

Hard Surfacing

Trees can be affected by construction within the RPAs either through the direct damage caused by the removal of roots or compaction of the rooting environment; or through secondary damage such as poisoning through leaks and spills (oils, fuels, etc.) including such activities as de-icing (road salt, etc.)

Proposed hard surfacing within the RPAs of retained trees is therefore to be designed so that it can be constructed above the existing soil level and minimise any adverse impacts upon the trees RPAs. As the use of traditional foundations and sub-bases can result in excessive root loss through the direct removal of roots during excavations and by compaction of the soil beneath the excavation, as such the 'traditional' methodology must be avoided.

When designing hard surfacing that is to be situated within the RPAs of retained trees, the design team need to pay particular attention to the proposed usage (pedestrian, domestic traffic, delivery vans, emergency services, HGVs, etc.) The existing and proposed levels of hard surfacing and finished floor levels, existing types and details, proximity to tree trunks and surface rooting, contamination capture and SUDs, etc.

Possible sub-bases (foundation systems) for new hard surfacing situated within the RPAs of retained trees could include:

- A proprietary system such as a multi-dimensional confinement system (CellWeb TRP or similar),
- Engineered solution such as a road deck, bridge, etc.,

An engineered solution is likely to require a level of excavation for site specific investigations to locate roots to aid in foundation design so that a suitable foundation can be designed to avoid roots and for the installation of the structure.

NB: The use of a multi-dimensional confinement system and/or engineered solution will affect the finished levels of the hard surfacing by raising the levels and needs to be considered when designing foundations and setting the finished floor levels of adjoining buildings.

Soil Amelioration

Where development proposals result in partial incursion into a tree's Root Protection Area (RPA), the potential for adverse effects on rooting conditions must be carefully considered. The RPA represents the minimum area required to maintain a viable rooting environment, and although limited encroachment may sometimes be acceptable, more substantial incursions increase the risk of soil compaction, reduced aeration, and long-term physiological stress to retained trees.

Within the current scheme, the predicted RPA incursions exceed commonly accepted guideline thresholds for two of the affected trees. To address this, targeted soil improvement works are proposed within adjacent soft landscaped areas to enhance the overall quality and functionality of the remaining rooting environment. The objective is to ensure that the development does not result in a net decline in soil conditions available to the retained trees.

The proposed works involve air spading, a non-invasive technique that uses compressed air to fracture compacted soil without causing damage to woody roots. This process improves soil porosity and allows beneficial amendments to be incorporated into the upper soil profile. Following decompaction, soil conditioning materials such as biochar can be integrated into the soil matrix. Biochar is widely recognised for its ability to improve soil structure, increase moisture retention, enhance microbial activity, and improve nutrient availability.

Collectively, these measures help restore soil permeability and rooting potential within the wider landscape areas surrounding the trees. By improving the quality of the remaining rooting environment, the approach aims to offset the functional loss of rooting space caused by the new hard surfacing.

This strategy demonstrates that tree retention has been actively considered within the design and that positive arboricultural intervention is proposed to enhance long-term tree vitality, thereby reducing the likelihood of development-related decline. It also aligns with the overarching principles of BS 5837:2012, which encourage design solutions that minimise harm and, where appropriate, improve conditions for retained trees.

Foundations within RPAs

The use of traditional strip foundations can result in excessive root loss and as such should be avoided. Foundation design should aim to minimise the adverse impacts upon trees and should include particular attention to the existing soil levels and proposed finish levels (whilst considering cross sectional details). Site specific and specialist advice should be sought from the Project Engineer and Arboriculturist.

Root damage can be minimised by using:

- Piles combined with site investigations to determine their optimal location whilst avoiding significant roots in excess of 25mm diameter.
- Bents laid in or above the existing soil level and cantilevered where necessary to avoid roots identified by site investigations.

Where a slab for minor structures (e.g., a shed base) is to be formed within the RPAs of retained trees, it should bear directly on the existing ground level and should not exceed an area greater than 20% of the existing unsurfaced ground.

Slabs for larger structures (e.g., dwellings) should be constructed with a ventilated air space between the underside of the slab and the existing soil surface. This is to enable gas exchange and venting through the soil surface. In such cases, a specialist irrigation system should be employed (e.g., roof run-off redirected under the slab). The design of the foundations should take into account the effect on the load bearing properties of the underlying soil from the restricted roof run-off. Approval in principle for foundations that relies on topsoil retention and roof run-off under the slab should be sought from the building control authority prior to the approach being relied upon.

Where piling is to be installed near to trees, the smallest practical pile diameter is to be used, as this reduces the possibility of striking roots and reduces the size of the rig required to sink the piles. If a piling mat is required, this should conform to the parameters for ground protection. Use of the smallest practical piling rig is also important where piling within the branch spread is proposed, as this can reduce the need for access facilitation pruning. The pile type should be selected bearing in mind the need to protect the soil and adjacent roots from the potentially toxic effects of uncured concrete, e.g., sleeved bored piles or screw piles.

