



ARBORICULTURAL REPORT

**Land Rear of Banyers
Royston
Herts**

REV 2

7th January 2027

Prepared by

Andrew Day HND Arb. M.Arbor.A, CEnv

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Scope

The purpose of this report is to provide Arboricultural advice in relation to identifying the constraints of trees which are present on site, during development works to construct a block of flats with associated vehicular access, parking bays and outbuilding. Providing advice on how the trees could be impacted and protection measures to be implemented for those to be retained using the guidelines and principles of BS5837:2012.

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1 INTRODUCTION

1.1 Brief:

This report has been prepared on behalf of Barker Associates the project architect on behalf of the site owner, to provide advice on the constraints of the trees present on site in relation to the proposal to construct a block of flats with associated vehicular access, parking and bin, cycle and plant store. Providing advice on suitable tree protection measures for those to be retained during the construction of the proposed layout, using the guidance of BS5837:2012.

1.2 Qualifications and experience:

I have based this report on my site observations and the provided information, and I have come to conclusions in the light of my experience. I have experience and qualifications in arboriculture and list the details in **Appendix 1**.

1.3 Documents and information provided:

A topographical plan of the site.

A plan of the proposed layout as revised after discussions with the council.

1.4 Relevant background information:

The site is heavily overgrown, so access and inspection detail of the trees was limited.

A planning consent REF.07/00832/1. Allows a vehicular access and the removal of T1.

1.5 Scope of this report:

This report is only concerned with trees on site that could be impacted by construction works to implement the proposed layout, and the measures required to provide protection for them as best prescribed in the guidance of BS5837: 2012 'trees in relation to design, demolition and construction'. Any issues regarding construction methods etc. is outside the remit of an Arborist and remedy should be sought with suitably qualified persons, for example builder, engineer etc. For the purposes of this report an Arborist / Arboriculturalist is someone who through training and experience has the knowledge to assess trees and their condition in a competent manner. Trees with a dbh of less than 75mm have not been included as per the guidance in BS5837:2012 or species considered to be shrub specimens.

2 APPRAISAL

2.1 Brief site description:

The site is a piece of land situated between residential and commercial properties. The site is heavily overgrown with access limited across it, with tree species mainly located towards the edges.

2.2 Condition of trees:

The trees appear to be in a healthy condition with no signs of pests or diseases normally associated with the species, however, given the overgrown nature of the site, the inspection detail was limited.

A more detailed analysis of the trees can be found in **Appendix 3**.

2.3 Suitability of tree for location and management requirements at present:

In my opinion the trees could be considered suitable for the site, I am not aware of any conflict between its usage or neighbouring properties.

No management requirements are needed at present, but it would be prudent to clear the ivy and vegetation out from around the trees to assess if there are any defects being hidden.

2.4 Potential effects of development on the trees:

To implement the proposed development being sought, the following trees will need to be removed:

B Category Trees	T1 already has consent to be removed under a separate planning consent.
C Category Trees	0
U Category Trees	0
Tree Surgery works	The southern canopy of G2 will be reduced back by 1m and crown lifted over the parking bays by 3m for clearance. The overhang of the canopies of G3 will be selectively lifted to 3m over the parking bays The height of G4 will be reduced by 5m to reduce the risk of future wind throw failure. The northern canopy of TT13 - T5 will be reduced back by 2m and lifted to 5m.
All tree surgery works will be undertaken in accordance with BS3998:2010 and take into account any relevant wildlife legislation.	

The actual building sites outside of the constraints of the trees and so the deep excavation works to install foundations will not directly impact on trees shown to be retained.

The cycle store / bin store building will cross part of the outer RPA of T3, where significant roots could be impacted to excavate the trenches required for the foundation installation. It is feasible that no significant roots will be affected during this work, so to determine this an assessment trench will be opened along the foundation line where it crosses the RPA. To ensure every care is taken to ensure significant roots over 2.5cm in diameter are not impacted, retained and if required have the foundation bridge them, an assessment trench will be opened where the RPA of these trees cross it. This excavation works will be undertaken in a careful manner and in accordance with the hand dig method statement provided in **Appendix 3**. This work will start closest to the tree and work backwards out of the RPA with an arborist present and working off suitably ground protection. If roots over 2.5cm in diameter are encountered, they will be retained and covered, whilst discussions are had with the council about root pruning possibilities or if the foundation design needs to be altered to bridge over them. I have been involved in other projects where a foundation design to bridge roots has been employed with success to retain the trees and allow the building to be constructed as proposed. Where root pruning is possible and permitted, this will be done by an arborist who will make sure they are suitably covered before the work continues.

There are some areas within the RPA (Root Protection area) where direct conflict with roots could occur where excavation for hard surfaces needs to be installed for parking and vehicular access.

A 'No Dig' construction method will be used instead where the RPA for these surfaces is required. There are various types of systems available for creating the no dig construction, but generally have the same principle of being designed to lay on the existing ground level and spread the load of traffic crossing it to negate the need for excavations where roots could be directly damaged or indirectly via soil compaction. An example of such a system and generic method statement for installation has been provided in **Appendix 3**. It is reiterated that because the system is 'no dig', meaning it sits on the current ground level with clearing of the ground vegetation and minimal ground scraping to achieve a level to lay the product onto. It is appreciated that the build-up of leaves and other vegetative detritus over the years has caused a build-up in some areas of the site, so scrapping down to the amin top oil level will differ in areas. This is why an arborist will be present o supervise to ensure no significant roots are impacted. This system will alter levels across the site in terms of those leading up to other areas of the surface that have been constructed using a traditional build so that they connect smoothly. This will be considered prior to construction and demonstrated how this can be incorporated into the scheme to work.

