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Tree Surgery & Arboricultural Consultancy

*BS5837:2012 Trees in relation to design,
demolition and construction*

Method Statement and Tree Protection Plan:

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6.0 Arboricultural Protection Method Statement

In accordance with BS5837 (2012) effective tree protection will be achieved through the provision of appropriate construction exclusion zones (CEZs) and sufficiently robust protection barriers.

The CEZ will have one phase.

To avoid damage to tree roots, existing ground levels will be retained within the RPA. Intrusion into soil (other than for piling) within the RPA is not acceptable, and topsoil within it will be retained in situ. However, limited manual excavation within the RPA will be acceptable, subject to justification. Such excavation will be undertaken carefully, using hand-held tools and preferably by compressed air soil displacement.

Proposed Shepherds huts

In order to minimise the impact on tree 1 from the installation of a hard standing platform base a pile foundation system will be applied. A supported beam will be raised above the ground to support the proposed shepherds' huts as seen in Fig 1.

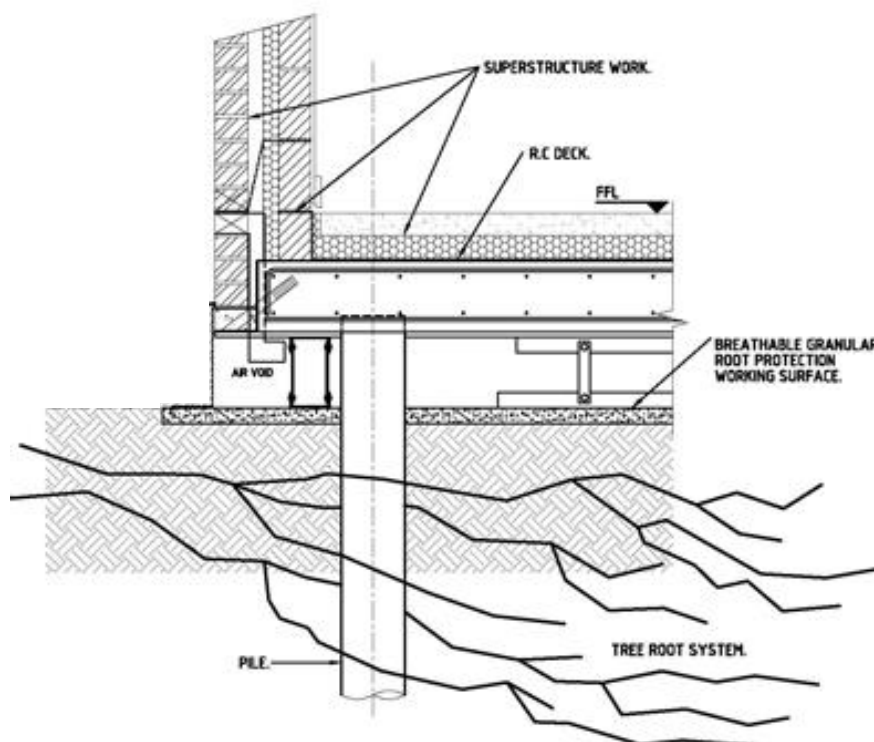


Fig 1

Before the actual installation of the new structure starts, all RPA's that may be affected will be covered with temporary ground protection as set out in BS. 5837

b. Gaps in the ground protection should be left where it is expected to install the pile or dig holes.

c. Pile locations should be hand dug to depth of 600mm to establish significant root structures. If there are any significant roots in the way, with provision to move the location if roots are found. Roots, whilst exposed, will be wrapped in dry, clean hessian sacking to prevent desiccation and to protect from rapid temperature changes. Roots smaller than 25mm diameter will be pruned back, preferably to a side branch, using a proprietary cutting tool such as bypass secateurs or handsaws. Roots larger than 25mm will only be severed following consultation with an arboriculturist, as they may be essential to the tree's health and stability. Prior to backfilling, any hessian wrapping should be removed and retained roots will be surrounded with sharp sand (builders' sand should not be used because of its high salt content which is toxic to tree roots), or other loose granular fill, before soil or other material is replaced. Bio stimulants and Rootgrow containing mycorrhizal fungi will be added to stimulate root growth and repair where any damage may have occurred. This material should be free of contaminants and other foreign objects potentially injurious to tree roots. Footings shall be lined with an appropriate lining to avoid any leaking and potential contamination of the roots.