Indicative only

0m

5m

10m

Indicative only

Rooting Environment Enhancement Areas:
Area identified for targeted soil improvement works to enhance the rooting environment of retained trees affected by partial RPA incursion. Works to include non-invasive soil decompaction using air spading, followed by incorporation of soil amendments (e.g., biochar) to improve soil structure, aeration, and nutrient availability. Measures intended to offset potential impacts associated with adjacent hard surfacing and support long-term tree vitality.

Impact: Proposed hard surfacing situated within the RPAs of 1T, 2T, 3T & 4T.
Mitigation: Hard surfacing located within the RPAs of retained trees is to utilise a 'no dig' sub-base designed to an engineering specification in conjunction with the advice of the Project Engineer and Arboriculturist so that it can be constructed entirely above the existing soil level.

Impact: Proposed structure situated within the RPAs of trees 1T.
Mitigation: Foundations for the proposed structure are to be designed to an engineering specification in conjunction with the advice of the Project Engineer and Arboriculturist based on site specific investigations.

Arboricultural Impacts

Impacts	No. of Trees
Trees to be removed	4
Groups / Hedges to be removed (Partial removal)	0 (0)
Trees with proposed incursions into the RPAs	4
Groups / Hedges with proposed incursions into the RPAs	0
Trees that require pruning	1
Groups / Hedges that require pruning	0
Trees to be transplanted	0
Groups / Hedges to be transplanted	0

Arboricultural Impacts

Ref.	Species	Proposed Structure	Incursion (%)
1T	Yew	Proposed hard surface	12%
		Proposed building extension	13%
2T	Holm oak	Proposed hard surface	12%
3T	Horse chestnut	Proposed hard surface	28%
4T	Horse chestnut	Proposed hard surface	35%

Tree Work Schedule

Ref.	Species	Notes	Category
5T	Sycamore	Fell to ground level and grind out stump	C1
6T	Elder	Fell to ground level and grind out stump	C1
7T	Elder	Fell to ground level and grind out stump	C1
9T	Unknown	Fell to ground level and grind out stump	U
1T	Yew	Linear crown reduction on all aspects by c. 50% and crown lift to c. 2-3 m to accommodate proposed scheme for building	B12

All tree work is to be undertaken in accordance with British Standards (BS3998:2010 Tree Work - Recommendations. All workings are to be removed and the site left as it was found. Care is to be taken to ensure that the ground around retained trees does not become compacted as a result of tree surgery operations. No equipment or vehicles such as (but not limited to) timber lorries, tractors, excavators, or cranes are to be parked or driven beneath the crowns of any retained trees to prevent subsequent compaction and root death.

No. Individual Trees Removed					
U	A	B	C	V	
1	0	0	3	0	0

No. Groups/Hedges/Woodlands Removed 'U' = Partial					
U	A	B	C	V	
0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)

Referenced Documents

Title	Originator	Drawing Number	Key
Existing Site Plan	Rosbury	03/LF/24	-----
Proposed Site Plan	Rosbury	06/LF/25 G	-----

Rev.

Date

Notes

A	18/06/28	Revised proposed layout
01	13/03/28	Initial assessment

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Client:

Feneley Acquisitions Ltd

Drawing:

Arboricultural Impact Assessment

Project No.:

46317896

Drawing No.:

AIA01

Revision No.:

A

Date:

Jun 2026

Scale:

1:100_{as is}

Drawn:

DM

Tree Key:

Tree/Group Number:	Tree Canopies:	Trunks:
1T		

Root Protection Area:	Ancient / Veteran Tree Buffer Zone:	Ancient woodland Extent:

Category 'U' Tree Stems:	Category 'U' Tree Groups:	Category 'A' Tree Stems:

Category 'A' Tree Stems:	Category 'B' Tree Stems:	Category 'B' Tree Groups:

Category 'C' Tree Stems:	Category 'C' Tree Groups:	Category 'V' Tree Stems:

Category 'V' Groups:	Proposed Pruning:	Trees to be Removed:

All dimensions should be checked on site. No dimensions are to be taken from this drawing. Please refer to any dimensions listed. Arbre Consulting Ltd cannot be held responsible for inaccuracies in the base drawing which this plan is based. This drawing is designed to reflect the principles of the layout or design only, and relies only to the protection of the base drawing. It is not to be used as a definitive part of the engineering or construction design or method statement. An arboricultural or structural engineer should be consulted for any advice of construction, stability or specification and for any standards or regulatory requirements relating to proposed structures, hard surfacing or underground services. Where trees are protected by a barrier - a mesh or stone cage should not be relied upon. © Arbre Consulting Ltd, 2025