



PEARCE

Arboricultural Consultants

BS 5837:2012 Method Statement

Report No: PAC.028.MS.01

Date: 29/04/2022

Project: 3 Burton Road, Withington, Manchester, M20 3GD

Inspection Record.

Date of Inspection	Surveyor
22/01/2022	Russell Pearce

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Revision	Date	Prepared by	Status
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1.0 Discussion

- 1.1 The majority of the root system, of a tree is in the surface 600mm of the soil extending radially for distances frequently in excess of the trees height. Beyond the main structural roots (close to the base of the trunk), the root system rapidly sub-divides into smaller diameter roots: off this main system, a mass of fine roots develops.
- 1.2 The shape of the main structural roots develops in response to the need for the tree to have physical stability. Beyond these major roots, root growth and development is influenced by the availability of water and nutrients. Unless conditions are uniform around the tree, which would be unusual, the extent of the root system will be very irregular and difficult to predict. It will not generally show the symmetry seen in the branch system.
- 1.3 The parts of the root system, which are active in water and nutrient uptake, are very fine, typically less than 0.5mm diameter. They are short lived, developing in response to the needs of the tree, with the majority dying each winter. It is *essential* that conditions in the soil remain conducive to the healthy growth of these fine roots so that the water and nutrients necessary for healthy tree growth can be absorbed.
- 1.4 All parts of the root system, but especially the fine roots, are vulnerable to damage. Once they are damaged, water and nutrient uptake will be restricted until new roots have regenerated. Vigorous young trees will be capable of rapid regeneration, but over mature trees will respond slowly, *if at all*.
- 1.5 In order to live and grow, roots need oxygen from the soil. Respiration by the roots and other soil organisms depletes this oxygen and increases carbon dioxide levels in the soil; a correct balance of these gases is normally maintained by diffusion between the soil and the atmosphere. Anything, which disturbs this balance, will affect the condition of the root system.
- 1.6 The factors that most commonly affect this diffusion adversely, and therefore damage roots, are the following: -
 - a) Compaction of the ground, which reduces the space between soil particles. This is particularly important on clay soils. A single passage by heavy equipment on clay soils or storage of heavy materials can cause significant damage.
 - b) Changing soil levels, even for a few weeks.
 - c) Covering the root area with impervious surfaces.
 - d) A rise in the level of the water table. Roots can tolerate submersion for short periods. But a permanent rise will deplete the soil of oxygen.
- 1.7 Serious damage is often caused during preliminary site works by stripping the topsoil. For this reason, such works should be avoided until protective fencing has been erected.
- 1.8 Excavations in the rooting area can sever roots. As the majority of roots are in the surface 600mm, even shallow excavations can cause damage.

- 1.9 Excavations for foundations, landscaping or service trenches are usually sufficiently deep to sever most of the roots, and it should therefore be assumed that all parts of the root system beyond the excavation would no longer serve the tree.
- 1.10 Excavation or soil stripping which sever or damage the roots may impair the stability of the tree and make it dangerous.

2.0 Method Statement

Before any form of development commences on the site the following works should be undertaken: -

2.1 Tree Works

Tree No.	Proposed Works
T1	Crown lift east and west of crown to 9m to allow for clearance above construction of extension.

2.2 Access Facilitation Pruning.

- 2.2.1 No access pruning is required on site for ingress and egress as there is a currently a minimum clearance of 5m. It is not expected that any plant machinery required on site will exceed this height and require access facilitation pruning.
- 2.2.2 T1 will require crown lift on the eastern and southern portions of the crown to allow for reasonable clearance from the proposed 2 storey extension.
- 2.2.3 Any pruning works would be undertaken in line with British Standard 3998:2010 Tree Work – Recommendations and therefore the Safe Useful Life Expectancy of the trees will not be adversely affected.

2.3 Tree Protection Fencing

- 2.3.1 All fencing used on the site should fully comply with BS 5837:2012 (Trees in Relation to Construction – Recommendations).
- 2.3.2 The fencing should be strong and suitable for local conditions. It should also take into account the degree of construction activity on the site.
- 2.3.3 The fencing should be at least 2.3m in height and should be erected with both a vertical and horizontal scaffolding framework capable of withstanding impact, with vertical tubes spaced at a maximum of 3 m. This should support either weldmesh panels which should be securely fixed with wire or scaffold clamps.