d. Once the piles have been installed, the supporting beams for the must be raised above the ground level between the piles and no further excavation carried out.

e. The beams between the piles will be precast or cast on site using a biodegradable void former. The slab will be cast between the beams using a biodegradable void former such as Clay board or similar approved.

f. The ground protection must remain in place until work is complete and there is no risk to the RPAs.

Working Zone

The working zone between the proposed huts and tree protection fencing is an area that needs to be accessed to undertake building operations, but measures must be put in place to minimise any compaction and damage to the rooting mediums with the RPA of 1

The construction operations may take place within the root protection area but will be addressed by a combination of barriers and ground protection. The position of the barrier will be shown within the RPA at the edge of the agreed working zone but the soil structure beyond the barrier to the edge of the RPA will be protected with ground protection.

For these movements within the RPA the installation of ground protection in the form of a single thickness of scaffold boards on top of a compressible layer laid onto a geotextile will be acceptable. Woodchip shall be placed at a depth of 4inch under the geotextile layer to further minimise RPA disruption and damage.

This form of ground protection is suitable for pedestrian movement but under no circumstances will any vehicles travel over it.

Underground and over ground services

No underground services are to be installed within the RPA of any retained tree. If a need for underground services arises, they will be installed by trenchless technique in accordance with the guidance in section 7.7 of British Standard 5837 2012 or in accordance with a specific detailed method agreed in writing with the Local Planning Authority.

Drainage

Storm-water drainage: Any soak-away system must be designed to avoid significant increase and no decrease of ground water in trees' rooting zones. Divert into soakaways outside RPAs, or store for greywater recycling.

Foul Drainage: Keep out of RPAs. Link to new foul water drainage packaged treatment plant to be located in the new screen planting area to the west of the pol house.

Sustainable Urban Drainage System: Any SUDS scheme, to reduce the load on local mains drainage, must not significantly add to, or reduce, the soil water in trees' root zones. Store for greywater re-use or allow percolation into garden areas.

Please be aware that under no circumstances will site works of any sort take place within the fenced off root protection areas of the retained trees unless agreed in writing with the Council's Tree Officer.

Care should be taken when planning site operations to ensure that wide or tall loads or plant with booms, jibs and counterweights can operate without coming into contact with retained trees. Such contact can result in serious damage to them and might make their safe retention impossible. Consequently, any transit or traverse of plant in close proximity to trees should be conducted under the supervision of a banksman to ensure that adequate clearance from trees is maintained at all times.

Access to the site is free from tree influence. It is expected that no access facilitation pruning will be required.

Prior to the commencement of works, a pre-commencement meeting will be held on site with the site manager/builder and an appointed arboricultural consultant. The Council's tree officer will be given 5 days' notice of the meeting and invited to attend.

Periodic site monitoring visits will be undertaken by the appointed arboricultural consultant. A pre commencement site meeting will be followed by 4 weekly site monitoring visits by the appointed arboricultural consultant. A brief report and photos to be made to the site manager and copied to the Councils tree officer will be adhered to.

Tree work following construction.

Trees should be re-inspected. This inspection would reveal the need for remedial tree work for the following reasons: -

- to rectify damage occurring during construction (regrettable but possible),
- to allow additional clearance.
- or complete tree removal if trees were considered too close for safe retention.

All additional work subject to further local authority agreement if trees are protected by TPO or planning conditions or stand within a Conservation Area.

