



ARBORICULTURAL REPORT

**Ascot Arms
Graves End
Kent**

26th February 2021

Prepared by

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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 and neighbouring land, in relation to the proposal to demolish the existing building and develop the site into a care home. Providing advice on how the trees could be impacted by construction activities, and protection measures to be implemented using the guidelines and principles of BS5837:2012 for those to be retained.

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1 INTRODUCTION

1.1 Brief:

This report has been prepared at the request of Holden & Lee the project managers on behalf of the site owner, to provide advice on the arboricultural constraints regarding the trees on site and adjacent land in relation to the proposal. Commenting on the constraints they present and what protection measures will need to be implemented to safeguard the trees if retained, in relation to the proposal for the demolition of the existing structures and redevelopment, to provide a new 62-bedroom care home (Use Class C2) together with associated access, car and cycle parking, structural landscaping, and amenity space provision.

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 plan of the proposed layout.

1.4 Relevant background information:

None.

1.5 Scope of this report:

This report is only concerned with trees that I consider 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.

2 APPRAISAL

2.1 Brief site description:

The site is derelict pub site is a large corner plot on a residential area which is geographically fairly central in Gravesend. The trees are mostly to the site edges and the site is mostly hardstanding car park with a lawn area on the southern side. Some of the trees form a line within the site and extend to the open space to the north. Residential properties surround the site.

2.2 Condition of trees:

The trees appear to be a healthy condition with no signs of pests or diseases normally associated with the species, apart from T10 which is within G2 and has a Ganoderma Spp brackets at the base. It is likely this fungus will develop and require the tree to be removed in due course.

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

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

In my opinion the trees are suited to the site, where they do not appear to be impacting on the usage of the site or adjacent properties. Some are low quality and would be best removed because they are suppressed by adjacent vegetation and could be replicated with better planting. Management suggestions are provided in the tree survey in **Appendix 3**.

2.4 Potential effects of development on the trees:

To implement the planning permission being sought, the following trees will need to be removed:

G1, T1, T5, T6- T10. Part of G2 which is on site. The remainder which is offsite will be retained and protected from construction pressures. New planting as part of the scheme can be planted to compensate and enhance the amenity and ecological value of the site.

The proposed usage and design for the site provides a good opportunity to have new and better quality trees, incorporated as part of the landscaping works to compliment the site. Trees such as Hornbeam, Silver Birch, Rowan, and Pyrus Calleryana Chanticleer can be used to compensate for the trees lost, but enhance the softening of the new building, offer screening, seasonal interest and enhance the wildlife habitat benefit also. Shrub planting can be combined with this to further enhance the site. This can be conditioned as part of a planning consent.

The footprint of the new building is outside of the constraints of the trees, so this will not directly impact on roots in the protected areas.

A very small portion of the outer part of the RPA (root protection area) of T11 - T14 will be compromised by part of a path shown along this edge of the building. It is highly feasible that no significant roots will be impacted in this location should excavation be undertaken during the construction of the path in a traditional manner; however, care will be taken to determine this. The area to be excavated in the RPA will be done in accordance with the hand dig method statement provided, and any roots encountered will be suitably pruned and covered. BS5837:2012 allows for shallow base structures such as this to occupy part of the RPA as long as no more than 20% of the total area is covered. In this case this is less than this and therefore feasible to construct without specialised engineering methods. All excavation works will be supervised by an arborist and undertaken in accordance with the hand dig method statement provided in **Appendix 3**. If the council object to a traditional construction method being used, then a 'No Dig' surface construction, will be utilised. This will need to be discussed with the engineers and a suitable method of construction provided that shows roots will not directly be damaged by root severance or indirectly by ground compaction. An example of a 'No Dig' surface construction is shown in **Diagram 3** of **Appendix 3**. However, the council may be amenable for a traditional construction to be used for the path given a minimal amount of the outer RPA will be crossed. This will be confirmed by the local authority.

Parking bays are shown within the RPA of T3 – T4 and there is a potential for significant roots to be impacted. However, there is existing hard surfacing in place in this location and Lime trees are tolerant to root disturbance so it is less likely the trees will be detrimentally affected if care is taken during works in this location. If possible, the existing hard surface can be retained and used as the base for the new surface. If not, then the old surface will be carefully removed using handheld pneumatic tools and with an arborist supervising. The new surface will then be carefully re-laid, ensuring it has a porous nature to allow moisture to filter through to the soil below.