- 2.3.4 Notices should also be erected on the fencing stating, 'Protected Area - No operations within fenced area'.
- 2.3.5 The positioning of the protective fencing is also very important and should be erected in the proposed location identified in Appendix One (Tree Protection Plan 1 & 2). Once the fence has been erected it should never be crossed and particular care should be taken not to store any materials or soil within the protected area.
- 2.3.6 The protective fencing should be fixed into the positions illustrated in the Tree Protection Plans in 2 phases.
- 2.3.7 Demolition Phase - In order to meet the needs of this proposal, demolition of existing structures is required within the RPAs of T1. Due to this, specialist demolition methods will be required to prevent damage. This may include collapsing structures in a direction away from trees and their Root Protection Areas and utilising hand digging methods whilst working within RPAs. Tree Protection Plan 1 indicates the location required of the protection fencing to accommodate this.
- 2.3.8 Construction Phase - Prior to the construction phase the protective fencing needs to be correctly installed in the position indicated in Tree Protection Plan 2 to prevent any unnecessary damage during development.
- 2.3.9 Prior to and during the demolition phase of the proposal exterior grade plywood sheets are to be constructed around the stems of **T1** to ensure there is no foreseeable damage to the trees from falling masonry or any other demolition detritus. (See appendix 2)
- 2.3.10 The plywood sheets should remain in place around **T1** for the duration of the development due to the constricted nature of the site and the possibility that damage could be caused to the stems during operations and ingress and egress.

2.4 Additional Precautions Outside Fenced Areas

- 2.4.1 Oil, bitumen, cement or other material likely to cause damage to the tree will not be stacked or discharged within 10m of the trees stem or within the protective area. Also, materials in general will not be stacked or discharged within the exclusion zone.
- 2.4.2 Concrete mixing and washing will not be carried out within the Root Protection Areas of **T1**.
- 2.4.3 Fires will not be lit beneath the foliage or in a position where the flames could extend to within 5m of the foliage, branches or trunk. If the fire is large, then this may necessitate a distance of at least 20m.
- 2.4.4 No trees are to be used as anchorage for equipment.

2.4.5 Notice boards, telephone cables, or other services will not be attached to any part of the retained tree.

2.4.6 Care should be taken when using cranes or other equipment near the canopy of the retained trees. Also, any trees to be felled in proximity to the retained trees should be done so with particular care.

2.5 Retain Hard Surface as Access Route

2.5.1 The drive way and paving hard surfacing present within the RPA of T1 is to be retained in situ throughout and beyond the construction of the proposed development. This will prevent damage to tree roots so protective fencing is not required other than that illustrated in the Tree Protection Plans.

2.6 Demolition and Excavation of Existing Structure within the RPA of T1

2.6.1 Prior to and during the demolition phase of the proposal exterior grade plywood sheets are to be constructed around the stems of **T1** to ensure there is no foreseeable damage to the trees from falling masonry or any other demolition detritus (see appendix 2).

2.6.2 During demolition, the following restrictions will apply:

- Where direct damage by falling masonry is likely, the tree should be protected by exterior grade plywood sheets constructed around the main stem.
- Hard surface covering within the RPA should be removed using a pneumatic breaker before hand excavation of the soil beneath..
- Masonry will be pulled away from trees.
- When breaking masonry, a fine water spray will be used to minimise dust particles if it is likely to cover leaves.
- Excessive dust particles on trees will be removed each day by spraying with water.
- Hard surfaces should be kept in place for as long as possible during construction works in order to prevent soil compaction in the RPA.

2.6.3 As part of the development will encroach into the RPA of **T1**, supervised excavation may be required to ensure the long-term retention of wellbeing of this tree is not adversely affected. The following point **MUST** be adhered to:

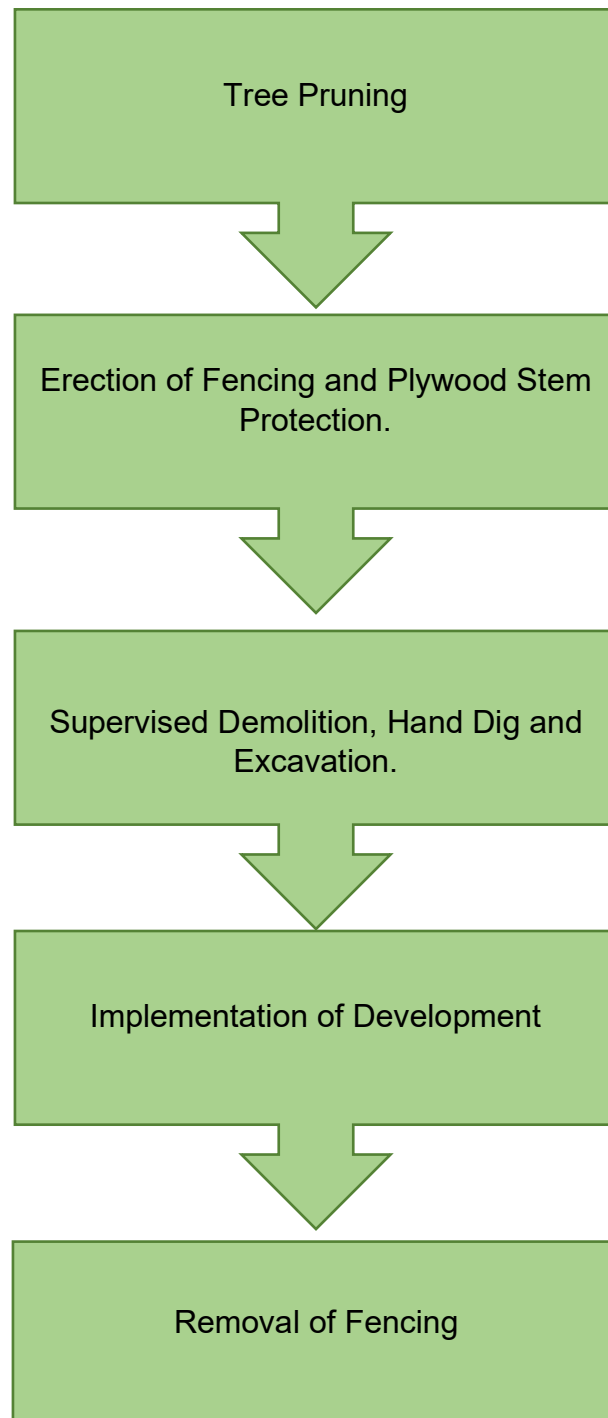
- Excavation of existing hardstanding/foundations must be carried out using hand tools to avoid direct damage to the bark of the roots. It may be possible in some instances to use specialised equipment such as high air pressure machinery to excavate the soil with minimal disturbance to roots.
- Exposed roots will be wrapped in dry, clean Hessian to prevent the roots from drying out. In hot or dry weather, the hessian should be kept moist. The hessian must be removed before backfilling.
- Roots less than 25mm diameter may be pruned back, preferably to a growing point. A sharp cutting tool such as bypass secateurs or a handsaw should be used to leave the smallest wound possible. Roots greater than 25mm in diameter should be retained wherever possible.

- Root pruning should be carried out under the supervision of the Arboricultural Consultant.
- Backfilling of any excavation must be carried out by hand to avoid direct root damage or compaction, where possible. Builder sand must not be used in the backfill material.

2.7 Pile and Beam Foundations

- 2.7.1 The proposed development will have a designed foundation to reduce the amount of excavation required for its construction. This can be achieved by constructing the extension with a pile and beam foundation, where the beams are laid above ground level. (see an example in appendix 3)
- 2.7.2 The smallest practical pile diameter should be used, as this reduces the possibility of striking major tree root and reduces the size of the rig required to sink the piles.
- 2.7.3 Use of the smallest practical piling rig for the proposed piling will be used to reduce pressure on the soil and also to prevent the need for access facilitation pruning.
- 2.7.4 The pile type will be selected that will protect the soil and adjacent roots from the potentially toxic effects of uncured concrete, e.g. sleeved bored pile or screw pile.

2.8 Summary of Methodology for the Protection of the Trees



Appendix One

Tree Protection Plans



Do not scale this drawing (printed or electronic version).
Contractors must check all dimensions from site.
This drawing is for use on the job only and should not be used in conjunction
with all relevant consultation drawings.