The details of this can subject to a pre commencement planning condition attached to a planning consent. In some areas such as where the RPA of T10 and where hard surfacing and pedestrian paving is shown to cross the RPA of T13, T14 & T15 slightly encroach into the proposed construction zone, a traditional construction could be used because less than 20% of the total RPA is not affected, according to the guidelines of BS5837:2012. Once marked out this can be evaluated by the supervising arborist who can discuss with the local authority tree officer as to the most appropriate method to complete the layout. As mentioned above, it is feasible to construct the hard surfacing proposed over the RPA using specialist techniques. It is important to understand that prior to such a system being installed, ground protection will need be in place where access across the RPA to prevent soil compaction from occurring, tree protection fencing will also need to be in place to prevent collision damage and access in the RPA where it is not required.

Details of the type of ground protection in relation to the traffic crossing can be found in **Appendix 3**. It is important that the ground is suitably protected from being compacted. The type of fencing to be used to protect the trees is also found here, and the location of this fencing is shown on the Tree Protection Plan in **Appendix 5**.

Where landscaping works in the RPA are required, this cultivation of the ground will be undertaken in a careful manner and in accordance with the hand dig method statement provided in **Appendix 3**. This work will start closest to the tree and work backwards out of the RPA with an arborist present and working off suitably ground protection. If roots over 2.5cm in diameter are encountered, they will be retained and covered, whilst discussions are had with the council about root pruning possibilities.

As mentioned above, the block of flats will sit outside of the constraints of the trees shown to be retained, and so the deep excavation for the foundations of this building will not directly impact on these trees. The foundations for the bin/cycle store will be less extensive. To ensure the trees are protected they will be suitably fenced off to prevent construction activities directly impacting on them. Ground protection will be in place where access over the RPA is required prior to the no dig surface being installed. It will be important for the protection fencing and ground protection is set up prior to ground works commencing on site, with the fencing set up in the form of heras panels or similar, supported to prevent them being moved as outlined in the method statement in **Appendix 3**. As part of the arboricultural supervision schedule to ensure protection measures are being adhered to, the fencing will be set up as shown on the tree protection plan in **Appendix 5** and have an arborist check and ensure it is sufficient. In places where space constraints are limited, the scaffold used in the construction can later be used as part of this protective barrier. The fencing will be retained in the positions shown as long as possible, and only altered as required to accommodate the landscaping works shown on the soft landscape plan. The moving of the protective fencing to undertake landscaping works close to the end of the development will be coordinated with the supervising arborist as part of the ongoing arboricultural suite supervision to ensure the trees are protected from construction pressures at all times.

Welfare cabins can also be utilised to be positioned in locations on wooden supports to prevent access past them and help with utilising space efficiently to prevent pressure being focused in areas of the site where the trees could be harmed directly or indirectly. As part of the arboricultural supervision schedule that will be compiled, a pre commencement meeting will be had with the site manager and other relevant personnel to discuss the tree protection measures, where welfare / site office cabins will be placed, material storage, contractor parking etc. Although there is space outside of the RPA of the trees to be retained, the site manager will need to confirm the locations of material storage etc., and how this will be managed around the trees and the protection criteria within this report.

The scheme has taken account of the constraints of the trees prior to the design being fixed, to ensure as little impact as possible and retaining trees where possible. The scheme provides a good opportunity to have new planting installed to enhance amenity and wildlife habitat value, this can be conditioned as part of a planning consent.

In this case the potential impact of the proposal in relation to the trees to be retained is considered moderate, with specific measures being able to be implemented to ensure that construction pressures do not adversely affect their health or longevity.

The trees can be sufficiently protected by following the principles and measures contained within this report and those within the method statement in **Appendix 3**, along with suitable construction techniques and methodologies to work around the constraints these trees present to the layout proposal in certain locations.

2.5 Potential effects of the trees to be retained on the development:

Leaf litter / needle drop could become a problem if it causes drains or gutters to become blocked, that could impact in other ways on the building, or if left on access surfaces where they could become a slip hazard. To address this gutter guards could be installed to prevent build-up of leaf litter that could become a problem, or regular cleaning of the gutters employed. Regular clearing of falling leaves on the access route, especially in times of wet weather will address any potential slip hazards caused by this seasonal occurrence.

Shadow cast from G4, T13 – T15 will fall over some of the garden space, but with the canopy reduction and lifting this should not present a notable issue.

The conflicts normally encountered with having buildings near to trees can be addressed with scheduled maintenance.

2.6 Proposed solutions to safeguard the trees to remain during construction works:

2.6.1 Protective fencing

Protective fencing will be placed in the locations shown on the tree protection plan in **Appendix 5** prior to works commencing on site, along with ground protection where access over the RPA is required. The fencing will be retained at times, will be heras panels as shown in **Diagram 1** and construction activities will not be permitted beyond this. If scaffold is required to be incorporated as part of the fence line, it will be set up as shown in **Diagram 2** within **Appendix 3**. The fencing will be retained at times. Ground protection will remain in place at all times or until the new surface over the RPA is constructed. Access beyond the fence line will only be allowed with good reason and with the tree officer's permission. It is important to ensure that construction activities do not occur beyond the extents of the protective fence line. Where soil compaction is deemed a risk by access over the RPA, the ground protection measures provided in the method statement will be implemented. Protective fencing will be set up prior to works commencing on site, to ensure unauthorised access into the protected areas does not occur. Once ground protection or the construction of the new no dig surfaces are ready, it will be moved to facilitate these works. This will be overseen by the supervising arborist.

2.6.2 Services

No details relating to service runs have been provided to me, care will need to be taken to avoid the RPA of the trees where possible, although this will be difficult at the front of the site. The project architect will confirm the location of the service runs. Service trenches will be located outside of the RPA of the trees where possible. If this is not possible hand digging / air spade works will be used within the RPA with an arborist on site to supervise proceedings. Alternatively, trenchless techniques to install the services will be used and approved by the local authority. The trees are a notable distance from the proposed location of the dwellings and the RPA, so I do not envisage this being an issue.

2.6.3 Site facilities and material storage

Care will be taken to identify the type of materials required and the access of any machinery, vehicles or plant needed to move them, as these can cause collision damage to aerial parts of the trees as well as soil contamination or compaction. At no point will materials be stored within the RPA of trees. The site manager will provide details on this aspect of the project if felt necessary by the local authority, but as long as the RPA is not breached then this should not present a problem given the space outside of the protected areas.

