



ARBORICULTURAL IMPACT ASSESSMENT

At

**2 SYLVAN LANE,
HAMBLE-LE-RICE,
HAMPSHIRE**

For:

APPLECORE ARCHITECTS LTD

On behalf of:

MR & MRS McMANUS

This report was compiled by
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*This report is the responsibility of Arbor-Eco Consultancy.
It should be noted that whilst every effort is made to meet the client's brief,
no site investigation can ensure complete assessment
or prediction of the natural environment.*

Report Number: MB240109-01

April 2024

EXECUTIVE SUMMARY

The development proposals for this property have been carefully considered by Arbor-Eco Consultancy in consultation with Mr & Mrs McManus. There is an acute understanding of the importance of trees in the landscape and every effort has been made to retain all trees at this site.

1. It is understood that a Planning Application for the demolition of the existing conservatory and construction of a rear extension, including significant restructuring of the underground services ducts and refurbishment of the driveway and surrounding hard surfacing, will be submitted in due course.
2. The purpose of this report is to determine the best solutions for this application whilst understanding the importance of retaining (and not harming) tree numbers 7 & 8 (Beech trees that are the subject of a Tree Preservation Order)
3. Furthermore, the extension will be constructed upon existing hard surfacing and aspirations are to instal piles for the foundations so the tree roots will not be affected and therefore unmade ground will remain protected.
4. In addition, the underground services duct installation will require careful consideration and planning with the engineer so that the roots of the trees are not harmed.
5. Tree 7 and Tree 8 have roots that radiate beneath the existing hard surfacing of the south elevation access and driveway. Considerations have been made for the renewal or refurbishment of this area of hard surfacing, and again, consultation with Arbor-Eco Consultancy will result in a no-dig technical solution being recommended and installed under the supervision of the retained Arboricultural Consultant.
6. Nonetheless, the driveway and soft landscaping will only occur once the construction has been completed for the extension. The protection of unmade ground using tree protection barriers will be installed prior to any construction activity taking place.

Arbor-Eco Consultancy supports this Planning Application and proposed development layout in its current form so long as the advice within the report is adhered to. It must be remembered that there is no guarantee that this proposed development will be granted through the use of this report alone.

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1. INTRODUCTION

1.1 PROJECT BACKGROUND

Mr & Mrs McManus commissioned Arbor-Eco Consultancy to compile an Arboricultural Impact Assessment following the undertaking of an Arboricultural Survey of trees situated on land at 2 Sylvan Lane, Hamble-le-Rice. The appointed architects for this project are Applecore Architects Ltd. The site is within the administrative boundary of Eastleigh Borough Council and within the county of Hampshire.

This report details the impact that the proposed development will have upon the site's existing tree stock and sets out recommendations for the subsequent mitigation or avoidance of impact. The study has been completed in accordance with guidance contained within British Standard BS5837:2012 'Trees in relation to design, demolition and construction – Recommendations'.

1.2 SITE DESCRIPTION

The proposed development of land is located within a populated residential area of the village of Hamble-le-Rice and situated towards the south-eastern fringes of the settlement. The site is situated off Sylvan Lane, minor road. The site is dominated by the existing building, areas of hard surfacing, shrub borders and scattered trees. The trees and vegetation surveyed were growing predominantly to the periphery of the site.

The site is delineated from neighbouring land by a mix of artificial structures. To the north and west, the site tapers and abuts Sylvan Lane and Copse Lane, minor roads. The eastern boundary was demarcated by a further property off Copse Lane, minor road. The southern boundary was delineated by a property off Sylvan Lane, minor road.

The site is centred at National Ordnance Survey Grid Reference SU 48068 06486. The topography of the survey area is generally flat.

Arbor-Eco Consultancy, Tree Constraints Plan, Drawing Number MB240109-01-01 in Section 5 indicates the location of the trees surveyed.

1.3 DEVELOPMENT PROPOSALS

It is understood that the site surveyed will be the subject of a planning application to include the demolition of the existing conservatory and construction of a rear extension. In addition, significant restructuring of the underground services ducts will occur and include the refurbishment of the driveway and surrounding hard surfacing.

1.4 DOCUMENTATION PROVIDED

This assessment is based upon the information provided by the clients' architect in addition to information collected by Arbor-Eco Consultancy. The documents and drawings considered are detailed within Table 1.1.

Author	Document	Document Number	Date
Applecore Architects	Proposed Plans	PG8113-23-02 Rev B	Jul 2023

Table 1.1: Documentation Provided

2. STATUTORY PROTECTION

2.1 TREE PRESERVATION ORDER AND CONSERVATION AREA DESIGNATIONS

Examination of Eastleigh Borough Council (2024) interactive mapping system (<https://emaps.eastleigh.gov.uk/webmaps/Map.aspx?MapName=WebMaps>) accessed on 18th April 2024, indicated that the Beech trees (T7 & T8) are the subject of a Tree Preservation Order (TPO). Reference EBC532-E refers.

The Town and Country Planning (Tree Preservation) (England) Regulations 2012, Part 4 – Applications for Consent under Tree Preservation Orders states that an application for consent to the cutting down, topping, lopping or uprooting of any tree in respect of which an order is for the time being in force shall be made in writing to the authority on a form published by the Secretary of State for the purpose of proceedings under these Regulations.

Until such time as the application has been granted no works must be undertaken on the trees identified as being subject to TPOs that contravene the order. Works include pruning, topping, lopping, uprooting or wilfully damaging these trees. Any proposed pruning works will need to be fully specified and agreed within any planning application. If works are not included within the planning application, a separate TPO application will be required to be submitted to the Local Authority for permission to undertake any works (approximately an 8-week process).

Apart from [limited exceptions](#), permission must be sought from the local planning authority by submitting a standard application form. The form is available from the Local Authority [Planning Portal](#). It is important that the information on the form makes clear what the proposed work is and provides adequate information to support the case.

The authority's consent is not required for carrying out work on trees subject to an Order so far as such work is necessary to implement a full planning permission. For example, the Order is overridden if a tree has to be removed to make way for a new building for which full planning permission has been granted. Conditions or information attached to the permission may clarify what work is exempt.

Further examination of Eastleigh Borough Council (2024) interactive mapping system (<https://emaps.eastleigh.gov.uk/webmaps/Map.aspx?MapName=WebMaps>) accessed on 18th April 2024, indicated that the site is not situated within a Conservation Area.

2.2 PROTECTED SPECIES

Bats: A bat survey must be performed on the relevant roost potential prior to demolition. If bats are found to be present, a Natural England licence will be required prior to demolition. Bats and the places they use for shelter or protection (i.e. roosts) receive European protection under The Conservation of Habitats and Species Regulations 2017, as amended (Habitats Regulations 2017, as amended). They receive further legal protection under the Wildlife and Countryside Act (WCA) 1981, as amended. This protection means that bats, and the places they use for shelter or protection, are capable of being a material consideration in the planning process. As bats re-use the same roosts (breeding site or resting place) after periods of vacancy, legal opinion is that roosts are protected whether or not bats are present. The Natural Environment and Rural Communities (NERC) Act 2006 places a duty on public bodies to have regard for the conservation of biodiversity and maintains lists of species and habitats which are of principal importance for the purposes of conserving biodiversity in England and Wales. A number of bat species are listed on Section 41 (England) and Section 42 (Wales) of the NERC Act 2006.

Nesting Birds: The removal of relevant features must be undertaken outside of the bird nesting season (this generally extends between March and August but is weather dependent). If this is not possible the area concerned should be checked immediately prior to removal by a suitably qualified ecologist. Nesting and

nest building birds are protected under the Wildlife and Countryside Act WCA 1981 (as amended). Some species (listed in Schedule 1 of the WCA) are protected by special penalties.