LEGEND

Scale 1:1000

Retained Trees

Root Protection Areas
RPA

Plywood Sheets

Protective Fencing (Metal)

Protective Fencing (Metal)
(Post demolition/excavation)

Hand Dig in to Existing
Handstanding Layer Only



PEARCE
Arboricultural Consultants

Scale: 1:1000@A2 Date: 29.04.2022

Job: 3 Burton Road

Address:
3 Burton Road, Withington,
Manchester, M20 3GD

Client: Gabriel Neal

Drawing Number: PAC.028.TPP.01.00

Drawn by: RP

TREE PROTECTION PLAN 1
(Demolition)

Do not include this drawing (printed or electronic version).
Contractors must check all dimensions & form site.
This drawing is to be used on the job only and should not be used in conjunction
with all relevant consultation drawings.

LEGEND

Scale: 1:1000

Retained Trees

Root Protection Areas

Plywood Sheets

Protective Fencing (Metal)

Designed Piled Foundation



PEARCE
Arboricultural Consultants

Scale: 1:1000@A2 Date: 29.04.2022

Job: 3 Burton Road

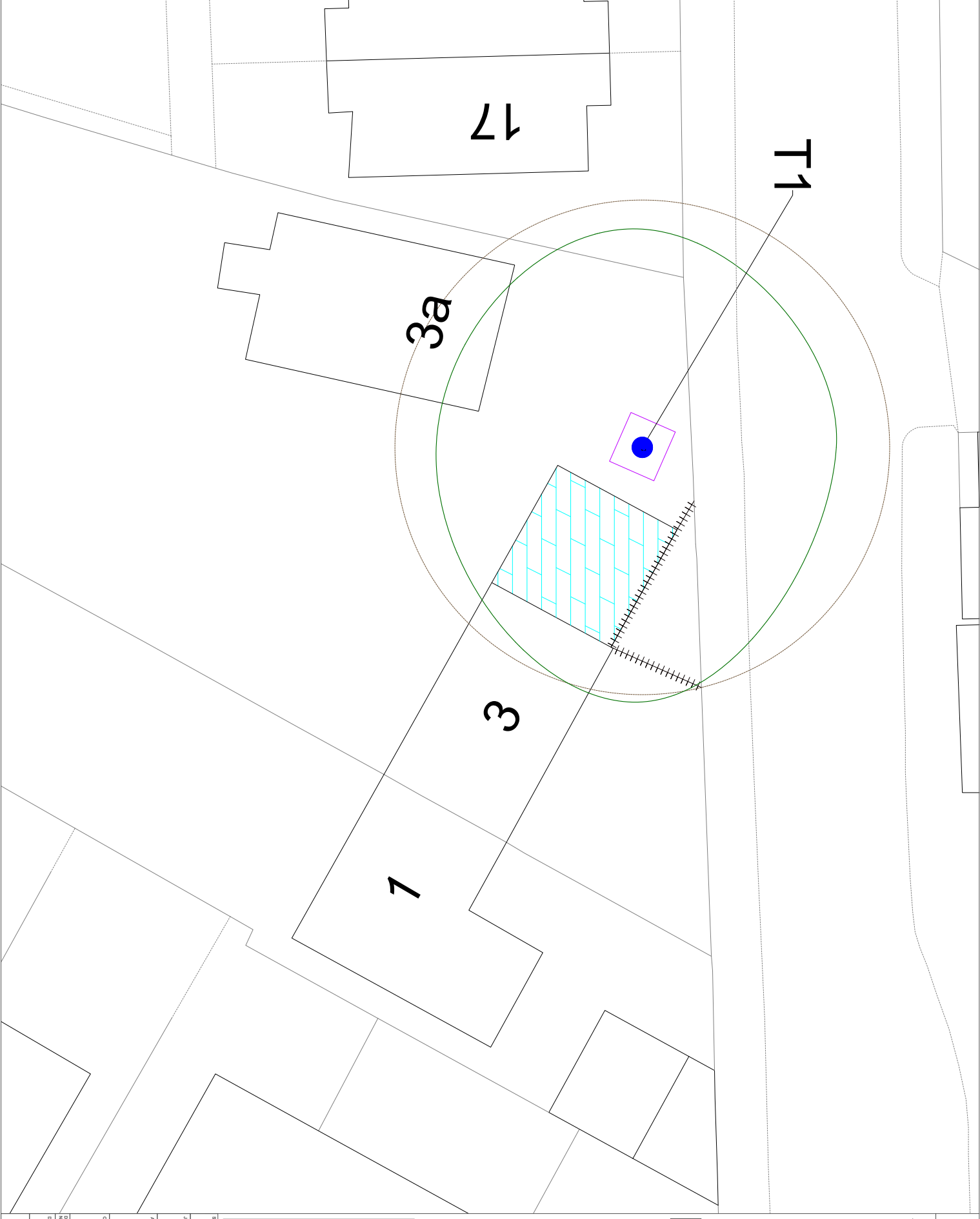
Address:
3 Burton Road, Withington,
Manchester, M20 3GD