2.6.4 Works within RPA

Where excavation works to open the assessment trenches for the bin/cycle store or ground scraping to facilitate no dig hard surfacing, this will be undertaken with care using hand tool / handheld pneumatic tools. A hand dig method statement is provided in **Appendix 3**. An arborist will supervise the digging, and any roots encountered will be retained if possible and if not, pruned clear and covered. The works will commence in a manner where it will start closest to the tree and work backwards out of the RPA. The supervising arborist will direct works in association with the contractor. If roots larger than 2.5cm in diameter are discovered, then they will be retained, and worked around, unless the council tree officer approves root pruning. Any other roots will be pruned clear and suitably covered by the supervising arborist.

A design for the foundation and hard surfaces will be provided, working around the constraints of the trees where possible. If a 'No Dig' surface is to be used, the project engineer will ensure the levels works across the site so that it is not later found that more extensive excavation in the RPA is required which could result in the trees removal.

2.6.5 Site supervision

The site manager will provide a timetable of works on the site, listing all of the key stages of development, starting with the placing of protection fencing / hoarding around the trees, establishing site facilities, through to completion of the site. Arboricultural supervision will take place prior to works commencing on site to ensure protection measures are understood and implemented with a pre-commencement meeting with the site manager and other relevant personnel. Site supervision will then be undertaken on a monthly basis or at key times when works are happening next to trees or in the RPA where they could be impacted.

Prior to work, all key personnel connected with the site will be briefed by an arborist with regard to the importance of the tree protection and methods of ensuring that the trees are protected during the construction period. A record of all arboricultural related site meetings will be made, signed off and available for inspection by the local authority if required.

Any personnel inducted on site will be made aware of the tree protection measures and will be responsible for their own actions in maintaining them and not breaching them in any way.

2.6.6 Site completion

Once work has been completed, an arborist will inspect the trees and comment on their condition and prescribe any mitigation works required. The tree protection measures are expanded upon in **Appendix 3**. Any proposed landscaping scheme or works around the trees will be discussed with the supervising arborist to ensure that this will not conflict with the trees or the protective areas in any way.

3 CONCLUSIONS

- To implement the proposed development the following trees will need to be removed:

T1 under an already approved consent.

- The following tree surgery works will be undertaken:

The southern canopy of G2 will be reduced back by 1m and crown lifted over the parking bays by 3m for clearance.

The overhang of the canopies of G3 will be selectively lifted to 3m over the parking bays

The height of G4 will be reduced by 5m to reduce the risk of future wind throw failure.

The northern canopy of TT13 - T5 will be reduced back by 2m and lifted to 5m.

All works will be done in accordance with BS3998:2010 and take into account all relevant wildlife legislation.

- The sensitive design of the scheme has retained trees where possible to avoid conflict. The trees that need to be removed and worked on will not impact on wider public amenity or the trees longevity.
- The layout has been carefully designed to place the main building outside of the RPA of the trees to be retained. Where the footprint of the outbuilding for the cycle / bin store etc partially crosses the outer RPA of T3 it is possible no significant roots will be impacted. To assess this and aid in a suitable foundation design to accommodate any significant roots that might be found, assessment trench along the proposed foundation line in the RPA will be carefully opened, and this will aid the final foundation design to work around any tree constraints.
- All excavation works required in the RPA and removal of existing hard surfaces or building foundations, will be done in a careful manner with arboricultural supervision present.
- To avoid damage to roots from soil compaction or excavation works, where hard surfaces are shown to cross the RPA of trees to be retained, ground protection will be in place and a 'No Dig' surface construction used to complete any hard surface in the RPA. This type of system will spread the load crossing it while still allowing water to percolate through and negate the need for excavation works that could directly impact on roots. In areas where minor encroachment of the RPA is required a traditional construction method will be used, but with care taken and arboricultural supervision present. if a traditional surface construction is not permitted by the council. The type and design will be agreed via a pre commencement planning condition.

- Protective fencing will be set up in the locations shown on the tree protection plan in **Appendix 5**. Ground protection will be in place where access over the RPA is required. The supervising arborist will direct the setting up of protective fencing, along with any moving of it to final locations as the development progresses, ensuring the trees are protected as best as can be achieved.
- There is sufficient space on site for material storage etc away from the RPA of the trees to be retained. The trees can be adequately protected from construction pressures by implementing and adhering to the protection measures provided in the method statement in **Appendix 3**. These details can be secured by a pre commencement planning condition.
- The development scheme provides an excellent opportunity for a landscape scheme to include better quality trees and shrubs, that will enhance the amenity and biodiversity value of the site.

4 OTHER CONSIDERATIONS

4.1 Trees subject to statutory controls:

I do not know if the trees are the subject of a TPO (tree preservation order) but I am told the site is within a conservation area so the tree will be protected as part of this legislation. I suggest that the local authority is kept updated with any proposed tree works so as to form a good working relationship and to prevent misunderstandings or contravention of protection measures. This is an advisory for readers of this report and not meant as a confirmation as to the protection status of the trees commented on.

*Andrew Day HND Arb
For Andrew Day Arboricultural Consultancy Ltd.*

Brief qualifications and experience of Andrew Day

I hold a Higher National Diploma in Arboriculture. I have been working in the field of arboriculture for approximately 20 years, spending time as a contracting arborist undertaking all aspects of practical arboriculture both in the UK and Europe. I have also worked within local government as a tree officer working for a variety of local authorities. I have a broad experience of both the practical and theoretical aspects of arboriculture having worked within the public and private sector.

1. Qualifications:

Higher National Diploma in Arboriculture (1996)

NPTC (National Proficiency Training Council) units 20, 21 and 22

Lantra professional tree inspection certificate

2. Practical experience:

Prior to establishing my company, I worked for a private Arboriculture company for three years undertaking many practical aspects of Arboriculture. I moved on from this to become a local authority tree officer for five years, my duties included consultation on planning matters with regard to trees, advice to the general public, managing the council's tree stock and liaising with other professionals on Arboricultural related issues. I was approached by an established tree contracting and consulting company in Essex to develop and run the consultancy department as their principal consultant which I did for three years.