The risks to the trees associated with construction activities apart from the direct way they could be impacted as discussed above, will be via indirect actions from construction activities such as, inconsiderate material storage, manoeuvring of materials, scaffold erection etc. There is plenty of space on site to accommodate such actions, but careful consideration will still be required to ensure the trees are not affected by works on site. Prior to work commencing on site, it will be necessary to ensure systems are in place to prevent the trees from being affected. Protective fencing can be erected around the tree to prevent collision damage, where space is restricted the scaffold used in the construction can be incorporated as part of the protective fencing. As previously mentioned, excavating in the RPA will need to be achieved in accordance with the hand dig method statement provided, and with arboricultural supervision present.

In this case the potential impact of the proposal in relation to the trees to be retained is considered to be moderate to low, with specific measures being able to be implemented to ensure that construction pressures do not adversely affect its 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**. The scheme presents an excellent opportunity to have new landscaping installed, that will enhance the amenity of the site and its ecological diversity to the benefit of local wildlife. Any new planting can be conditioned as part of a planning consent.

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

Leaf litter 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 is unlikely to be an issue given the orientation of the site and the trees shown to be retained on the boundary of Central Avenue. The shadow cast will likely fall on this side of the building for a short period of the day.

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

2.6 Proposed solutions to safeguard the tree 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. The fencing will be retained at times and will be heras panels as shown in **Diagram 1**. If scaffold is to be incorporated as part of the protective fence line where the RPA has to be crossed, it will be erected as shown in **Diagram 2**.

2.6.2 Services

No details relating to service runs have been provided to me, I would assume the existing services will be utilised to a certain degree. The new service trenches will be located outside of the RPA of the tree if 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. Given the space on site outside of the RPA I would have thought these protected areas can be avoided.

2.6.3 Site facilities and material storage

Although there is sufficient space on site, care will still have to 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 tree as well as soil contamination or compaction. At no point will materials be stored within the RPA of tree if possible. If not then permission by the tree officer or planning authority will be given and measures taken to ensure the tree is not affected. 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.

2.6.4 Works within RPA

Any excavation works will be initially undertaken using hand tools with the supervising arborist present to undertake any root pruning. Discussion with the tree officer will be had in relation to the hard surface construction of the paths and parking bays where they cross the RPA, as it may be acceptable to excavate in some areas if it can be demonstrated significant roots will not be affected. If a traditional build is not permitted by the council then a 'no Dig' solution will be used.

It will be noted by the project architect that 'No Dig' surfaces raise the ground levels, and so any other surface will need to be designed to tie into this. The tree officer is unlikely to be sympathetic later on if it is found level do not work with such a surface design.

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 be undertaken by a suitably qualified arborist on a monthly basis until the completion of the project, and at key stages in the development such as erection of the protective fencing, excavation works in the RPA.**

The site manager will provide the construction timetable and show the times when arboricultural supervision will be present, based on the monthly frequency and the works in or close to the RPA. This will be provided prior to works commencing on site.

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 tree is 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.

Failure to do so could result in legal action taken against the person responsible and the site owner, including any financial remuneration involved.

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 will be discussed with the supervising arborist to ensure that this will not conflict with the tree or the protective areas in any way.

3 CONCLUSIONS

- To implement this development G1, T1, T5, T6- T10. Part of G2 which is on site, will be removed, the majority of these are low quality. New trees can be planted to compensate for their removal that will be better suited to the location and have space to develop into landscape features of the future.
- Only a very minor area of the outer RPA of T11 – T14 will be crossed by hard surfacing for a path. It is unlikely that significant roots will be impacted. If required the construction of these hard surfaces can be accomplished with a 'No Dig' method.
- Where parking bays are shown within the RPA of T2 – T4 the existing hard surface will be used as a base, or if required to be removed will be done with care and the new surface replaced. This will be done under arboricultural supervision.
- Protective fencing will be installed to prevent collision damage occurring and incursion into the RPA of trees to be retained where it is not required.
- 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**. Specialized construction techniques can be utilised to work around any constraints the trees offer.
- The scheme presents an excellent opportunity to instal new planting on site that can enhance seasonal interest and ecological net gain. There is space to plan tree that will develop to become landscape features of the future. This can be conditioned as part of a planning consent.

