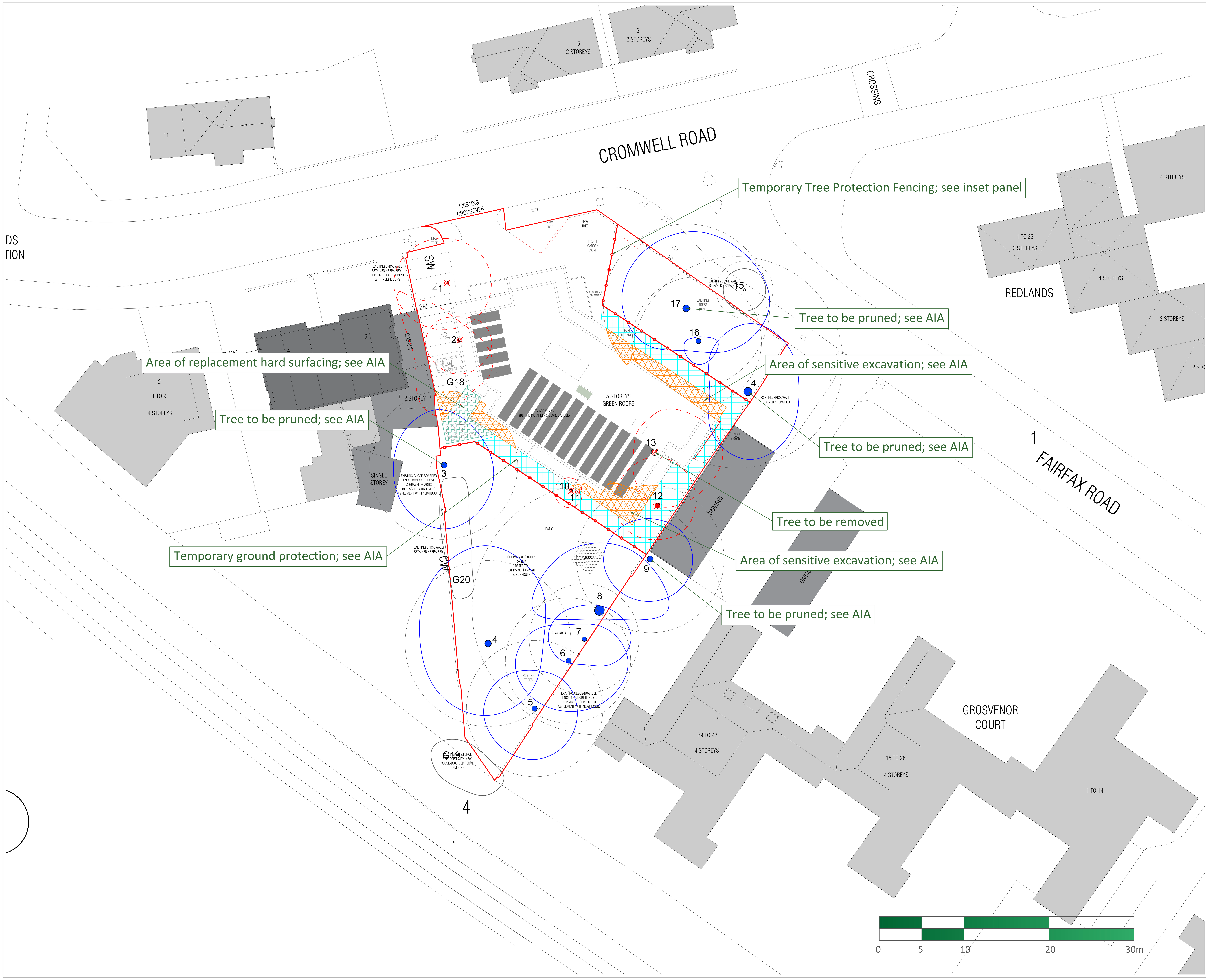
Arboricultural ASSOCIATION
Professional Member