SITE PHOTOGRAPHS



Showing G1



Showing G2



Showing T9 & T10



Showing T11, T12 & G4

SITE SPECIFIC INFORMATION

Explanatory Notes

Tree Survey

Tree Protection Method Statement and Protection Criteria

Hand Dig Method Statement

Example of a 'No Dig' surface construction

Informatives for protection fencing.

Arboricultural Considerations notice for site hut and inducted personnel.

Explanatory Notes

Measurements/estimates: All dimensions are measured unless access to the trees is not possible due to dense vegetation or other reasons, then it is estimated.

Species: The species identification is based on visual observations and the common English name of what the tree appeared to be is listed first, with the botanical name after in brackets. In some instances, it may be difficult to quickly and accurately identify a particular tree without further detailed investigations. Where there is some doubt of the precise species of tree, it is indicated it with a '?' after the name in order to avoid delay in the production of the report. The botanical name is followed by the abbreviation sp if only the genus is known. The species listed for groups and hedges represent the main component and there may be other minor species not listed.

Height: Height is estimating height to the nearest metre.

Spread: The maximum crown spread is visually estimated to the nearest metre of the total crown spread diameter. It should be noted that the crown of some trees can be one side, however this usually indicated within the report.

Diameter: These figures relate to 1.5m above ground level and are recorded in centimetres. Estimate measurements are banded 0-10cm, 11-20, 21-30 etc. If appropriate, diameter is measure with a diameter tape. 'M' indicates trees or shrubs with multiple stems. 'AV' indicates average and is the average of two stems when dealing with twin stem trees.

Estimated Age: Age is assessed as **M** mature (last one third of life expectancy), **EM** early mature (one third to two thirds life expectancy) and **Y** young (less than one third life expectancy).

FSB: First significant branch from ground level (direction shown on tree protection / constraints plan)

SULE: This is the estimated Safe Useful Life Expectancy of the tree. Trees can live longer than this value but can pose a risk to persons or property.

RPR: Radius of root protection area around the tree /group

RPA: Root protection area for tree or group

BS 5837 2012 - On the basis of this assessment, trees can be divided into one of the following categories:

- A** - Trees whose retention is most desirable, High category
- B** - Trees where it is desirable to retain, Moderate category
- C** - Trees which could be retained, Low category
- U** - Trees that cannot realistically be retained; Fell category

Tag	Name	Age	Diameter (mm)	Height (m)	Crown Hgt (m)	FSB Hgt (m)	Crown Spread (N S E W) (m)				Life Exp	Recommendations	Category	RPR (m)	RPA Area (m)
G1	Acer pseudoplatanus (Sycamore)	M	500	15	2.5	3	6	6	7	6	20+	Group of trees close together. Limited inspection due to ivy on mainstems. Sever ivy to aid future inspections.	B3	6	113.11
T1	Acer pseudoplatanus (Sycamore)	M	400	15	2	3.5	7	6	7	4	20+	Multi stemmed tree growing outside the fence line. Limited inspection due to ivy on the mainstems. Sever ivy to aid future inspections. Ownership is unclear.	B3	10.73	361.75
T2	Aesculus hippocastanum (Horse Chestnut)	M	500	12	2	2.5	4	4	4	4	20+	This tree is growing in third party ownership. No works required at present.	B3	6	113.11
T3	Acer pseudoplatanus (Sycamore)	M	650	15	0	1.5	6	6	6	6	20+	Limited inspection due to ivy on mainstem and inner crown also spoil heaped around the main stem. Remove spoil and sever ivy to aid future inspections.	B3	7.8	191.16
T4	Prunus laurocerasus (Cherry Laurel)	M	150	9	1	1	3	6	4	2	20+	No works required at present.	C2	3.6	40.72
G2	X Cupressocyparis leylandii Castlewellan	M	350	16	1.5	2	4	2	6	2	20+	Group of approx. 15 trees growing as a screen. Limited inspection due to ivy on mainstems. Sever ivy to aid future inspections.	C3	4.2	55.42

Tag	Name	Age	Diameter (mm)	Height (m)	Crown Hgt (m)	FSB Hgt (m)	Crown Spread (N S E W) (m)				Life Exp	Recommendations	Category	RPR (m)	RPA Area (m)
T5	Tilia cordata (Small-leaved Lime)	M	650	16.5	2	5	4	5	5	6	20+	Limited inspection due to ivy on mainstem and inner crown also there is epicormic growth on the mainstem. Remove epicormic growth and sever ivy to aid future inspections.	B3	7.8	191.16
T6	Acer pseudoplatanus (Sycamore)	M	400	12	1	2	2.5	2.5	2.5	2.5	10+	Limited inspection due to ivy infestation. Little Crown and foliage are showing. sever ivy to aid future inspections.	C3	4.8	72.39
T7	Taxus baccata (Yew)	M	200	5	1.5	1.5	2.5	2.5	2.5	2.5	40+	No works required at present.	C1	3.4	36.32
T8	Sambucus nigra (Elder)	M	150	5	1.5	1.5	1.5	1.5	1.5	1.5	20+	No works required at present.	C1	1.8	10.18
G3	Acer pseudoplatanus (Sycamore)	M	300	14	5	5	6	6	4	4	20+	Group of 6 trees close together. Limited inspection due to ivy on mainstems and inner crowns. Sever ivy to aid future inspections.	C3	3.6	40.72
T9	Taxus baccata (Yew)	M	100	3	1	1	1.5	1.5	1.5	1.5	20+	No works required at present.	C3	2.4	18.1
T10	Taxus baccata (Yew)	M	500	11	1	1	5	6	5	4	40+	No works required at present.	B3	6	113.11