2.3 LAND DESIGNATIONS (NATURAL ENGLAND)

For land you own or occupy, Natural England can select all or part of it for protection. Natural England will do this when it believes the site has features of special interest, such as its:

- wildlife
- geology
- landform

Natural England will 'notify' (or designate) the land, for example, as a site of special scientific interest (SSSI).

2 Sylvan Lane is not situated within a designated Natural England site at the time of writing the report.

2.4 OCCUPIERS' LIABILITIES ACT 1957 AND 1984

An occupier of premises owes the same duty, the "common duty of care", to all his visitors whether by invite or otherwise. The common duty of care is a duty to take such care as in all the circumstances of the case is reasonable to see that the 'visitor' will be reasonably safe in using the premises for the purposes for which he is invited or permitted by the occupier to be there or for purposes other than that which they have been invited (trespassers).

3. ARBORICULTURAL IMPACT ASSESSMENT

3.1 INTRODUCTION

All trees within and closely surrounding the site have been surveyed and each has been identified with a unique number. The location of the trees can be found on Arbor-Eco Consultancy, Drawing Number MB240109-01-01 in Section 5.

A schedule of the trees surveyed can be found within Appendix 1.

3.2 DEVELOPMENT DESIGN AND LONG-TERM IMPACTS

3.2.1 Potential Impact on the Amenity Value of Trees

Impacts

Tree Removal

The proposed development and soft landscaping scheme will not require the removal of any trees or shrubs to permit its successful implementation.

In accordance with the Town and Country Planning (Tree Preservation) (England) Regulations 2012, Part 4 – Applications for Consent under Tree Preservation Orders, this report represents the necessary submission to carry out tree works to trees that are the subject of a Tree Preservation Order to permit the successful implementation of the proposed development. Any tree works that are subsequently required shall be applied for in accordance with current guidance.

Proposed Tree Works

To permit space for the proposed development and to provide working space for the hard and soft landscaping improvements it will be necessary to carry out tree work on this site prior to any other works being carried out. The proposed tree works are detailed in Table 3.1.

Tree No	Species	BS5837 Cat	Tree work and reason required
8	Beech	B	Branch tip prune away from the building by 1.0 m or to a suitable growth point.

Table 3.1: Tree Works Required

Trees and vegetation that overhang the highway should be crown-lifted to at least 5.2 m above ground level to allow safe passage of high sided vehicles as well as being cut back sufficiently from the edge of the carriageway to allow clearance for wing mirrors. Trees and vegetation that overhang footways and footpaths should be crown-lifted to at least 2.5 m above ground level and cut back to ensure the footpath/way is at least 1.2 m in width. This is to allow safe passage for all footpath/way users including wheelchairs, mobility scooters, etc.

These heights have been selected as an acceptable standard and any vegetation below this may be deemed to be an obstruction. The local authority may enforce Section 154 of the Highways Act (1980) which allows a Local Authority to serve notice upon the owner of the trees/ vegetation informing them that they need to clear any obstructions safely.

Mitigation/Avoidance

At the time of writing this report a soft landscaping plan was not available.

Any new tree planting should be carried out in accordance with British Standard 8545:2014 Trees: from nursery to independence in the landscape – Recommendations.

3.2.2 Proximity of Trees to Proposed Structure

Impacts

Branch Spread

It is evident that an existing tree management regime existed, in the form of pruning (as was noted at the time of the inspection) and it is noted that any future conflict that may arise from the proposed development can be appropriately managed through continued management works to the trees, hedgerows and shrubs canopy. So long as such works are completed in accordance with best practice guidance, they will not cause significant harm to the health or amenity value of the tree.

Shading

It is likely that the new extension will experience significant shading during the day as the sun tracks across the horizon. The orientation of the buildings and aspects of the windows would suggest that any shading of the southern face of the building will be felt from early to mid-morning. Therefore, it can be assumed that no significant shading of primary living spaces within the proposed new building extension is likely to occur due to existing or proposed trees.

Leaf Litter, Fruits, Pollen, Sap etc.

Whilst the majority of the retained trees are species associated with significant fruit fall, leaf and branch drop or sap exudate problems the inconvenience experienced can be overcome by implementing good housekeeping.

Mitigation/Avoidance

Trees across this site will be the subject of cyclical pruning as the trees continue to grow. Further works will be required in the future to prevent conflict occurring. However, such works will not be significant as to impact the long-term visual quality of the trees and hedgerows.

With respect to leaf litter, it is noted that the sweeping up of leaves and cleaning of gutters, which may become blocked by falling leaves, is considered to be routine seasonal household maintenance and, as such, no notable conflict with the proposed development is considered to occur. Nonetheless it may prove appropriate in certain areas to use gutter guards, or otherwise enclosed gutters, to minimise the potential for leaf fall to cause blockage and an ongoing nuisance.

3.3 POTENTIAL IMPACTS FROM CONSTRUCTION PROCESSES OF THE PROPOSED DEVELOPMENT

3.3.1 Potential Root and Canopy Protection

To prevent harm occurring to retained trees during development it is recommended that demolition and construction works are excluded from the Root Protection Areas (RPA) of retained trees. Additionally, works should not be undertaken beneath the canopy spread of retained trees where this can be avoided.

The RPA represents the minimum area around trees that must be left undisturbed to ensure their survival. The roots typically occupy the top 600 mm of soil and the fine roots which absorb water, oxygen and nutrients are situated in the top 100 mm of soil. Any incursion into the rooting zone of a tree can cause a notable impact upon a tree's health.

Where existing buildings and areas of hard surfacing exists within the RPA of retained trees it is very likely that the rooting will have occurred asymmetrically due to the hard structures and the morphology of the roots is such that they are likely to have formed a fan shape with many roots running parallel to the man-made structures rather than being offset so far in to the site. The current RPA is shown in accordance with the guidance within BS5837:2012 which is effectively a presumed calculation of the extent of a tree's root system that is required to ensure the continued vigour of a tree.

Demolition and construction work carried out within the RPAs of the retained trees will cause the greatest damage. Soil that has been compacted will not provide suitable conditions for the survival and growth of vegetation, whether existing or new, and is a common cause of post-construction tree loss on development sites. Compacted soil will adversely affect drainage, gas exchange, nutrient uptake and organic content, and will seriously impede or restrict root growth. The risk of soil compaction is greatest in soils with a significant clay content and in wet conditions. It can result from temporary or short-term loadings, such as the passage of a single vehicle, or from longer-term construction activities, including materials storage.

In accordance with BS5837:2012, Section 4.6.2, an allowance for the modification can be made to the RPA of trees located adjacent to man-made or naturally occurring hard structures. In this case highways, access routes, footpaths (especially those that are kerbed) and underground services will affect the morphology of roots. The morphology of the roots is such that they are likely to have formed a fan shape with many roots running parallel to the hard structures rather than being offset in to the site. To determine the exact location of the roots of a tree it would be necessary to employ a root-radar for this work.

Section 7.4.2, Para 7.4.2.3 of BS5837:2012 permits the construction of new hard surfacing within the unmade ground of the RPA of a retained tree of no greater than 20%.

The RPA and canopy spread of each tree to be retained is shown on Arbor-Eco Consultancy, Drawing Number MB240109-01-01, Section 5. Additionally, details of the crown spread measurements are contained within Appendix 1 and a schedule of RPAs for trees on the site is located at Appendix 2.

Impacts

The proposed development of the site has been designed so that major works are justifiably required within the default RPAs of a number of retained trees in the form of construction and replacement of underground services and sections of hard surfacing.