APPENDIX 1:
TREE PROTECTION PLAN

15 Windsor Close
Southwater
West Sussex
RH13 9XH

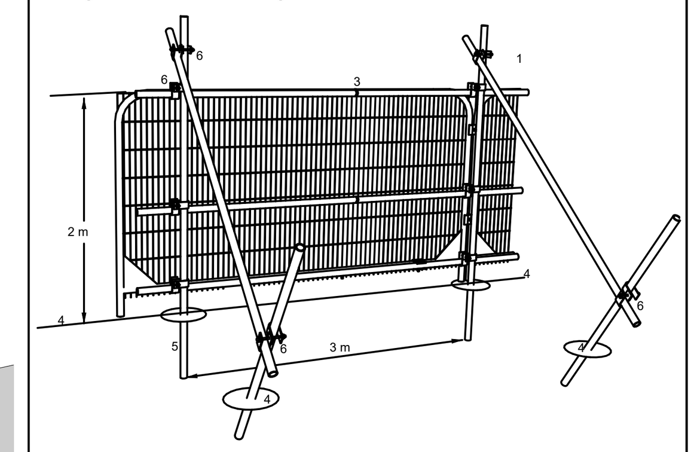
www.mdjac.co.uk | info@mdjac.co.uk

Company Registration No.
(England & Wales): 13900533



Tree Protection Fencing (TPF)

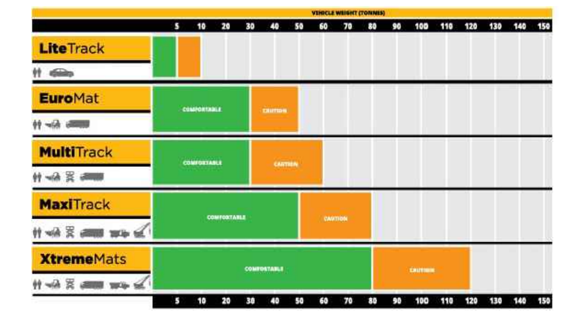
The default specification comprises a scaffold framework, onto which 2m tall, welded mesh panels such as 'heras' panels will be secured to uprights and cross-members with suitable wire ties. Upright scaffold posts will be driven into the ground to a minimum depth of 600mm, taking care to avoid damage to the roots of retained trees.

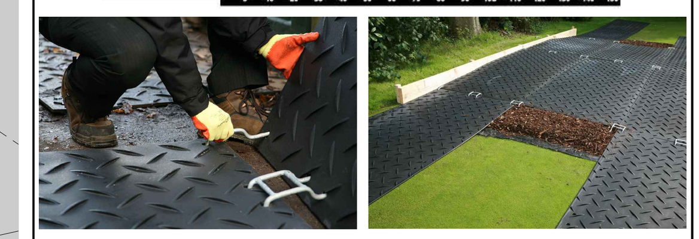


1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6 m)
6 Standard scaffold clamps

Temporary ground protection

Exposed areas between the tree protection fencing and the edge of the RPAs of retained trees will be protected using temporary ground boarding selected to protect against anticipated loading.





https://www.ground-guards.co.uk/

	Tree to be removed		Manual excavation under supervision
	Category 'A' tree		Temporary ground protection
	Category 'B' tree		Replacement hard surfacing
	Category 'C' tree		Tree protection fencing (TPF)
	Category 'U' tree		
	Root Protection Areas (RPAs)		

N

Document History

Rev	Date	Comments

MDJ ARBORICULTURAL CONSULTANCY LIMITED

rhp develop ltd

Site:	Sheldon House, Cromwell Road, Teddington, TW11 9EJ
Client:	RHP Develop Limited
Title:	Tree Protection Plan (TPP)
Date:	December 2022
Dwg No:	MDJAC-22.143-TPP-01
Scale:	1:200 @ A1