## Site investigations

Site investigations are to be undertaken within the RPAs of retained trees to determine the size, depth and location of any roots that may be present for the purpose of informing foundation design.

All excavation within the RPAs are to be initially undertaken to a minimum depth of 800mm deep for any excavation or to the full depth of the proposed foundations, hard surfacing or underground services. The soil is to be loosened with the use of a fork or pick and then cleared with the aid of an air-spade and air-vac using a specialist arboricultural contractor. If an air-spade is not used and all excavations are to be undertaken using hand tools (forks, shovel, trowel, brush). Soil will be loosened with the aid of a fork or trowel and the spoil removed from with the aid of a shovel. Where an air spade or specialist arboricultural contractor is not employed, all excavations are to be undertaken under direct arboricultural supervision. All roots are to be retained in situ and the project arborist will visit the site to recorded and photograph the depth, location, and size of any roots present; during this visit the project arborist may be able to cut specific roots with the use of a hand saw or secateurs. The edge of the excavation closest to the retained trees and all uncovered roots will be covered over with a minimum of two layers of damp hessian to prevent drying out, and where necessary be shuttered to prevent soil collapse or contamination. If appropriate soil beneath the depth of 800mm may be shed pilled with any deeper excavations being undertaken by a machine with an appropriate bucket under direct arboricultural supervision. If a decision is made for a machine to be used it must work form outside of the RPA or have appropriate ground protection in place to move and work upon.

Upon the completion of the site investigations all trial excavations are to be back filled with the original material or inert fill. It may be suitable to insert a root barrier in locations where the proposed roots are not present or are beginning to enter to prevent root activity within areas deemed to be root free.

## Foundations within RPAs

The use of traditional strip foundations can result in excessive root loss and as such should be avoided.
Designs for foundations that would minimise the adverse impact upon trees should include particular attention to the existing levels, proposed finished levels and cross sectional details. Site specific and specialist advice should be sought from the project engineers and arboriculturist.

Root damage can be minimised by using:

- Piles with site investigation used to be determined their optimal location whilst avoiding damage to roots important for the stability of the tree, by means of hand tools or compressed air soil displacement, to a minimum depth of 600mm;
- Beams laid at or above ground level, and cantilevered as necessary to avoid tree roots identified by site investigation.
- Capping slab laid at or above ground level, and cantilevered as necessary to avoid tree roots identified by site investigation.

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

Where piling is to be installed near to trees, the smallest practical pile diameter should be used, as this reduces the possibility of striking major tree 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 boarding. 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.

This information is compliant with British Standard BS5837:2012 Trees in relation to design demolition and construction - Recommendations, section 7.5 Special engineering for foundations within the RPA.

## 'No Dig' Surfacing

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

Proposed hard surfacing within the RPAs of retained trees is to be designed so that it can be situated above the existing soil level and to minimise any adverse impact upon the tree RPAs, as the use of traditional foundations can result in excessive root loss through direct removal of roots during excavation and by compaction of the soil beneath the excavation, as such this 'traditional' type of foundation should be avoided.
When designing hard surfacing that is to be situated within RPAs, the design team need to pay particular attention to the proposed usage (pedestrian, domestic traffic, delivery vans, Emergency vehicles, HGVs etc.), the existing and proposed levels of hard surfacing and finished floor levels, edging types and details, proximity to tree trunks and surface rooting, contamination capture, SUDs, etc.

Possible sub-bases (foundations systems) for 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 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 the structure.