6.1 Construction Exclusion Zone (CEZ)

The CEZ is a sacrosanct area around a tree that will not be the subject of any disturbance, including the stacking of materials, and will be fenced off with robust fencing, with all-weather signs attached, these stating; **Construction Exclusion Zone – No Access**. Table 3 sets out the RPA and CEZ positioning to the cardinal points.

Buildings are already present and therefore, the site should already be served by utilities. However, where these may be required for any proposed development, utility services will be laid outside of tree CEZs. Where this is not possible, special engineering techniques will be utilised, such as; impact moleing and pipe ramming. Services will optimally pass under tree RPAs at a depth of 1m, however, 500mm may also be acceptable. Inspection chambers should be located outside of tree RPAs.

6.2 Table 3

Phase 1 - Radial Barrier Position from trees' stems to cardinal points.

Tree no.	CEZ Radial Barrier Position (M)	Comments
1	0.5 (NW) 4.2 (N)	The CEZ will run at the points stated. This will start at the north point by the edge of the fence then run north around the edge of the proposed huts. All other cardinal points are away from and outside of the influence of the works
2	5.0 (NE)	CEZ will run at the points stated. All other cardinal points are away from and outside of the influence of the works.
H2	3.4 (E)	CEZ will run at the points stated. All other cardinal points are away from and outside of the influence of the works.
H1	0.7 (N) 5.9 (E)	CEZ will run at the points stated. All other cardinal points are away from and outside of the influence of the works.

6.3 Protective Barrier Construction

Robust fencing either on a scaffold framework secured in the ground or on feet secured to the ground, in compliance with BS5837 (2012) (clause 6.2. and its sub clauses), will be erected to protect trees. The site foreman or arboriculturist should ensure that barriers are not breached and that CEZs remain sacrosanct tree protection areas. Fig 1 shows the BS5837 recommended barrier specification that should be accorded with. An all-weather notice stating; “**Construction Exclusion Zone – No Access**”, should be attached to the protective barriers at 20m spacing’s.