Client:
Gabriel Neal

Drawing Number: PAC 028.TPP.02.00

Drawn by: RP

TREE PROTECTION PLAN 2
(Construction)

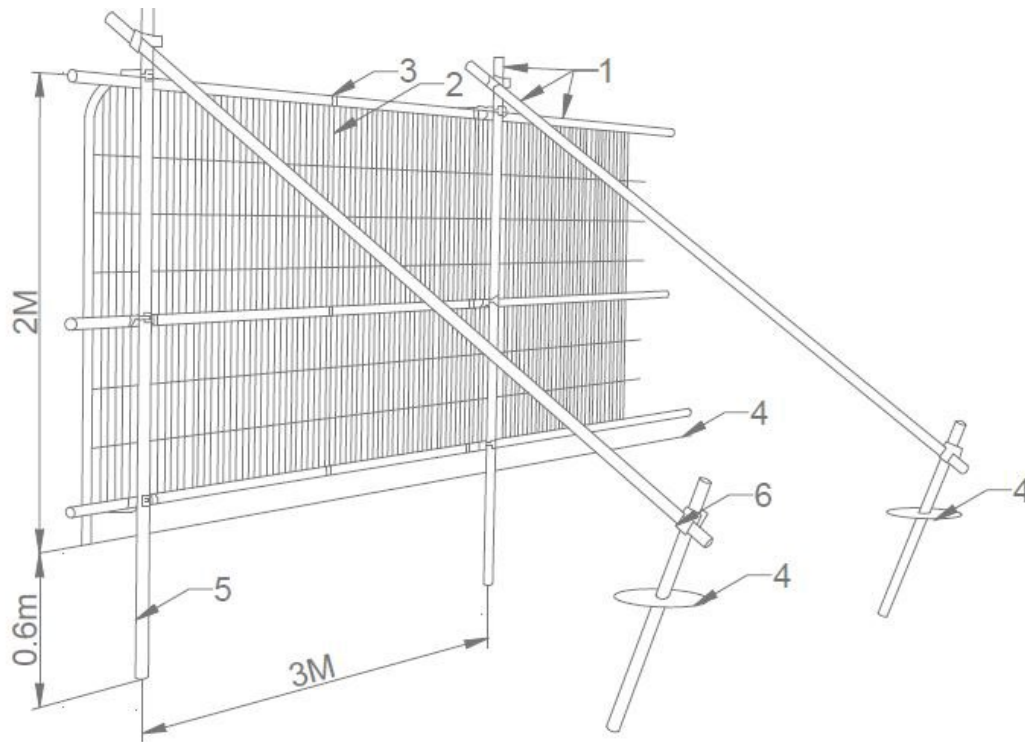


Appendix Two

Tree Protection Fencing



Tree Protection Fencing (BS5837: 2012)



Key

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

Protective fencing Notice to attached to fencing





Boards attached to a supporting framework surrounding the trunk reduces the risk of accidental impact.