As stated within Section 7.4.2, Para 7.4.2.3 of BS5837:2012 permits the construction of new hard surfacing within the unmade ground of the RPA of a retained tree of no greater than 20%. Where the new extension and driveway encroaches within the RPA of T7 and T8 as shown on Arbor-Eco Consultancy, Drawing Number MB240109-01-01, Section 5, it is assumed that the existing artificial structures will have already deflected the roots of the tree and that limited damage will occur to the roots.

The protection of trees during demolition or deconstruction work is discussed within Section 3.3.6 and 3.3.11.

The construction works to develop sections of hard surfacing, such as the driveway, along with replacement of underground services ducts will have the greatest potential to cause harm to the retained trees. It is considered that the trees identified on Arbor-Eco Consultancy, Tree Protection Drawing MB240109-01-01, Section 5, will not be so significantly impacted upon with the adoption of tree protection measures and good working practices as described below. In addition, the methodology for a technical solution to avoid conflict with the roots will be required as prescribed within Section 3.3.8 and 3.3.11.

Overall, it is considered that the potential for harm to occur to the root systems of retained trees can be adequately controlled through the adoption of appropriate working practices, technical solutions and installation of tree protection to exclude access from vulnerable sections of trees RPAs.

Mitigation/Avoidance

Construction Exclusion Zones

To minimise the potential for harm to occur to the root systems and canopies of retained trees during development it will be necessary to implement construction exclusion zones throughout the site. These are

areas surrounding the trees' RPAs and canopies in which no demolition or construction works, or related activities, will be undertaken. These zones will be demarcated by the erection of tree protection barriers prior to any works (with the exception of tree works) being carried out. The tree protection barriers can be installed as shown at Appendix 3, Figure 3b, as this is a relatively low-impact development in terms of trees but also the rear stabilisers should not penetrate the ground but rest on existing hard surfaces.

It is recommended that the exclusion zones are afforded protection at all times through the use of tree protection barriers and ground protection (specified in accordance with BS5837:2012).

Where hard surfacing already exists on site, consideration should be given so that these areas will be retained and utilised as ground protection within the RPAs of retained trees until the replacement of hard landscaping is implemented into the construction phase of the development. The retention of the hard surfacing is deemed suitable ground protection and therefore the conflict with retained tree's roots is eliminated.

Where the replacement of hard surfacing is being considered then retaining the sub-base hard-core layer will also reduce the risk of root damage.

To minimise the potential for harm to occur to root systems of retained trees from hard surfacing creation it is proposed to construct the hard surfacing areas in accordance with a no-dig methodology and ensure that they are finished with a permeable surface. See Section 3.3.8 for further details.

The construction and replacement of the existing driveway, including the extended portion to house the caravan, shall be carried out once the development for the extension has been completed to ensure all unmade ground is adequately protected.

Arbor-Eco Consultancy, Drawing Number MB240109-02-01, in Section 5, provides a Tree Protection Plan indicating the potential location of areas of no-dig construction and tree protection barriers.

All works within the RPA of a retained tree shall be carried out under the supervision of the retained Arboricultural Consultant. All tree protection measures should be confirmed for their position and suitability prior to any construction works being carried out (See Section 3.3.13 for contact details).

3.3.2 Site Construction Access

Impacts

Construction access to the site will need to make use of the existing access routes in to the site off Sylvan Lane, minor road. To minimise the potential for harm to occur to the crowns of the retained trees and hedgerows which overhang the route further access facilitation pruning works may be required over time due to seasonal extension growth to the existing vegetation. The extent of such pruning works should be revised prior to any construction traffic entering the site. Maximum heights of vehicles should also be investigated to ensure crown height is sufficient throughout the various phases of the development.

Additionally, where vehicles need to pass within close proximity to retained trees protective barriers should be installed to prevent vehicles accidentally encroaching into areas where retained trees are situated to minimise the potential for collision damage to trees stems occurring.

Mitigation/Avoidance

All trees surrounding the potential access routes should be adequately fenced and ground protection installed to ensure that no damage to these specimens occurs during construction.

The retained Arboricultural Consultant shall submit a summary written report or email to the local authority confirming that all tree protection measures are in place, fit for purpose and adequately signed prior to construction or demolition works being carried out.

3.3.3 Contractors Parking

Impacts

The location of contractor parking is yet to be determined but it is understood that it will occur in off-site locations, due to the confined nature of the site, and well away from the RPAs of retained trees.

Mitigation/Avoidance

No contractor parking is to occur at this site unless upon existing hard surfaces. The Contracts Manager is to ensure that all highway laws are respected and **no parking** is to occur on any pavement or highway verge. No neighbouring property shall be inconvenienced by construction or contractor activity.

3.3.4 Site Cabins and Welfare Facilities

Impacts

The location of the Site Cabins and Welfare Facilities is yet to be determined; however, it is understood that it will occur in locations well away from the RPAs of retained trees.

Mitigation/Avoidance

Installation of protective barriers and ground protection to ensure that trees are protected from physical damage resulting from works to establish a Site Cabins and Welfare Facilities.

3.3.5 Delivery and Storage of Materials

Impacts

The proposed locations for site deliveries and materials storage during the development is yet to be determined; however, it is understood that it will occur outside of the RPAs of retained trees.

Mitigation/Avoidance

Ensure no storage occurs upon un-surfaced ground within the defined RPAs of the retained trees via the installation of protective barriers and ground protection.

3.3.6 Demolition of Existing Structures

Impacts

The proposed development of the site will require the deconstruction of the conservatory along with a number of existing building walls to tie in with the new extensions proposed. So long as good working practice is adopted in conjunction with suitable tree and ground protection utilising a top-down, pull-back deconstruction technique then the impact to the retained trees will be significantly reduced.

Mitigation/Avoidance

To prevent any ancillary works associated with the deconstruction of the building walls from harming trees it will be necessary to install protective barriers prior to commencement of these works.

Additionally, where the use of 360-degree traversing vehicles is used, then they will be supervised by a banksman to ensure that any traversing arm shall not be in proximity to any retained tree.

Where hard surfacing is being replaced, then retention of the hard core sub-base layer shall be retained to prevent further incursion in to the rooting zones of these trees. The sub-base layer will provide the necessary protection to the underlying roots during this phase of development.

The location of the tree protection barriers and ground protection is shown on Arbor-Eco Consultancy, Tree Protection Plan Drawing Number MB240109-01-01, Section 5.

3.3.7 Construction of Buildings

Impacts

The proposed extension has been designed in order that it be constructed upon the existing footprint of the conservatory. It is not known if the current foundations are structurally adequate to support the new extension. Should this not be the case then trial pits will need to be excavated along the southern face of the wall of the existing conservatory to determine the root locations. It is unlikely that they will have grown beneath the building. Therefore, installing new foundations should be possible without harming the roots.

Should roots be discovered, then under the supervision of the Arboricultural Consultant, they can either be safely moved out of the way, or if smaller than 25 mm in diameter, cut away from the foundation line. This will require investigation.

To prevent harm to the trees' roots further investigation of their potential location will need to be carried out.

The locations of the tree protection barriers and ground protection is shown on Arbor-Eco Consultancy, Tree Protection Plan Drawing Number MB240109-01-01, Section 5.

Mitigation/Avoidance

The proposed construction of the extension has been considered in proximity to retained trees;

Small trial pits should be excavated by hand along the conservatory wall opposite trees 7 & 8 to determine if they have grown in close proximity.

The methodology for installing foundations shall be submitted by the manufacturer or Contracts Manager.