Tag	Name	Age	Diameter (mm)	Height (m)	Crown Hgt (m)	FSB Hgt (m)	Crown Spread (N S E W) (m)				Life Exp	Recommendations	Category	RPR (m)	RPA Area (m)
T11	Taxus baccata (Yew)	M	400	8	1	1	3	3	3	3	40+	Limited inspection due to undergrowth stopping access. Clear undergrowth to aid future inspections.	B3	4.8	72.39
T12	Chamaecyparis lawsoniana (Lawson Cypress)	M	400	16	1	1	2	2	2	2	20+	Limited inspection due to undergrowth stopping access. Clear undergrowth to aid future inspections.	B3	4.8	72.39
G4	X Cupressocyparis leylandii Castlewellan	M	350	12	1.5	1.5	3	1	3	1	20+	Group of trees growing as a screen. Limited inspection due to undergrowth stopping access. Clear undergrowth to aid future inspections.	C3	4.2	55.42
T13	Acer pseudoplatanus (Sycamore)	M	450	13	2	2	5	2	4	6	20+	Limited inspection due to undergrowth stopping access. Clear undergrowth to aid future inspections.	C1	5.4	91.62
T14	Aesculus hippocastanum (Horse Chestnut)	M	550	15	3	3	5	5	5	5	20+	Limited inspection due to undergrowth stopping access. Clear undergrowth to aid future inspections., Tree appears to be in decline	C2	6.6	136.87
T15	Taxus baccata (Yew)	M	400	11	1	1	5	5	4	3	40+	Limited inspection due to undergrowth stopping access. Clear undergrowth to aid future inspections. In third party ownership.	B3	4.8	72.39

Method Statement for Tree Protection Measures

PROJECT: Land Rear of Banyers, Royston, Herts

CLIENT: Barker Associates

1.1 Brief

Provide protective measures specification for trees to be retained using the guidelines and principles prescribed in BS5837: 2012 'trees in relation to design, demolition and construction'.

1.2 Protective measures and Site Supervision

An important factor in providing protection for the tree during the construction works is the chronological order in which development tasks are undertaken. Before work continues on site, the following issues will be addressed and submitted to the council for approval.

- A suitably qualified arborist will be retained to oversee tree protection measures where required and liaise with the tree officer as required. The contact information of this arborist will be made available to the council tree officer prior to works starting on site.
- An assessment trenches will be opened where the foundation line crosses the RPA, to determine the foundation design, along with any other exploratory works to accommodate hard surfacing design.
- The foundation of the buildings and hard surfaces will be suitable to address any potential influence the trees may have on it. Location of services and details of their installation will have been provided, with any arboricultural protection measures or methodologies of working programmed in the works schedule and approved by the council.
- Where hard surfacing is required over the RPA a 'No Dig' system will be used. Any ground scrapping // vegetation removal will be done working off ground protection and using hand tools under the supervision of an arborist.
- A pre- commencement meeting with a suitably qualified arborist will take place with the site manager and other relevant site personnel, to debrief them on the importance of the protection measures and to assist in setting up of the protection fencing etc. before work commences on site.
- The arboricultural site supervision schedule will be compiled at the pre-commencement meeting and will be the responsibility of the site manager to ensure that it is carried out and maintained for the duration of the works.
- The tree removal and tree surgery works will be undertaken before construction activities begin, ensuring works are compliant with BS3998:2010 and any relevant wildlife legislation.

1.2.1

A pre-commencement inspection by the supervising arborist will take place to ensure the protective measures are understood and a schedule of arboricultural site monitoring is formulated at the start of the project, this will consist of site visits on a monthly basis to ensure protection measures are being maintained and that supervision is present if works are required in the RPA. A log of these visits and any actions required will be available to the council on request and kept on site.

1.2.2

Protective fencing as shown in **diagram 1** or similar will be placed in the locations as shown on the tree protection plan in Appendix 5, prior to works commencing on site. Once erected the fencing will not be removed unless permission has been given by the tree officer or the works on site have been completed. If scaffolding is required to be erected within the confines of the RPA, it will be set up as shown in **diagram 2**. The informatives provided will be attached to the fencing to highlight its importance at a height of 1.5m and at 5m intervals along the line of fencing, or in locations that can demonstrate they are clearly visible to identify the purpose of the fencing in relation to the project. When this fencing needs to be moved to facilitate the construction of the drive and parking, it will be ensured that suitable ground protection is in place as set out in section 1.7 below.

1.2.3

The placing of tree protection measures works within the construction timescale will not be altered and it is re-emphasised that this is to take place prior to any other activities.

1.2.4

All personnel inducted on site will be made aware of the tree protection measures and will be responsible for their own actions in maintain these and ensuring that they do not cause any damage to the trees.