4 OTHER CONSIDERATIONS

4.1 Trees subject to statutory controls:

I am not aware of any tree preservation orders or other restrictions relating to the trees. I suggest that the local authority is contacted to confirm this and kept updated with any proposed tree works including root pruning so as to form a good working relationship and to prevent misunderstandings or contravention of protection measures. This statement is meant for readers of this report as an advisory, to make sure they make the relevant checks so as not contravene any protection status the trees may have.

*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 10 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 principle consultant which I did for three years.

SITE PHOTOGRAPHS



Showing G1



Showing T1 – T4



A view of T9 and part of G2



A view of T16 and the wound on the main stem

SITE SPECIFIC INFORMATION

Explanatory Notes

Tree Survey

Tree Protection Method Statement and Protection Criteria

Hand dig method statement

Example of a 'No Dig' Construction surface

Informatives for protection fencing

Arboricultural Considerations notice for site hut and inducted personnel

Explanatory Notes

Measurements/estimates: All dimensions are estimates unless otherwise indicated. Measurements taken with a tape or clinometer are indicated with a '*'. Less reliable estimated dimensions are indicated with a '?'.

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 identify a particular tree quickly and accurately without further detailed investigations. Where there is some doubt of the precise species of tree, it is indicated 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 estimate 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 is desirable, Moderate category

C - Trees which could be retained, Low category

U - Trees that cannot realistically be retained; Fell category

Tag	Name	Age	Diameter	Height	Crown Hgt	FSB Hgt	Crown Spread (N S E W) (m)				Life Exp	Recommendations	Category	RPR	RPA
T1	Sambucus nigra (Elder)	M	212	4(2)	2	2	1	1	1	1	<10	This tree is laying over and is decayed. Remove tree.	C3	2.54	20.27
T2	Tilia cordata (Small-leaved Lime)	M	500	14(4.5)	4.5	2	4.5	4.5	4.5	4.5	20+	This tree is a pollard tree which has been allowed to grow out to form a crown. Monitor pollard points for decay.	B3	6	113.11
T3	Tilia cordata (Small-leaved Lime)	M	550	14(4.5)	4.5	2	4.5	4.5	4.5	4.5	20+	This tree is a pollard tree which has been allowed to grow out to form a crown. Monitor pollard points for decay.	B3	6.6	136.87
T4	Tilia cordata (Small-leaved Lime)	M	500	12(3)	3	2	5	5	5	5	20+	Limited inspection due to sucker growth around mainstem. Clear sucker growth to aid inspection. This tree is a pollard tree which has been allowed to grow out to form a crown. Monitor pollard points for decay.	B3	6	113.11
T5	Prunus avium (Wild Cherry)	M	250	8(3.5)	3.5	3	3	2.5	3	2.5	10+	This tree has decay and biomechanical defects at 1m and is also leaning out toward the road on the boundary line. Remove this tree.	C3	3	28.28

Tag	Name	Age	Diameter	Height	Crown Hgt	FSB Hgt	Crown Spread (N S E W) (m)				Life Exp	Recommendations	Category	RPR	RPA
T6	Prunus avium (Wild Cherry)	M	550	9(2)	2	1.5	4.5	5	4.5	4.5	10+	Limited inspection due to ivy on mainstem. Sever ivy to aid future inspections. Remove deadwood from Crown.	C1	6.6	136.87
T7	Sambucus nigra (Elder)	M	224	5(1.5)	1.5	1.5	2.5	2.5	2.5	2.5	10+	This tree is ivy infested and in poor condition. Consider removal.	C3	2.69	22.74
T8	Ilex aquifolium (Holly)	M	200	10(2)	2	2	2.5	2.5	2.5	2.5	20+	No works required at present.	C1	2.4	18.1
T9	Fagus sylvatica (Beech)	M	849	16(4.5)	4.5	2.5	6	5.5	6.5	5.5	20+	Ownership unclear, appears outside of property. Limited inspection due to ivy covering mainstem and inner crown. There are biomechanical defects just visible on lower stem. Remove ivy from lower stem and inspect further.	B3	10.19	326.25