Where the scaffold towers are erected within the RPAs of the retained trees 7 & 8, the following approach should be adopted;

1. Apply the following ground protection within the RPA of the tree prior to the realignment of the tree protection barriers;
 - a. For pedestrian movements only, a single thickness of scaffold boards placed either on top of a driven scaffold frame, so as to form a suspended walkway, or on top of a compression-resistant layer (pedestrian surface plates over 100 mm of woodchip for example), laid onto a geotextile membrane.
2. Construct the scaffold vertical tubes upon wooden blocks (to distribute the point load) with suspended walkways ensuring a layer of impermeable membrane is placed beneath the scaffold to catch any falling debris such as curing cement as this can be phytotoxic to the roots of vegetation. All pedestrian access will use the suspended scaffold walkways as defined by the tree protection barriers as shown on Tree Protection Plan Drawing Number MB240109-01-01, Section 5.
3. Fit scaffold boards to provide a walkway of 1.5 m width.
4. Any vegetation obstructing access or deemed to be within eye-strike shall only be removed if the specification has been detailed within the Tree Works Addendum as discussed in Section 3.2.1. If this is not the case then the Contracts Manager shall seek the authority of the retained Project

Arboriculturalist or Arboricultural Officer for the Local Authority (See Section 3.3.13 for more details).

To restock materials around the scaffold towers, further ground protection may be required and therefore the Contracts Manager will be responsible for the installation and supervision of this works. Once this has been carried out the retained Arboricultural Consultant will be contacted to confirm the suitability and location.

The proposed construction of the extension has been considered in proximity to retained trees;

Where the scaffold towers are erected within the RPAs of the retained trees 7 & 8, the following approach should be adopted;

1. Apply the following ground protection within the RPA of the tree prior to the realignment of the tree protection barriers;
 - a. For pedestrian movements only, a single thickness of scaffold boards placed either on top of a driven scaffold frame, so as to form a suspended walkway, or on top of a compression-resistant layer (pedestrian surface plates over 100 mm of woodchip for example), laid onto a geotextile membrane.
2. Construct the scaffold vertical tubes upon wooden blocks (to distribute the point load) with suspended walkways ensuring a layer of impermeable membrane is placed beneath the scaffold to catch any falling debris such as curing cement as this can be phytotoxic to the roots of vegetation. All pedestrian access will use the suspended scaffold walkways as defined by the tree protection barriers as shown on Tree Protection Plan Drawing Number MB240109-01-01, Section 5.
3. Fit scaffold boards to provide a walkway of 1.5 m width.
4. Any vegetation obstructing access or deemed to be within eye-strike shall only be removed if the specification has been detailed within the Tree Works Addendum as discussed in Section 3.2.1. If this is not the case then the Contracts Manager shall seek the authority of the retained Project Arboriculturalist or Arboricultural Officer for the Local Authority (See Section 3.3.13 for more details).

To carry out work to form the foundations using a piling rig, further ground protection may be required and therefore the Contracts Manager will be responsible for the installation and supervision of this works. Once this has been carried out the retained Arboricultural Consultant will be contacted to confirm the suitability and location.

The potential for direct damage to the stems of the trees will be controlled by the installation of protective barriers as shown on Arbor-Eco Consultancy, Tree Protection Plan Drawing Number MB240109-01-01, Section 5.

3.3.8 Construction of New Hard Surfacing

Impacts

Conversations with Mr McManus has revealed that the hard surfacing of the driveway and caravan parking bay will be refurbished and renewed. The current plan is to resurface the driveway with a resin-bound permeable finish.

The potential for significant harm to occur to the retained trees can be controlled through adoption of appropriate working techniques, construction utilising a no-dig methodology and tree protection measures along with adequate supervision.

No access shall occur within the Construction exclusion Zone without the permission of the retained Arboricultural Consultant or Arboricultural Officer for the Local Authority (See Section 3.3.13 for more details).

It is strongly recommended that the existing concrete raft is retained for the caravan parking to refrain from lift the current raft and disturbing underlying roots.

Mitigation/Avoidance

Wherever it is intended to undertake construction operations within the Root Protection Areas of trees precautions must be taken to maintain the condition and health of tree's root systems. There are plans to upgrade the existing driveway and caravan parking bay within the RPA of tree number 8.

Should the requirement to lift the existing concrete raft remain within the plans then this work will be carried out under the supervision of the retained Arboricultural Consultant or Arboricultural Officer for the Local Authority (See Section 3.3.13 for more details) and the roots protected from damage.

In particular:

- Works shall be conducted in such a manner as to prevent physical damage to roots during the development, such as soil compaction or root severance.
- Provision for water and oxygen to reach the roots must be made and the soil structure must not be disturbed.
- Provision must be made for future root growth and precautions taken to ensure that such root growth does not cause unacceptable levels of damage to the finished construction.
- The soil must not be compacted and soil bulk density must be maintained at suitable levels for tree root growth and function. In this respect, a soil bulk density of over 1.8g/cm³ is likely to impede root growth and function.

The construction of the caravan parking area will be carried out adopting the following methodology:

1. Prior to commencement of the works Tree Protection Barriers will be installed in the positions shown on the Tree Protection Plan Drawing Number MB240109-01-01, Section 3.
2. The existing hard surfacing within the RPA of tree numbers 7 and 8 will be removed using hand tools and/or appropriate handheld mechanical breakers.
3. The hard surfacing will be removed no further that to the existing hard-core base layer to avoid excavation in to the soil and the potential for harm to the tree's roots.
4. A permeable geotextile membrane will be laid over the ground and backfilled with washed sand (not builder's sand as this contains salt).
5. Uneven ground will be augmented with sand and the new hard surfacing laid upon it as the finished level.

Should an alternative hard surface be considered then to achieve the above requirements for tree root growth and function the proposed hard surfaces shall be designed so that:

- No excavation of bare ground is required for their installation; to ensure that physical root damage does not occur.
- The surface can be installed without compaction of the existing soils; thus, ensuring damage to the soil structure does not occur.
- The surface is permeable; thus, ensuring that oxygen and water can reach the root system and that CO² can diffuse vertically out of the soil as high concentrations can cause root suffocation.

There are various methods of creating such a surface and examples that are commonly in use and therefore recommended here is the use of a three-dimensional cellular confinement system, such as CellWeb produced by Geosynthetics or Geoweb produced by Greenfix UK (other contractors provide similar products which are available in the marketplace) to provide for load suspension above the existing soil structure and therefore reducing vertical loads on the underlying soils.

Due to the nature of the product and installation methodology, there may be a slight increase in levels across the driveway and therefore to tie in with the garage or front of the property, this will need to be accounted for. The manufacturers guidelines shall be adhered to and where necessary supervision will be arranged with the Arboricultural Consultant.

It should be noted however, that should such an approach be adopted some limited impact upon the trees is likely and whilst they are species that will typically adapt to changes in their growing environment some short-term loss of vigour could be expected.

Where existing areas of hard surfacing is proposed for renewal then it is recommended that only the surface layer is removed down to the existing hard-core base layer and rebuilt from this horizon. This will negate the requirement for excavating within the RPA of a retained tree and thus reducing the likelihood of damage to underlying roots.

In summary mitigation measures shall be to utilise a 'no dig' construction methodology to construct all areas of hard surface within the RPAs of the retained trees.

An appropriate method statement and protection plan should be developed by the preferred manufacturer of the three-dimensional sub-base to ensure all retained trees are suitably protected during the development. In accordance with BS5837:2012 all areas of construction activity within the RPA should be supervised by the retained Arboricultural Consultant (See Section 3.3.13 for contact details).

3.3.9 Boundary and Ancillary Structures

Impacts

The exact details of any proposed boundary structures are not known at this time.