Diagram 1

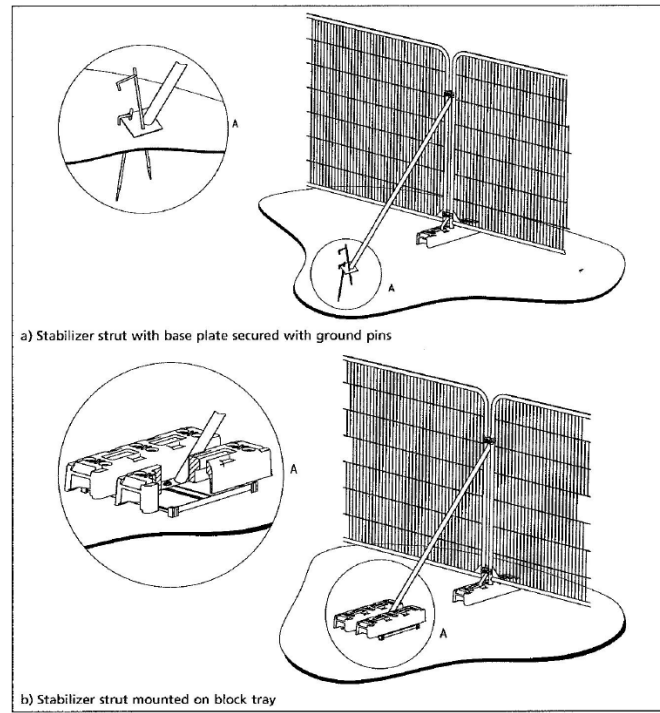
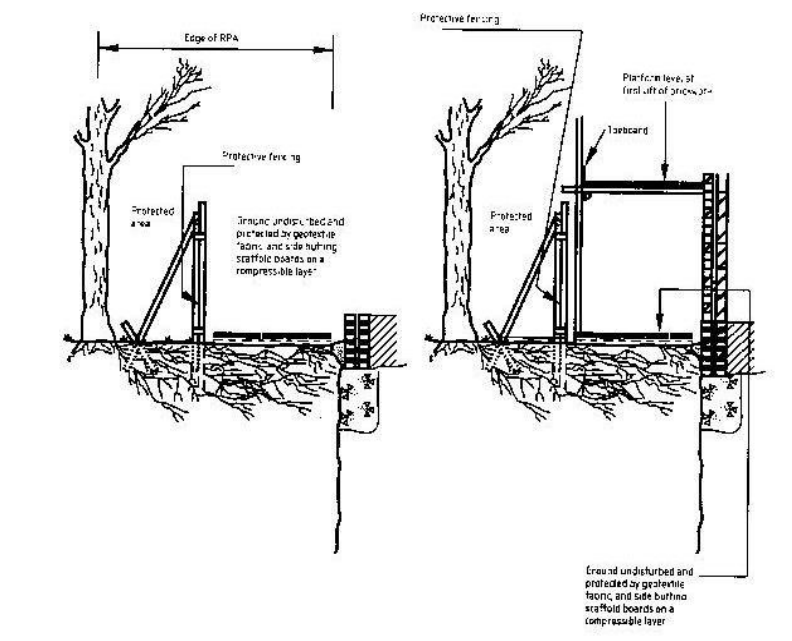


Diagram 2



1.3 Forbidden activities within RPA

- 1.3.1 Within the root protection area, the following activities will be prohibited, unless the local authority in writing grants specific permission:

No storage of chemicals or other substances likely to leach and cause harm to the trees to be stored.

No storage of heavy plant or materials likely to cause further soil compaction. The piling rig will sit outside the RPA at all times.

No ground disturbance works, apart from what has been approved by any planning permissions or specifically from the council.

No activities that could indirectly affect the trees such as bonfires etc.

- 1.3.2 No ground disturbance works apart from those granted in the planning permission is to be undertaken within the confines of the RPA without the written permission of the local authority.

The protected area is not to be breached at any time, unless the local authority has granted permission, and a qualified arborist has been consulted and supervises any work activities that need to take place.

1.4 Storage of chemicals / mixing of materials

- 1.4.1 Storage of chemicals will be placed in a sealed bund / area, with no discharge allowed onto the ground or watercourses. The area containing these materials will have an impervious surface and stored **if possible** 10m away from the RPA. If accidental spillage of chemicals or other damage to the trees takes place the local authority is to be notified as soon as possible, and a suitably qualified arborist is consulted as to the best actions to take to mitigate any damage that may have occurred as a result of the accident and these works to be undertaken to mitigate the situation as soon as possible.

1.5 Works in the RPA

- 1.5.1 No excavation / ground disturbance works will take place within the RPA unless permission is granted by the local authority to do so. Where excavation works are needed to install foundations of the bin/bicycle store within the RPA of T3, then the assessment trench will be initially dug to a depth of 600mm along the foundation line closest to the tree, in accordance with the arboricultural hand dig method statement provided, using suitable tools to ensure the work can be achieved in a careful manner. Any roots encountered 2.5cm or below will be pruned clear and suitably covered by the supervising arborist. Any larger roots will be retained, and the foundation design will accommodate their retention, unless root pruning is approved by the tree officer.
- 1.5.2 Where light ground levelling / vegetation clearing is required in RPA to facilitate the 'No Dig' surface, new hard surfacing or landscaping being installed, it will be undertaken initially using hand tools, off ground protection and under the supervision of an arborist.
- 1.5.3 Where hard surfacing is shown to cross the RPA of trees, this will be facilitated by using a construction method agreed. If less than 20% of the RPA is crossed and the local authority allow it, a traditional construction method will be used. Alternatively, a 'No Dig' construction method will be used. An example of this type of system can be found below in **Diagram 3. The project architect will ensure all levels tie in so that there is no conflict later, where the raised level of this type of surface causes problems.** Details of how this surface will be installed will be provided by the project architect / engineer.
- 1.5.4 The foundation design for the buildings and hard surfaces will demonstrate how it is fit for purpose to ensure that the trees will not indirectly impact on the structure, resulting in pressures to remove the trees in the future.
- 1.5.5 Where access across the RPA is required before the new hard surfacing is in place to facilitate construction, suitable ground protection will be laid down as detailed in section 1.7 below.
- 1.5.6 All excavation works that are required in this protected area, will have the permission from the council approved for this type of operation, and the hand dig method statement provided strictly adhered to at all times.

1.7 Ground Protection

- 1.7.1 Where access across the RPA is needed on the existing hard surfaces, the following ground protection measures will be implemented as needed.

For pedestrian traffic:

A single thickness of scaffold boards placed on top of a scaffold frame so as to form a suspended walkway (similar to diagram 2), or boards laid on to a geotextile membrane with a layer of wood chips 100mm in thickness.

For pedestrian operated plant, up to 2 tonnes:

Interlinked ground protection boards of plywood or similar at least 2.5cm thick, laid onto a geotextile membrane on a bed of wood chip 150mm in depth.

For wheeled or tracked traffic exceeding 2 tonnes gross weight:

Metal tracking designed and fit for purpose, pre-cast concrete slabs or similar, laid to an engineering specification on a compression resistant layer e.g., wood chips that will likely spread the weight of the load and prevent compression of the soil underneath.