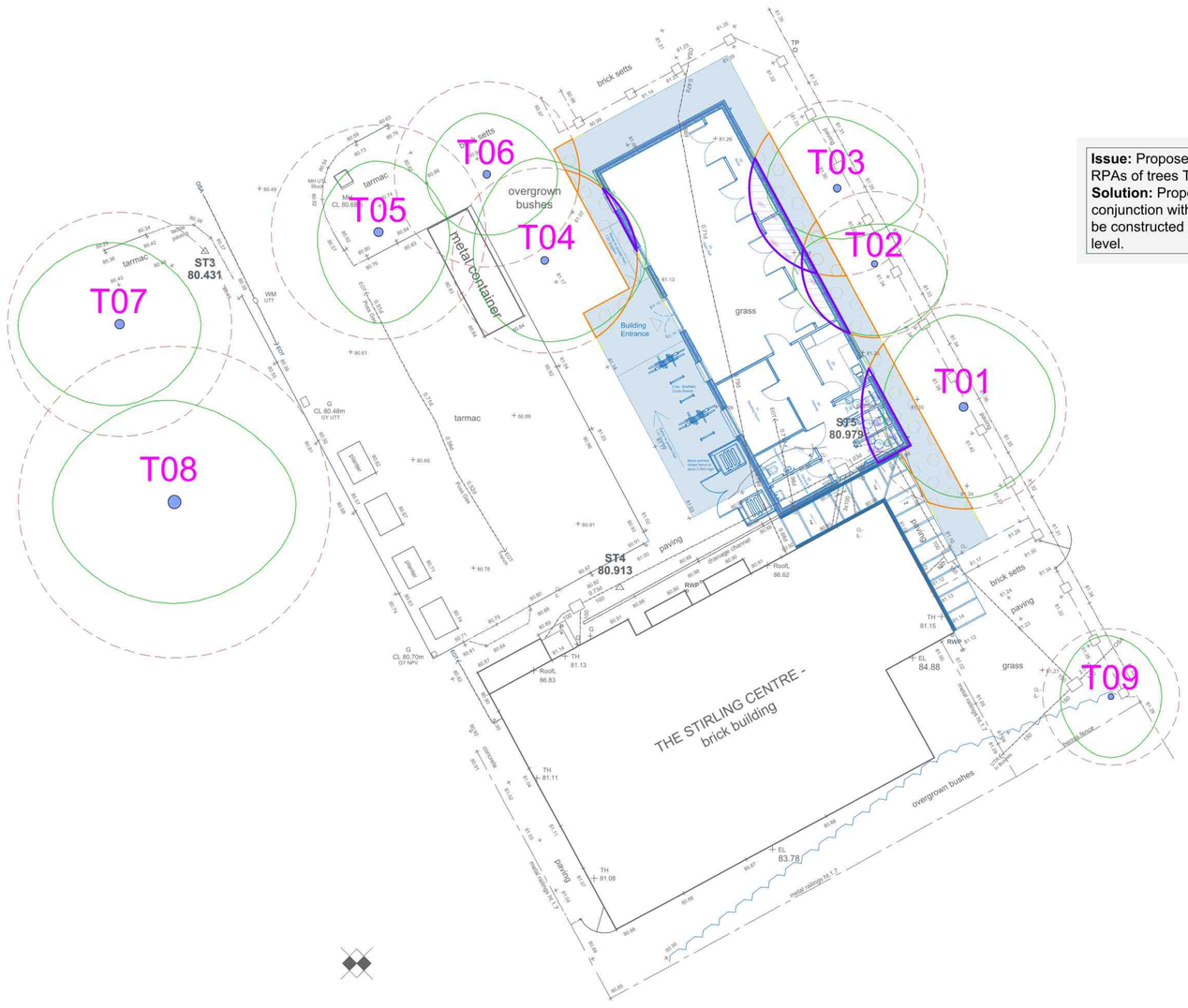
NB: The use of a multi-dimensional confinement systems and or an engineered solution will affect the finished level of the hard surfacing by raising the levels and needs to be taken into consideration when designing foundations and setting the finished floor levels of adjacent buildings.

## Utility apparatus

Underground utility apparatus
Mechanical trenching for the installation of underground apparatus and drainage severs any roots present and can change the local hydrology in a way that adversely affects the health of the tree. For this reason, particular care should be taken in the rout and methods of installation of all underground apparatus. Wherever possible, apparatus should be routed outside of RPAs. Where this is not possible, it is preferable to keep apparatus together in common ducts, all inspection chambers should be sited outside of the RPAs.
Where underground apparatus is to pass within the RPAs, detailed plans showing the proposed route should be drawn up in conjunction with the project arboriculturist. In such cases trenchless insertion methods should be used with entry and retrieval pits being located outside of the RPAs. If this option is not feasible and providing roots can be retained and protected excavations should be undertaken using hand held tools (air-spade, forks, shovels) or a combination of trenchless and manual excavation (broken trench).
Any design and installation should be undertaken in accordance with the National Joint Utilities Guidelines (NJUG).
Above-ground utility apparatus
Above-ground apparatus(including CCTV cameras and lighting) should be sited to avoid the need for detrimental tree pruning; as such the current and future crown size of the tree should be assessed.
Tree branches can be pruned back with care to provide space, though it is not appropriate for repetitive and significant tree work to bean initial design solution unless this is a suitable management outcome for the tree. Any pruning should be undertaken in accordance with BS3998:2010

**Issue:** Proposed foundations situated within the RPA of trees T01, T02, T03 & T04.
**Solution:** Foundations are to be designed to an engineering specification in conjunction with arboricultural advice and site investigations.

**Issue:** Proposed hard surfacing situated within RPAs of trees T01, T02. T03, T04 & T06.
**Solution:** Proposed surfacing to be designed in conjunction with an arboriculturist so that it can be constructed entirely above the existing soil level.