Mitigation/Avoidance

As a precaution, the location of any concrete foundations and supporting posts needs to be carefully considered to ensure no damage to the adjacent trees occurs. For example, due to the highly alkaline leachate produced during the curing process of wet concrete, the concrete should not be poured within the RPA of a retained tree unless an impermeable liner has been installed.

Foundations for any proposed retaining wall within an RPA should not be of traditional trench style but consideration made for an above ground bridged-lintel to allow for future growth both above and below ground.

Additionally, any new fence posts should not be constructed within 1.0 m of the stem of any retained tree. Consideration for the use of half-panels to relocate fence posts away from retained trees by measuring site

boundaries beforehand is recommended. This will reduce the amount of excavation for post foundations required within the RPAs of the retained trees. Any excavation for fence posts in RPAs will need to occur by hand and under arboricultural supervision to ensure no root damage occurs (See Section 3.3.13 for contact details).

No machinery should be used for the installation of fence posts and ground protection may be a consideration in some circumstances.

In accordance with BS5837:2012 all areas of construction activity within the RPA should be supervised by the retained Arboricultural Consultant (See Section 3.3.13 for contact details).

3.3.10 Site Gradients

Impacts

There may be a small increase in gradient when the reconstruction of the driveway is considered.

Mitigation/Avoidance

The areas of new hard surfacing within the RPAs of retained trees are to be built up from existing ground level in accordance with a no-dig methodology. No excavation of ground or build-up of levels shall occur within the RPAs of retained trees. This is to prevent destabilising the tree or suffocation of the tree roots. In both instances, it would be detrimental to the trees' vitality and vigour.

3.3.11 Service Requirements

Impacts

It is understood that the existing services will be upgraded and replaced as necessary.

The existing underground services are currently located within the RPAs of tree numbers 7 & 8. The potential for harm to the roots of both trees is high due to the current configuration.

Mitigation/Avoidance

The methodology for the installation, maintenance or removal of any services within an RPA will be in accordance with NJUG Volume 4 'Guidelines for the Planning, Installation and Maintenance of Utility Services in Proximity to Trees'. This will include hand dug 'broken' trenches to ensure that maximum protection is given to tree roots.

1. Prior to commencement of the works Tree Protection Barriers will be installed in the positions shown on the Tree Protection Plan Drawing Number MB240109-01-01, Section 3.
2. The existing hard surfacing within the RPA of tree numbers 7 and 8 will be removed using hand tools and/or appropriate handheld mechanical breakers.
3. The hard surfacing will be removed no further than to the existing hard-core base layer to avoid excavation in to the soil and the potential for harm to the tree's roots.

Investigation of the trenches will be carried out to determine the potential for harm to the trees' roots. Further advice will be provided at this time by the retained Arboricultural Consultant (See Section 3.3.13 for contact details).

It is advised that the installation of any new services and drainage occur outside the RPAs of the retained trees. It is also advised that CCTV and lighting columns should not be situated in locations which will place future pressure on trees for crown pruning due to visibility/shadowing. Any lighting bollards, road signage

or similar structures that require to be fixed to the ground with underground services shall be fitted outside of the RPAs of retained trees.

All areas of construction activity within the RPA of a retained tree should be supervised by the retained Arboricultural Consultant (See Section 3.3.13 for contact details).

3.3.12 Preconstruction Recommendations

Auditable systems of site monitoring should be made available to the Local Planning Authority/Arboricultural Officer and included within the program of development construction as recommended within BS5837:2012. This should include a schedule of events whereby periods of supervision or input from the Project Arboriculturist is required (See Section 3.3.13 for contact details).

Carry out all tree works prior to any demolition or construction activity taking place.

A pre-commencement site meeting involving all interested parties should be convened to confirm;

- Demolition / deconstruction methodology;
- Phased Construction of extension;
- Confirmed location for Tree Protection Measures;
- Underground Services Installation Methodology;
- Site Compound location and set-up;
- Parking locations;
- Audit and Periods of Supervision.

3.3.13 Contact Details

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3.3.14 Additional Considerations

Planning Context; National Planning Policy Framework

It is important to note that trees are a material consideration in the UK planning system and existing trees are an important factor requiring forethought when assessing the development potential of a site, whether they are within the working area or within such proximity to it that they may be affected by construction operations.

Environmental Benefits of Trees

It is worthwhile noting that the trees can intercept many of the hostile elements humans and animals need shelter from. Trees provide shading and offer significant humidity regulation and a cooling effect felt at ground level. All trees will consume a considerable amount of ground water that will regulate the local hydrology and may assist with the removal of local flooding issues. A mature tree will consume tens of thousands of litres of water during a year. A group of trees can provide an element of acoustic dampening effect at ground level and growing next to a road many tree species have been linked with the sequestration of impurities from the atmosphere. Finally, the trees will provide some shelter from

prevailing winds and inclement weather. Therefore, it can be seen that the trees will benefit, rather than hinder, the landscape in which they are growing.

Biodiversity Enhancement

Biodiversity Net Gain (BNG) is an approach to development. It makes sure that habitats for wildlife are left in a measurably better state than they were before the development.

In England, BNG is mandatory under Schedule 7A of the Town and Country Planning Act 1990 (as inserted by Schedule 14 of the Environment Act 2021).

Developers must deliver a minimum BNG of 10%. This means a development will result in more or better-quality natural habitat than there was before development. The developer must also maintain the habitats created or enhance them for a minimum of 30 years. This applies to any off-site gains or significant on-site gains.

4. ARBORICULTURAL METHOD STATEMENT

An Arboricultural Method Statement is a consideration for the project as there are various aspects of the proposed demolition and construction phases that require works to be undertaken within the RPAs of retained trees. These can be adequately supervised by the retained Arboricultural Consultant.

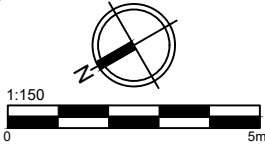
It is also recommended that a Method Statement be provided by the preferred manufacturer of the three-dimensional cellular confinement installing the proposed new driveway.

The purpose of a method statement is to ensure that all site operations can occur with minimal risk of adverse impact upon trees that are to be retained. The document will identify all areas where specific working methods will be required to ensure protection to trees. The document will also specify the location, specification and extent of tree protection barriers.