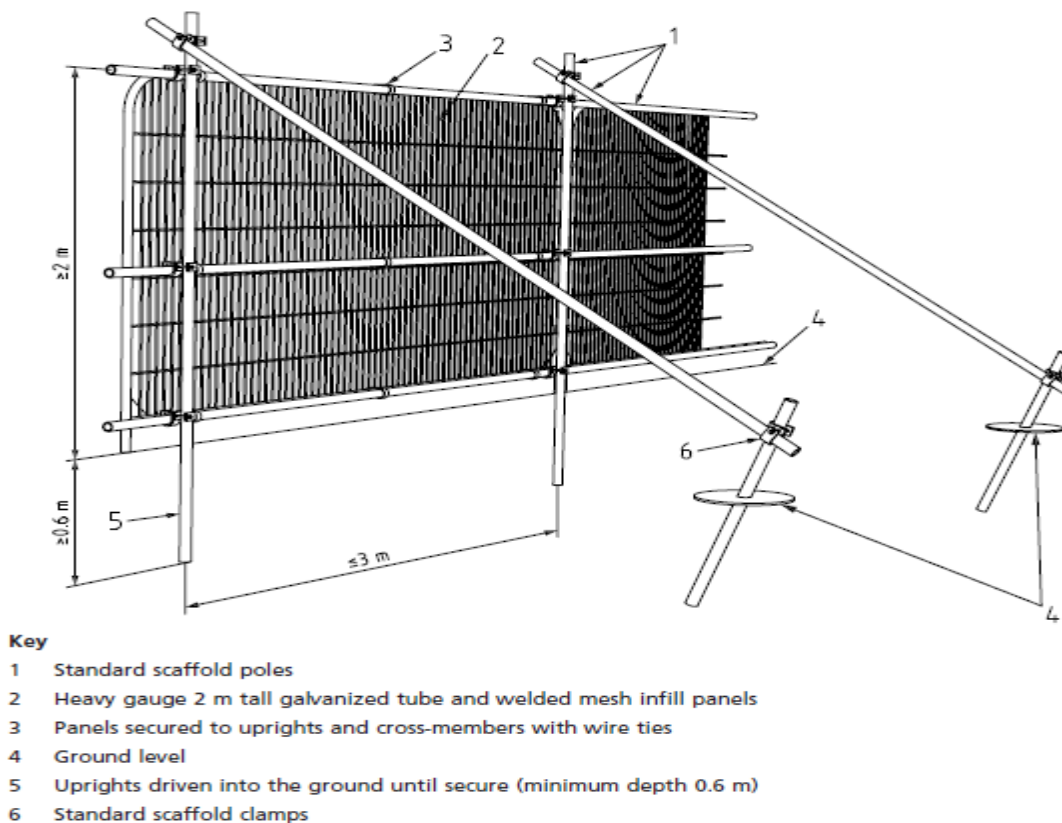


Fig 1: BS5837 recommended tree protection barrier form.

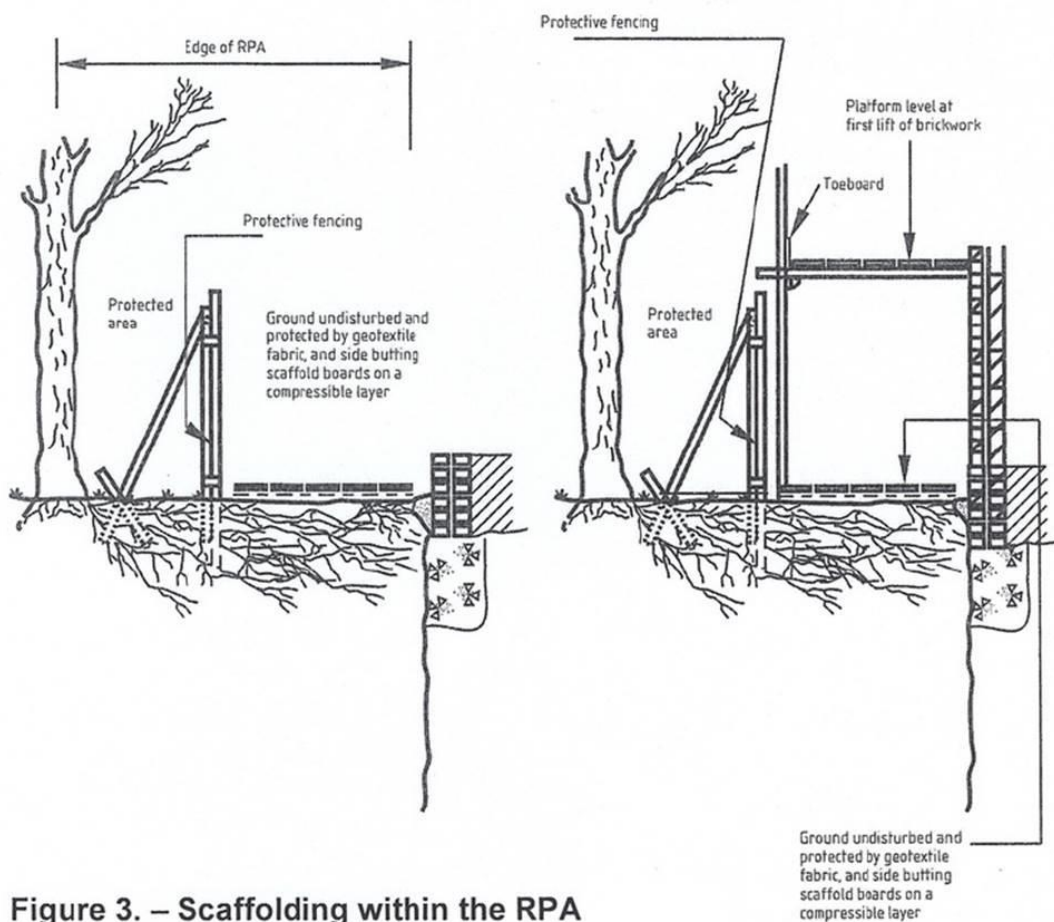


Figure 3. – Scaffolding within the RPA

Figure 3 outlines the method of ground protection to be used within the RPA.