- 1.7.2 **AT NO POINT WILL THE GROUND WITHIN THE RPA BE LEFT UNPROTECTED IF ACCESS IS REQUIRED IN THIS AREA.**

1.8 Completion

- 1.8.1 Once all the construction activities on the site have been completed and a suitably qualified arborist will assess the condition of the trees and liaise with the local authority accordingly if any works are considered necessary. Any proposed landscaping installation works will be discussed with the supervising arborist to ensure there could be no detrimental impact on the trees.

2 HAND DIG METHOD STATEMENT

PROJECT: Land Rear of The Banyers, Royston, Herts REV 1

- 2.1** The area to be excavated will be inspected by a professional arborist to assess the likely proximity of root activity and concentration prior to the commencement of any works. All relevant authorized personnel to be informed and required permissions gained before work commences.
- 2.2** If hand digging is not possible/practicable a method of excavation will be agreed and undertaken by a suitably qualified person for example air spading or a competent digger operator etc., in the presence of a qualified arborist.
- 2.3** During excavation great care will be taken to minimize damage to retained roots, including the bark around the roots.
- 2.4** All roots greater than 25mm diameter should be retained and worked around. Where clumps of smaller roots (including fibrous roots) are found these are to be retained.
- 2.5** Roots with a diameter in excess of 25mm must not be severed without permission from an Arborist.
- 2.6** If roots are encountered, the Arborist must conduct the root pruning and inform the relevant person to suggest mitigation works to the tree(s) if required. If severance is unavoidable roots must be cut back using a sharp tool, leaving the smallest wound possible.
- 2.7** If there is a possibility of infection being passed from one specimen to another, tools will be sterilized in an appropriate method to reduce the risk of cross contamination.
- 2.8** When backfilling an inert granular material mixed with topsoil or sharp sand (not builder's sand) is to be used around the retained roots. Unless an alternative backfill substrate has been agreed with in writing by the appropriate authorized personnel.
- 2.9** If roots are to be left exposed for a period of longer than 1 hour (dependent on weather conditions), then a covering of dampened Hessian or similar material is to be used to cover the exposed roots. Any changes to this practice are to be authorized by a qualified arborist.
- 2.10** All levels are to be returned to the original plane after any excavation unless specific design and relevant permission has been authorized.
- 2.11** A qualified Arborist is to be on site to supervise during any operations within the protection zone.

BODCELL™ Cellular Confinement

Bodcell™ Cellular Confinement System

Bodcell™ is a cellular confinement system for slope protection and stabilisation applications.

Manufactured from dark grey PE/PP, the material is permeable and allows water to flow between cells encouraging drainage and vegetation growth. The cell structure confines soil or aggregate material, greatly improving resistance to erosive forces such as rainwater run-off on steep or unstable slopes, or slopes exposed to severe hydraulic or mechanical stresses.

A variety of infills can be used depending on the application, providing a means of fully vegetating slope surfaces where this would not otherwise be possible. Seeded topsoil provides protection for less exposed areas, small shrubs offer improved protection, whilst granular infill offers the highest protection. The cellular system is normally suitable for slopes up to 45 deg (1:1 Slope).

Bodcell™ is supplied in flat panel form and expanded on site to the desired dimensions and shapes. The panels are flexible enough to go round trees and other obstacles. The cellular structure should be fixed on every single cell on the perimeter and at 1m centres throughout using fixing U-pins. Bodcell™ is also suitable for ground stabilisation and can be used as a tree root protection system.

U-Pins

Fixing U-pins can be used to fix the perimeter of cell and 1m centres throughout.

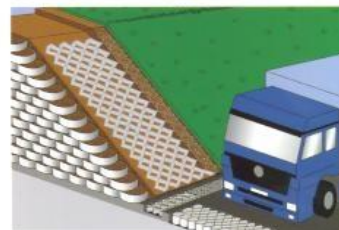
Technical Specifications

LENGTH	WIDTH	DIAMETER	MATERIAL	PACK SIZE	PART NO	LIST PRICE per pack £
550mm	100mm	8mm	Steel Rod	100	051038	80.00

Technical Specifications

PRODUCT REFERENCE	PANEL SIZE	CELL DIAMETER	CELL DEPTH	SLOPE APPLICATION MAXIMUM SLOPE ANGLE	GROUND REINFORCEMENT APPLICATION - LOAD CAPACITY	MATERIAL	PART NO	LIST PRICE per panel £
Bodcell 250/100	5m x 7m	250mm	100mm	1:1 Slope (45°)	Pedestrian Loads	PP/PE	051397	250.00
Bodcell 250/150	5m x 7m	250mm	150mm	1:1 Slope (45°)	Light Vehicles	PP/PE	051403	345.00
Bodcell 350/100	5m x 7m	350mm	100mm	1:2 Slope	N/A	PP/PE	051311	155.00
Bodcell 350/150	5m x 7m	350mm	150mm	1:2 Slope	N/A	PP/PE	051410	225.00
Bodcell 220/200	6m x 3m	220mm	200mm	N/A	Heavy Vehicles	PP/PE	051380	275.00

- Cell wall tensile strength: 20.7kN/m
- Cell wall permeability: 45 l/m sec
- Material : 70% Polypropylene, 30% Polyethylene



Applications include slope protection and ground reinforcement.



EROSION CONTROL

METHOD STATEMENT FOR 'NO DIG' CONSTRUCTION

Incorporating the principles set out in Arboricultural Practice Note 12 for Hard Surfaces Within the Root Protection Area of Trees.

Prior to commencing any construction on site, erect protective fencing around trees to form an exclusion zone (see attached tree constraints plan). This will ensure that roots will not be severed during the construction work and the soil in the area of the exclusion zone will not be compacted, enabling oxygen to continue to diffuse into the soil beneath.

Construction of the surface should be undertaken in dry weather between May and October when the ground is driest and least prone to compaction.