5. DRAWINGS

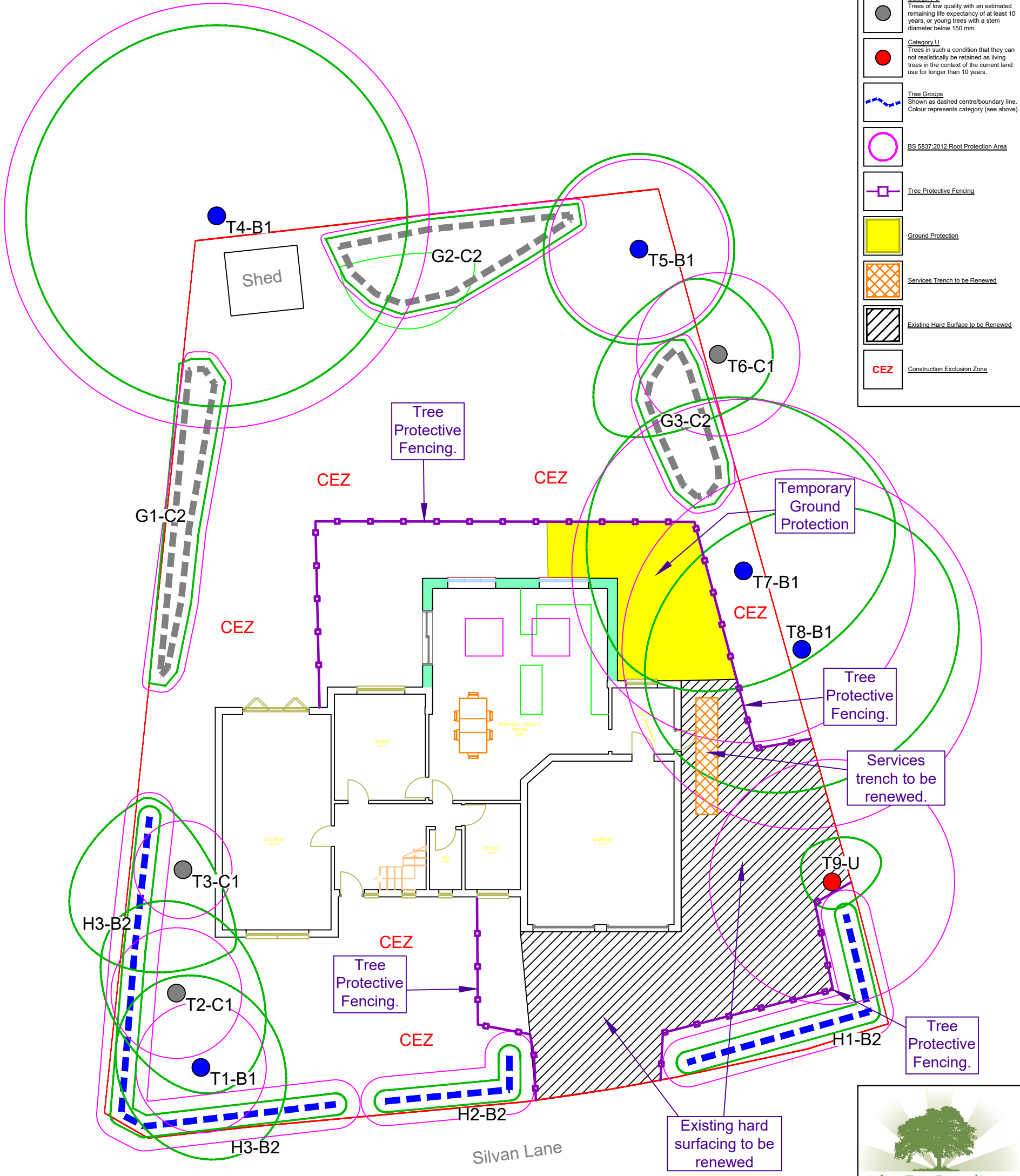
Drawing MB240109-01-01 Tree Protection Plan

General Notes
Do not scale off drawing - refer to the tree data schedule for accurate crown spread measurements.
Depictions of tree canopies are based on measurements taken to four cardinal compass points.
No liability of any kind is accepted for any omissions or inaccuracies in respect of this plan.
The original of this drawing was produced in colour; a monochrome copy should not be relied upon.
All rights reserved.



Key

- Trees**
Showing Canopy extents, category colour and tag number (with category).
- Category A**
Trees of high quality with an estimated remaining life expectancy of at least 40 years.
- Category B**
Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.
- Category C**
Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm.
- Category U**
Trees in such a condition that they can not realistically be retained as living trees in the context of the current land use for longer than 10 years.
- Tree Groups**
Shown as dashed centre/boundary line. Colour represents category (see above).
- BS 5837:2012 Root Protection Area**
- Tree Protective Fencing**
- Ground Protection**
- Services Trench to be Renewed**
- Existing Hard Surface to be Renewed**
- CEZ** **Construction Exclusion Zone**



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Client			
Mr & Mrs McManus			
Project			
2 Silvan Lane, Hamble-le-Rice.			
Drawing Title			
Tree Protection Plan			
Scale	Date	DB	CB
1:150 - A3	19/04/2024	CS	MB
Drawing Number	Rev		
MB240109-01-02	A		

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APPENDICES

APPENDIX 1:	Table A1.1 – Tree Survey Schedule
APPENDIX 2:	Table A2.1 – Root Protection Areas of Category A, B and C Trees
APPENDIX 3:	Headings for Tree Protection Signs and Example Sign
APPENDIX 4:	Tree Protection Barriers (Default and Variant)
APPENDIX 5:	Photographic Montage
APPENDIX 6:	Trees; Causes Of Death – Construction Site

APPENDIX 1

Table A1.1 – Tree Survey Schedule

Tree No.	Species	No. Stems	Diam (mm)	H't (m)	Ht 1 st Branch (m)	Branch Spread (m)				Crown Clearance (m)				Age	Phys Cond	Struc Cond	Est. Remain Contrib (Years)	Cat	Comments	Preliminary Management Recommendations
						N	E	S	W	N	E	S	W							
1	Himalayan Birch	3	200	9.0	1.5 W	3.0	3.5	3.0	3.5	2.0	2.0	2.0	2.0	M	G	G	20+	B1	- Artificial structures within RPA. - Trifurcated at 1.3 m above ground level.	None at time of survey.
2	Cherry	2	190	6.0	1.0 W	2.5	3.5	3.0	4.0	2.0	2.0	2.0	2.0	EM	F	G	10+	C1	- Artificial structures within RPA. - Bifurcated at 1.0 m above ground level with tight union and included bark.	None at time of survey.
3	Magnolia	3	150	6.0	0.3 W	4.5	3.0	1.0	3.5	2.0	2.0	2.0	2.0	EM	F	F	10+	C1	- Managed garden tree. - Trifurcated at 0.3 m and at 1.0 m above ground level.	None at time of survey.
4	Norway Maple	1	<u>650</u>	15.0	2.0 W	<u>7.0</u>	<u>7.0</u>	<u>7.0</u>	<u>7.0</u>	3.0	3.0	3.0	3.0	M	G	G	20+	B1 Int	- Off-site tree. - Artificial structures within RPA. - Bifurcated at 2.0 m above ground level. - Ivy on stem and in crown. - Restricted access prevented detailed assessment. - Roots disrupt boundary wall.	Sever ivy at base of stem.
5	Field Maple	1	270	7.0	1.5 E	3.5	3.5	3.5	3.5	2.0	2.0	2.0	2.0	EM	G	G	20+	B1	Artificial structures within RPA.	None at time of survey.
6	Sycamore	1	<u>240</u>	9.0	2.0 S	5.0	<u>3.0</u>	<u>2.0</u>	<u>2.0</u>	4.0	3.0	2.0	2.0	EM	F	F	10+	C1 Int	- Off-site tree. - Artificial structures within RPA. - Restricted access prevented detailed assessment.	None at time of survey.
7#	Beech	1	510	15.0	4.0 E	5.5	6.5	<u>6.0</u>	<u>4.0</u>	3.0	4.0	6.0	4.0	M	G	G	20+	B1	- Artificial structures within RPA. - Exposed surface roots due to erosion. - Underground services within RPA. - Major deadwood in crown. - Land falls away beyond boundary feature to south.	Crown clean deadwood.