Vertical barriers will be erected, and ground protection installed before any materials or machinery is brought onto the site and before any demolition, development or stripping of soil commences. Once erected, barriers and ground protection will be regarded as sacrosanct, and will not be removed or altered without prior recommendation by an arboriculturist and approval of the local planning authority.

Barriers will be fit for the purpose of excluding construction activity and appropriate to the degree and proximity of work taking place around the retained trees. Special attention will be paid to ensuring that barriers remain rigid and complete. In most cases, barriers will consist of a scaffold framework comprising a vertical and horizontal framework, well braced to resist impacts, with vertical tubes spaced at a maximum interval of 3m. Onto this, weldmesh panels will be securely fixed with wire or scaffold clamps. Weldmesh panels on rubber or concrete feet are not resistant to impact and will not be used.

6.4 Construction Operations Area (COA)

The construction operations area (COA) will be located on the south area of the site in the car park area. Apart from the actual construction works, all other construction associated activities will be limited to the COA. The storage of all materials, and the mixing of fuels and pollutants, will be limited to areas of the site well away from trees and hedgerow. Any burning of arisings will take place at least 5 metres from the tips of crown branch spreads and a suitable distance from flammable materials; the use of fire to dispose of arisings would only be appropriate on calm weather days when there is little to no wind. The total COA will be calculated to provide ample space for all construction activities.

6.5 Implementation Timetable

The phased timetable of tree protection measures is set out in Table 4.

6.5.1 Table 4

Phase	Activity
1	Access facilitation pruning (if required)
2	Implementation of protection barriers
3	Set out construction operations area
4	Prepare site for development construction phase
5	Commencement of development
6	Completion of development
7	Move protection barriers
8	Dismantling of protection measures

6.6 Treework informatives:-

Disturbance to wildlife.

It is essential to check for nesting birds, bat roosts, badgers and hibernating animals such as hedgehogs under trees, before pruning or removing trees, as negligent disturbance is an offence under the EC Habitat Directive 1992 and CROW Act 2000.

The Habitat Regulations were amended in August 2007 to include as an offence any damage or destruction of a breeding site or resting place of European Protected species: mainly bats in a tree context. In general, autumn tree work: September, October and November are least disruptive to bats and birds.

Permission.

Trees may be protected by a TPO and could lie within a Conservation Area.

Trees may be owned by third parties.

Trees may be protected by planning conditions.

Therefore, a contractor must satisfy himself that all necessary permissions from the local planning authority or tree owners are in place before touching trees.

Quality of Tree Work.

All off-ground tree work should be done by insured tree surgeon with certificates in aerial chainsaw use (new designations: - NPTC 020-04, 0020-05, 0020-07, 0021-01, 0021-07; LANTRA 600/5703/8, 600/5717/8, 600/5715/5, 600/5704/X, 600/5714/2), and working to BS3998:2010.

7.0 Conclusion

This report provides information that can aid development design and inform on the effective protection of important retained trees. Working in accordance with this report will help ensure that an amenable development is achieved, which is sustainable within its setting and is in accordance with BS5837 (2012) recommendations.

Appendix I – Common and Binomial Tree and Decay Agent Species

Common and Binomial Tree Species	
Leyland Cypress	<i>X Cupressocyparis leylandii</i>
Lilac	<i>Syringa vulgaris</i>
Smoke Tree	<i>Cotinus sp.</i>
Common Hazel	<i>Corylus avellana</i>
Viburnum	<i>Viburnum sp.</i>
Meadowsweet	<i>Spiraea sp.</i>
Damson	<i>Prunus domestica</i>
Butterfly bush	<i>Buddleia sp.</i>
Common Yew	<i>Taxus baccata</i>
Common and Binomial Decay Agent Species	
N/A	

Appendix II - Tree Protection Plan