- 3.1** Kill ground vegetation where hard surface is to be placed using a translocated herbicide such as glyphosate, ensuring that the selected herbicide does not damage the root of the tree/s below the new surface.
- 3.2** Remove the dead or organic material from the site and ensure that large stones and shrub stumps are removed from the proposed route.
- 3.3** Any stumps should be ground rather than excavated to minimise soil disturbance.
- 3.4** The resulting hollows and any other holes in the path should be filled with sharp sand.
- 3.5** Lay geotextile matting across the full width of the access. This will prevent the intrusion of roots into the sub-base whilst still allowing nutrients and gaseous exchange.
- 3.6** Lay a cellular confinement system suitable to support the loads needed by the surface. This can be cut on site to the length, width and profile of the surface required.
- 3.7** The surface is to be supported against the geo web matting by 150 x 20 mm tannalised softwood boarding and 200mm long tannalised soft wood pegs, driven into the ground at 1500 mm centres.
- 3.8** Using hand shovels; carefully push 100 mm gravel chippings (no fines) into the Geo matting to form an aggregate sub-base.

- 3.9** The type 1 chippings should be placed at one end of the matting and pushed/spread across the matt to prevent compacting the soil, working on either side of the surface.
- 3.10** Carefully compact the subbase by hand to ensure binding with the geogrid and to minimise future rutting.
- 3.11** Lay second layer of a geotextile matting across the full width of the path. This will prevent the intrusion of fines (small pieces of gravel which can be compacted and restrict or close air pores) into the gravel chippings.
- 3.12** Add layer of 'no fines, sharp sand' and compact if using pavers as surface treatment. Again, care is to be taken when compacting takes place and by hand.
- 3.13** Place proposed surface treatment on top of the compacted sub-base to form the finished surface to the path and bank up the edging with topsoil, which is to be grass seeded in spring/autumn. This will form a gentle slope from the edging back onto the existing ground level.

ANDREW DAY
ARBORICULTURAL CONSULTANCY LTD

REDUCING COSTS BY DELIVERING PRACTICAL SOLUTIONS

TREE PROTECTION ZONE

**DO NOT CROSS WITHOUT
PERMISSION**

**BREACHING THIS BARRIER CAN
RESULT IN THE FOLLOWING:**

- **SHUT DOWN OF THE JOB**
- **FINANCIAL IMPLICATIONS**
- **CRIMINAL PROCEEDINGS**

ARBORICULTURAL SITE CONSIDERATIONS

THIS NOTICE IS TO BE DISPLAYED IN THE SITE OFFICE OR A SUITABLE LOCATION WHERE IT IS CLEARLY VISIBLE AND ISSUED TO ALL PERSONNEL INDUCTED ONTO SITE

The following site considerations must be observed at all times during the development process, from site preparations through to completion.

- ❖ The protected area of the RPA must be regarded as sacrosanct and not breached except where to implement the planning permission granted, without prior consultation with either the local planning authority or the supervising arborist.
- ❖ Ground protection must not be lifted or removed without prior consultation with either the local planning authority or the supervising arborist.
- ❖ Damage caused to ground protection must be reported to the site manager to ensure suitable repair or actions are taken.
- ❖ No materials, chemicals, machinery, or vehicles to be stored within the RPA (root protection area) as defined on the tree protection plan and on site by fencing and ground protection.
- ❖ No materials etc. must be rested against or machinery chained to trees.
- ❖ No pruning of trees may be undertaken by anyone other than a qualified arborist and approved by the supervising arborist and local authority tree officer.
- ❖ Any physical damage caused to a tree to be retained must be reported to the site manager immediately so that suitable remedial works can be commissioned without delay.
- ❖ Builder's sand (which contains high levels of salt) must not be used to back fill excavations within or in close proximity to tree roots, as it has a toxic effect and can cause root desiccation. Sharp sand must be used under such circumstances.
- ❖ Soil contaminants such as concrete mixings, diesel oil and vehicle washings must be kept suitably contained, preferably within bunded areas. Any spillages within 2m of a fenced area must be reported to the site manager and supervising arborist immediately so that suitable mitigation works can be commissioned.
- ❖ Fires must not be lit in positions where their flames can extend to within 5m of foliage, branches, or trunks. Wind direction and size of fires will impact on this.
- ❖ Notice boards, telephone cables or other services etc. must not be attached to any part of a tree.

Remember the tree officer can turn up at any time or neighbours may report any poor practice or threats to the trees.

Site Personnel Contact Information

As far as I am aware the only personnel associated with this site at the time of writing this report is the project architect. Table 1 shows the contact details of the project architect who is to be contacted if any enquires relating to this project need answering.

Table 1

Name	Relation to Site	Contact Details
Barker Associates	Project Architect	01279 648060

LIMITATIONS AND QUALIFICATIONS

LIMITATIONS AND QUALIFICATIONS

Unless specifically mentioned the report will only be concerned with ground inspections. No below ground inspections will be carried out without prior confirmation from the client that such works should be undertaken. This report is for the purposes of identifying the potential impact construction activities could have on the trees and is not a health and safety assessment of the trees. A cursory assessment of the trees health and condition will be recorded, but this is not to be taken as a detailed assessment of its structural condition, health, and management recommendations in relation to this. A separate tree inspection regime focusing on these aspects will need to be undertaken if this is required.

The validity, accuracy and findings of this report will be directly related to the accuracy of the information made available during the inspection process. No checking of independent data will be undertaken, Andrew Day will not be responsible for the recommendations within this report where essential data are not made available or are inaccurate.

This report will remain valid for one year from the date of inspection but will become invalid if any tree works not recommended within the report are undertaken, soil levels around the trees are altered in any way, and extreme weather conditions are experienced or if any building works that could impact on the tree are undertaken or not disclosed.

If any of the above occurs, then it is strongly recommended that a new tree inspection is carried out.

It will be appreciated, and deemed to be accepted by the client that the formulation of the recommendations for the management of the trees will be guided by the following:

1. The need to avoid reasonably foreseeable damage.
2. The arboricultural considerations – Tree safety, good Arboricultural practise and aesthetics.

The client is deemed to have accepted the limitation placed on the recommendations by the sources quoted in the attached report. Where time constraints or the client limits sources, this may lead to an incomplete quantification of the risk.

TREE PROTECTION PLAN

(This plan is for reference only; please refer to the separate A3 plan for scaling if required)