Table A1:1 Tree Survey Schedule (continues)

Tree No.	Species	No. Stems	Diam (mm)	H't (m)	Ht 1 st Branch (m)	Branch Spread (m)				Crown Clearance (m)				Age	Phys Cond	Struc Cond	Est. Remain Contrib (Years)	Cat	Comments	Preliminary Management Recommendations
						N	E	S	W	N	E	S	W							
8#	Beech	1	540			6.0	5.0	6.0	5.0									B1	- Off-site tree. - Restricted access prevented detailed assessment. - Major deadwood in crown. - Exposed surface roots due to erosion. - Underground services within RPA. - Artificial structures within RPA. - Branches whip building. - Land falls away beyond boundary feature to south.	Branch tip prune from building by 1.0 m or to a suitable growth point. Crown clean deadwood.
9	Bay	1	360	4.0	0.0 S	1.0	<u>1.5</u>	<u>2.0</u>	<u>1.0</u>	0.0	0.0	0.0	0.0	OM	F	F	<10	U	- Artificial structures within RPA. - Excessive pruning with sections of open canopy. - Land falls away beyond boundary feature to south.	None at time of survey.
G1	Olive, Apple, Cherry	1	<u>100</u>	6.0	0.0 S	<u>1.5</u>	<u>1.5</u>	<u>1.5</u>	<u>1.5</u>	0.0	0.0	0.0	0.0	Y EM M	F	F	10+	C2	- Artificial structures within RPA. - Boundary group of managed trees and shrubs.	None at time of survey.
G2	Laurel, Yew, Rhododendron, Camelia	1	<u>80</u>			<u>1.0</u>	<u>1.0</u>	<u>1.0</u>	<u>1.0</u>	0.0	0.0	0.0	0.0	Y EM M	F	F	10+	C2	- Artificial structures within RPA. - Boundary group of managed trees and shrubs.	None at time of survey.
G3	Pittosporum	1	<u>110</u>			<u>2.0</u>	<u>2.0</u>	<u>2.0</u>	<u>2.0</u>	0.0	0.0	0.0	0.0	Y EM M	F	F	10+	C2	- Artificial structures within RPA. - Boundary group of managed shrubs.	None at time of survey.
H1	Beech	1	<u>50</u>			<u>0.25</u>	<u>0.25</u>	<u>0.25</u>	<u>0.25</u>	0.0	0.0	0.0	0.0	Y EM M	G	G	20+	B2	- Artificial structures within RPA. - Managed hedgerow at boundary of property.	None at time of survey.

Table A1:1 (cont'd) Tree Survey Schedule (continues)

Tree No.	Species	No. Stems	Diam (mm)	H't (m)	Hft 1 st Branch (m)	Branch Spread (m)				Crown Clearance (m)				Age	Phys Cond	Struc Cond	Est. Remain Contrib (Years)	Cat	Comments	Preliminary Management Recommendations
						N	E	S	W	N	E	S	W							
H2	Beech	1	50			0.25	0.25	0.25	0.25	0.0	0.0	0.0	0.0	Y EM M	G	G	20+	B2	- Artificial structures within RPA. - Managed hedgerow at boundary of property.	None at time of survey.
H3	Beech	1	50			0.25	0.25	0.25	0.25	0.0	0.0	0.0	0.0	Y EM M	G	G	20+	B2	- Artificial structures within RPA. - Managed hedgerow at boundary of property.	None at time of survey.
Key <u>Age Class</u> Y: Young = tree within first third of average life expectancy EM: Early mature = tree within second third of average life expectancy M: Mature = tree within final third of average life expectancy OM: Over mature = tree beyond average life expectancy V: Veteran = shows signs of retrenchment and in decline. D: Dead.						<u>Physiological Condition</u> G: Good = no health problems F: Fair = symptoms of ill health that may be remedied P: Poor = poor health D: Dead <u>Structural Condition</u> G: Good = no structural defects F: Fair = remedial structural defects P: Poor = significant structural defects D: Dead										<u>000</u> : Estimated measurement due to access restrictions RPA: Root Protection Area Major deadwood: branches in excess of 50 mm diameter Minor deadwood: branches/twigs less than 50 mm diameter Int: Interim category due to access restrictions. #: Trees subject to Tree Preservation Order				

Table A1:1 (cont'd) Tree Survey Schedule

APPENDIX 2

Table A2.1 – Root Protection Areas of Trees, Groups and Hedgerows Surveyed

Tree No.	Species	Diam (mm)	Approximate Root Protection Radius (m)	Root Protection Area (m ²)
1	Himalayan Birch	200	2.4	18
2	Cherry	190	2.4	18
3	Magnolia	150	1.8	10
4	Norway Maple	<u>650</u>	7.8	191
5	Field Maple	270	3.3	34
6	Sycamore	<u>240</u>	3.0	28
7	Beech	510	6.3	124
8	Beech	540	6.6	137
9	Bay	360	4.5	64
G1	Olive, Apple, Cherry	<u>100</u>	1.2*	5*
G2	Laurel, Yew, Rhododendron, Camelia	<u>80</u>	1.2*	5*
G3	Pittosporum	<u>110</u>	1.5*	7*
H1	Beech	<u>50</u>	0.9*	3*
H2	Beech	<u>50</u>	0.9*	3*
H3	Beech	<u>50</u>	0.9*	3*
Key: <u>000</u> : estimated dimensions due to access restrictions *: Average measurement taken around centre of group or hedgerow				

Table A2-1: RPA and Approximate Root Protection Radius of Trees, Groups and Hedgerows Surveyed

APPENDIX 3

Headings for Protective Barrier Notices and Example Sign

Root Protection Area (RPA) Model Notice

DON'T excavate within this area

DON'T use any form of mechanical plant with this area

DON'T store materials, plant or equipment within this area

DON'T move plant or vehicles within this area

DO contact the Local Authority Arboricultural Officer or owner of the tree if excavation within this area is unavoidable

DO protect any exposed roots uncovered within this area with dry sacking

DO backfill with a suitable inert granular and top soil material mix as soon as possible on completion of work

ANY WORK in this area requires permission from the Local Authority Arboricultural Officer



**PROTECTIVE FENCING. THIS
FENCING MUST BE
MAINTAINED IN ACCORDANCE
WITH THE APPROVED PLANS
AND DRAWINGS FOR THIS
DEVELOPMENT.**



**TREE PROTECTION AREA
KEEP OUT !**

**(TOWN & COUNTRY PLANNING ACT 1990)
TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY
PLANNING CONDITIONS AND/OR ARE THE SUBJECTS OF A
TREE PRESERVATION ORDER.
CONTRAVENTION OF A TREE PRESERVATION ORDER MAY
LEAD TO CRIMINAL PROSECUTION**

**ANY INCURSION INTO THE PROTECTED AREA MUST BE
WITH THE WRITTEN PERMISSION OF THE LOCAL
PLANNING AUTHORITY**

APPENDIX 4

Details of Protective Barrier (Default and Variant)