Indicative only

## Arboricultural Impacts

| Impacts | Nos. of trees |
|---|---|
| Trees to be removed | 0 |
| Groups / Hedges to be removed (Partial removal of groups) | 0 (0) |
| Trees with proposed incursions into RPAs | 5 |
| Groups / Hedges with proposed incursions into RPAs | 0 |
| Trees that will require pruning | 4 |
| Groups / Hedges that will require pruning | 0 |
| Trees to be transplanted | 0 |
| Groups / Hedges to be transplanted | 0 |

| No. | Species | Proposed structure | Incursion |
|---|---|---|---|
| T01 | Common whitebeam | Hard surface | RPA & crown |
| T01 | Common whitebeam | Foundation | RPA & crown |
| T02 | Common ash | Hard surface | RPA & crown |
| T02 | Common ash | Foundation | RPA & crown |
| T03 | Common ash | Hard surface | RPA & crown |
| T03 | Common ash | Foundation | RPA & crown |
| T04 | Common ash | Hard surface | RPA & crown |
| T04 | Common ash | Foundation | RPA & crown |
| T06 | Common whitebeam | Hard surface | RPA |

## Arboricultural Impacts - RPAs (Area)

| No. | Species | RPA | Incursion | |
|---|---|---|---|---|
| | | | ($m^2$) | (%) |
| T01 | Common whitebeam | 79.8 | 12.1 | 15.2 |
| T01 | Common whitebeam | 79.8 | 5.7 | 7.1 |
| T02 | Common ash | 40.7 | 6.9 | 16.9 |
| T02 | Common ash | 40.7 | 3 | 7.4 |
| T03 | Common ash | 58.6 | 8.8 | 15.0 |
| T03 | Common ash | 58.6 | 6.6 | 11.3 |
| T04 | Common ash | 65.3 | 9 | 13.8 |
| T04 | Common ash | 65.3 | 0.8 | 1.2 |
| T06 | Common whitebeam | 66.3 | 1.6 | 2.4 |

## Tree Work Schedule

| No. | Species | Works | Category |
|---|---|---|---|
| T01 | Common whitebeam | Prune: Crown lift locally to achieve 3m clearance over the proposed hard surface and 1m clearance to the proposed structure. | B |
| T02 | Common ash | Prune: Crown lift locally to achieve 3m clearance over the proposed hard surface and 1m clearance to the proposed structure. | B |
| T03 | Common ash | Prune: Crown lift locally to achieve 3m clearance over the proposed hard surface and 1m clearance to the proposed structure. | B |
| T04 | Common ash | Prune: Crown lift locally to achieve 3m clearance over the proposed hard surface and 1m clearance to the proposed structure. | B |

All tree work is to be undertaken in accordance with British Standard BS 3998:2010 Tree work - Recommendations.
All arising's are to be removed and the site is to be left as found.
Care is to be taken of the ground around retained trees to make sure that it does not become compacted as a result of tree surgery operations. No equipment or vehicles such as timber lorries, tractors, excavators or cranes shall be parked or driven beneath the crowns of any retained trees, to prevent subsequent compaction and root death.

## No. of individual trees to be removed

| U | A | B | C |
|---|---|---|---|
| 0 | 0 | 0 | 0 |

## No. of groups / hedges to be removed

| U | A | B | C |
|---|---|---|---|
| 0 (0) | 0 (0) | 0 (0) | 0 (0) |

( ) = Partial removal of a groups

## Arboricultural Method Statement

All tree work is to be undertaken in accordance with British Standard Please refer to Arbtech Consulting Ltd. Tree Schedule, Arboricultural Method Statement and Tree Protection Plan, for full details of all surveyed trees and how all aspects of the development maybe implemented without detriment to retained trees.

| Rev: | Date: | Notes: |
|---|---|---|
| | | |


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Project:
The Stirling Centre,
Scotland Hall Road,
Newton Heath,
Manchester,
M40 2RE

Client:
Premier Modular

Drawing:
Arboricultural Impact Assessment

Based on:
40693-PML-00-DR-A-000021 Rev.C01

| Drawing No: | Rev: |
|---|---|
| Arbtech AIA 01 | -- |

| Date: | Scale: | Drawn: |
|---|---|---|
| Mar 2026 | 1:100 @ A0 | JCH |

Key:

| | | | | | |
|---|---|---|---|---|---|
| Tree Nos.: | T01 | Tree Canopies: | | Trunks: | |
| RPAs: | | Category 'U' trees: | | Category 'A' trees: | |
| Category 'B' trees: | | Category 'C' trees: | | Existing Site Plan: | |
| Proposed Site Plan | | Incursion - Structures: | | Incursion - Hard surfacing: | |

All dimensions should be checked on site. No dimensions are to be scaled from this drawing.
Please notify us of any discrepancies found. Arbtech Consulting Ltd. cannot be held responsible for inaccuracies in the base drawing in which this plan is based.
This drawing is designed to reflect the principles of the layout or design only, and relates only to the protection of trees on site.
This drawing is not to be read as a definitive part of the engineering or construction designs or method statement. Arbtech Consulting Ltd. cannot be held responsible for any inaccuracies in the base drawing in which this plan is based and for any standards or regulatory requirements relating to engineered structures, hard surfacing or underground services.
The drawing was produced in colour - a monochrome copy should not be relied upon.


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