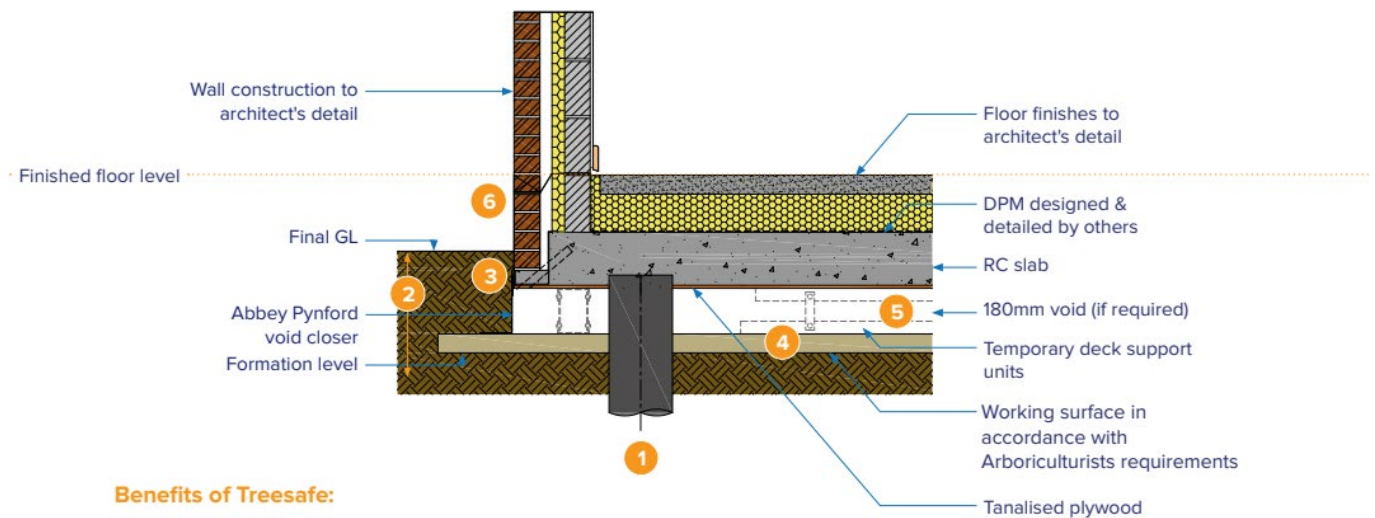
A wood frame around the trunk can be used to support a plywood surround.

Appendix Three

Underpinning



Typical Treesafe detail_



Benefits of Treesafe:

- 1 Allows construction within Root Protection Areas.
- 2 Significant reduction in excavation.
- 3 Significant reduction in under build.
- 4 Bespoke working surface in place of piling mat.
- 5 Clear void to mitigate heave risk (if required).
- 6 No venting required.

An example of tree safe underpinning by Abbey Pynford



Tree Survey Schedule

3 Burton Road, Withington, Manchester, M20 3GD

Client

Gabriel Neal

Survey Date

22/01/2022

Weather Conditions

Clear and Sunny

Surveyor

Russell Pearce

Key:

Tree No.

A unique number or reference to identify trees or groups as shown on associated plans.

Species

Common and/or taxonomic name.

Ht.

The height of the tree in meters (m).

Trunk Diameter

The stem diameter in millimetres (mm) taken at 1.5m above ground level unless otherwise specified.

Crown Spread

The extents of the crown taken, in meters (m), at cardinal points of the compass: North (N); East (E); South (S) and West (W); or intercardinal points: Northeast (NE); Southeast (SE); Southwest (SW); Northwest (NW)

Crown Clear.t

The height of the crown above the current ground level, in meters (m), taken at cardinal points of the compass: North (N); East (E); South (S) and West (W); or intercardinal points: Northeast (NE); Southeast (SE); Southwest (SW); Northwest (NW)

Age Class

Age classification: Young (Y); Semi-mature (SM); Early Mature (EM); Mature (M); Over Mature (OM).

Phys. Cond.

The general physiological condition of the tree: Good; Fair; Poor; Decline; Dead.

Struct. Cond.

The general structural condition of the tree: Good, Fair, Poor, Hazardous.

Comments

Notes and general comments on the structural condition of the tree, its environment and its estimated remaining contribution.

Est. Rem. Cont.

Estimated remaining contribution (years): <10; 10+; 20+ 40+

Cat. Retention Category as described in the **Cascade Chart for Tree Quality Assessment at Appendix 1: A, B, C, U** (subcategories 1, 2, 3)



Tree No.	Species	Ht. (m)	Trunk Diam. (mm)	Crown Spread (m)				Crown Clear. (m)				Age Class	Phys. Cond.	Struct. Cond.	Comments	Est. Rem. Cont. (years)	Cat.
				N	E	S	W	N	E	S	W						
T1	Ash	16	850	8	10.5	8.5	9	4	6	5	5	M	Fair	Good	Reduced internodal growth in recent seasons. Deadwood within crown. Dense ivy covering stem and primary branch framework. Crown to south currently overhangs current building.	20+	B1