Figure 2 Default specification for protective barrier

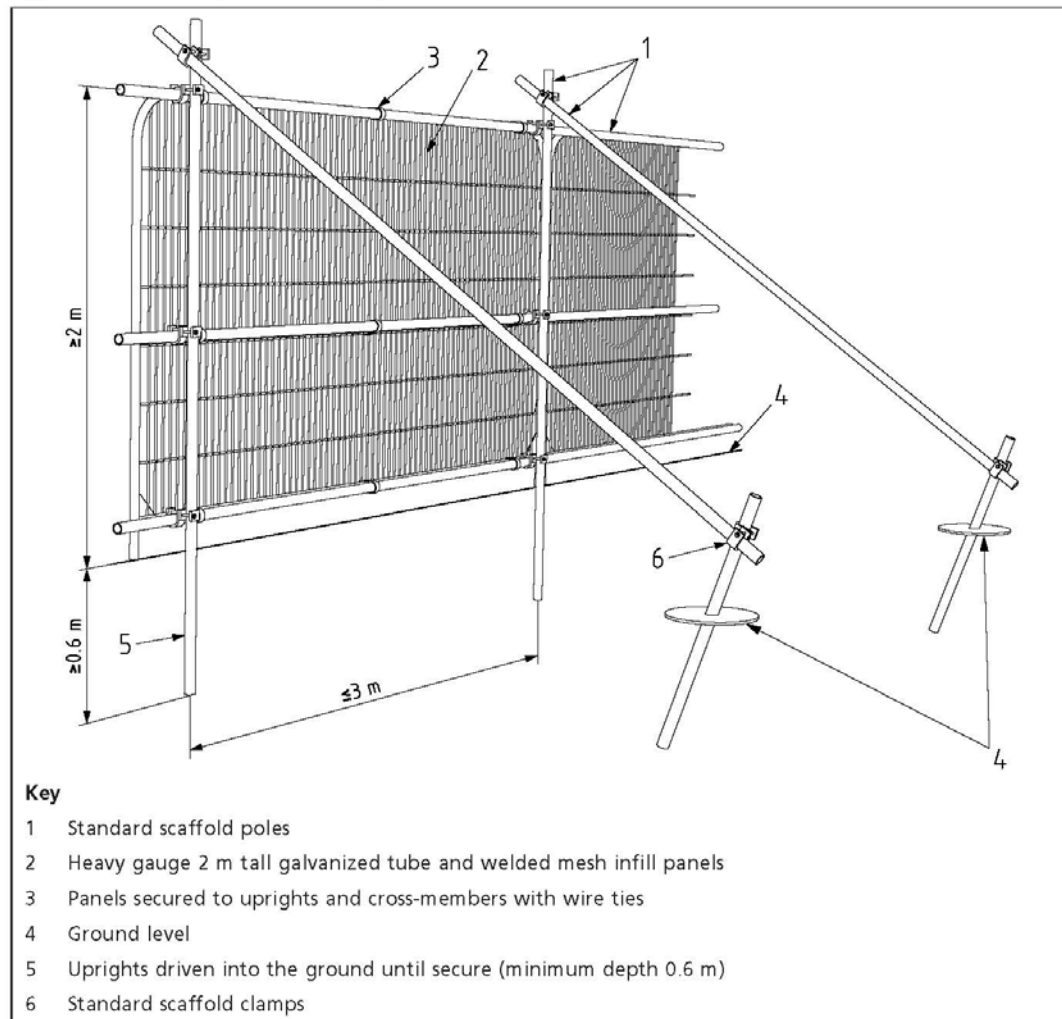
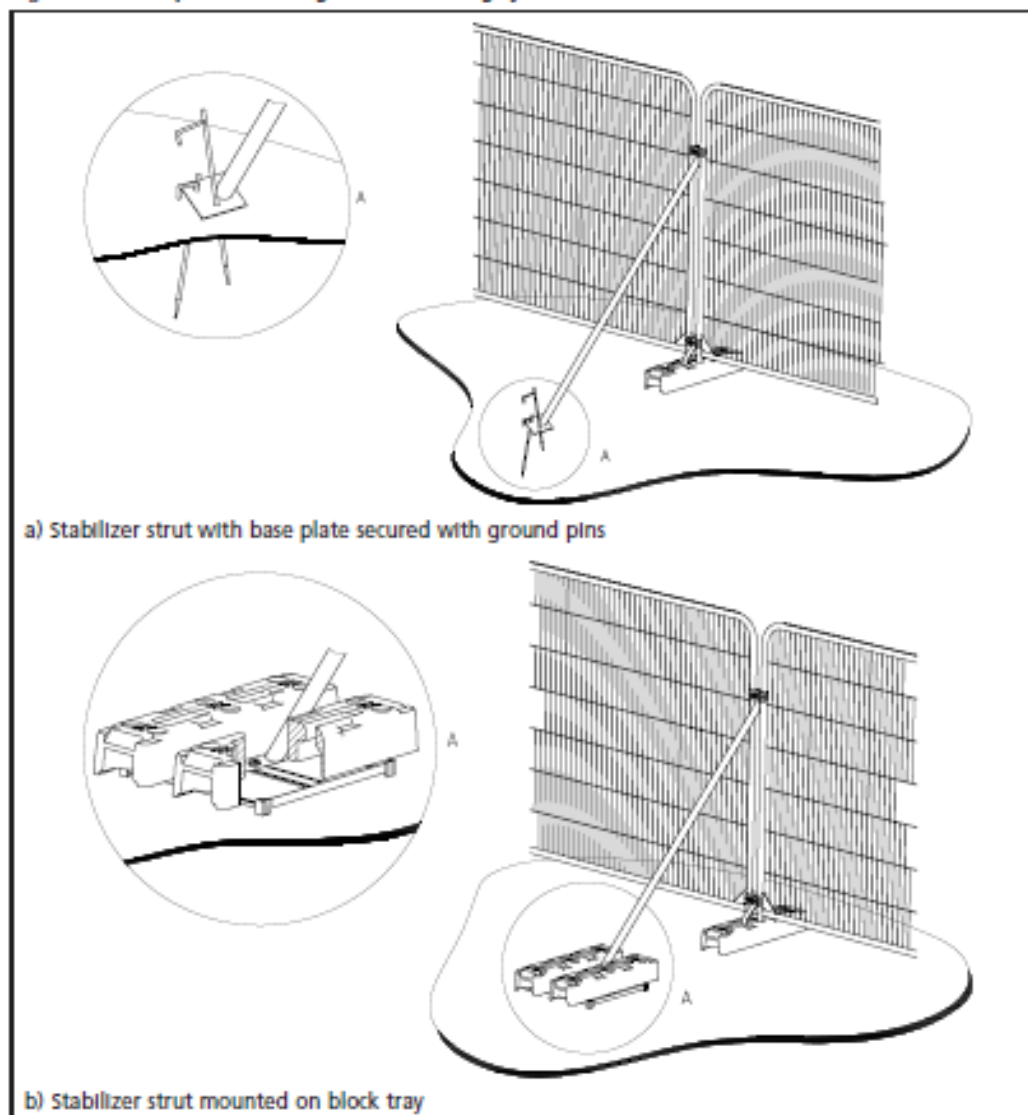


Figure 3 Examples of above-ground stabilizing systems

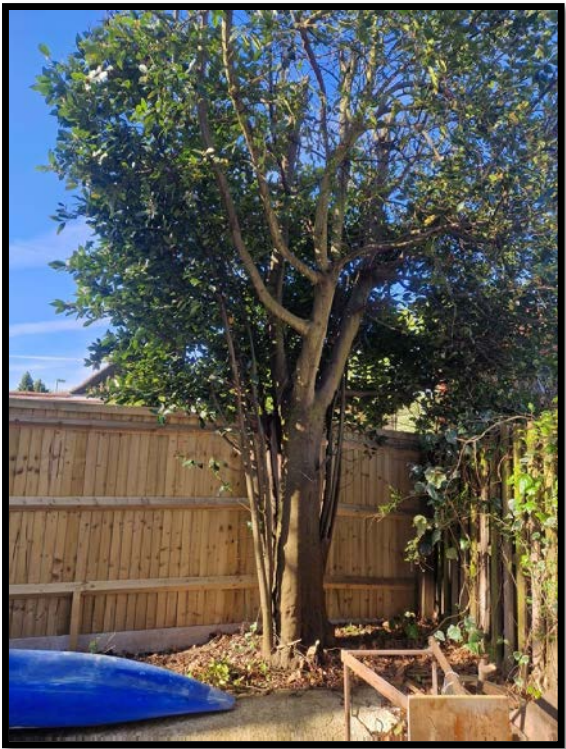


APPENDIX 5

Photographic Montage











APPENDIX 6

Trees; Causes of Death – Construction Site

Common Causes of Tree Death

The use of properly positioned protective fencing can prevent tree deaths occurring. For site offices and contractors.