Tag	Name	Age	Diameter	Height	Crown Hgt	FSB Hgt	Crown Spread (N S E W) (m)				Life Exp	Recommendations	Category	RPR	RPA
T10	Fagus sylvatica (Beech)	M	400	18(4)	4	2.5	4.5	4.5	4.5	4.5	20+	Ownership unclear, appears outside of property behind palisade security fence in gap between to fences. Limited inspection due to ivy covering mainstems of some and being between to security fences. This tree has an area of decay at 1m and Ganoderma fungal brackets present. Consider removal.	C3	4.8	72.39
T11	Prunus avium (Wild Cherry)	M	500	10(2.5)	2.5	2	6	5.5	1.5	3.5	10+	Limited inspection due to ivy and creeper on mainstem and most of the crown. This tree is tangled in multiple phone lines at the pole and is heavily weighted over the road. Clear the ivy and creeper from the crown and cut back the overhang over the road by 4m. Cut back to free phone lines also. Re-inspect tree after works.	C3	6	113.11

Tag	Name	Age	Diameter	Height	Crown Hgt	FSB Hgt	Crown Spread (N S E W) (m)				Life Exp	Recommendations	Category	RPR	RPA
T12	Prunus avium (Wild Cherry)	M	500	10(3)	3	3	6	5.5	3	5	10+	Remove creeper from the crown. Remove deadwood. Compression fork at 4m. Monitor.	C1	6	113.11
T13	Tilia cordata (Small-leaved Lime)	M	400	12(3)	3	2	3	3	3	3	20+	Limited inspection due to sucker growth and shrubs around mainstem. Clear sucker growth and cut back shrubs to aid inspection. This tree is a pollard tree which has been allowed to grow out to form a crown. Monitor pollard points for decay.	B3	4.8	72.39
T14	Tilia cordata (Small-leaved Lime)	M	400	12(2)	2	2.5	4	3.5	4	3.5	20+	Limited inspection due to sucker growth and shrubs around mainstem. Clear sucker growth and cut back shrubs to aid inspection. This tree is a pollard tree which has been allowed to grow out to form a crown. Monitor pollard points for decay.	B3	4.8	72.39
T15	Sambucus nigra (Elder)	M	212	5(2)	2	2	1.5	1.5	1.5	1.5	10+	No works required at present.	C3	2.54	20.27

Tag	Name	Age	Diameter	Height	Crown Hgt	FSB Hgt	Crown Spread (N S E W) (m)				Life Exp	Recommendations	Category	RPR	RPA
G1	Prunus laurocerasus (Cherry Laurel), Tilia X europaea (Common Lime)	M	141	3(0)	0	0	1	1	1	1	10+	Group of low level trees/shrubs which have repeatedly been cut back to 1m to form a shrubs bed block. No works required at present.	C3	1.69	8.97
G2	Fagus sylvatica (Beech), Prunus avium (Wild Cherry)	M	400	18(4)	4	2.5	4.5	4.5	4.5	4.5	20+	Ownership unclear, appears outside of property behind palisade security fence in gap between to fences. Limited inspection due to ivy covering mainstems of some and being between to security fences. There are biomechanical defects and decay on some typical of the species. Sever ivy to aid future inspections.	B3	4.8	72.39

Method Statement for Tree Protection Measures

PROJECT: Ascot Arms, Gravesend, Kent

CLIENT: Avery Healthcare

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 Fencing 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.
- Any excavation work in the RPA will be initially started using hand tools, with the supervising arborist overseeing and recording any root presence.
- The foundation design for the buildings and any hard surfaces will be suitable to address any potential influence that the trees may have on them. 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 to cross the RPA, a traditional construction will be used and care taken when excavating in this protected area, as outlined in the hand dig method statement. If a traditional construction method is not permitted by the council, a 'No Dig' construction method or another agreed system will be provided and approved.
- 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 ground protection etc. before work commences on site.

- A schedule of arboricultural site supervision will be formulated at the pre-commencement meeting and be provided to the council by the site manager once this plan of visits has been set. It is then the responsibility of the site manager to ensure the arboricultural supervision visits are booked in and undertaken at the relevant times.

1.2.1

Protective fencing will be as shown in **diagram 1** or similar that is fit for purpose will be placed in the locations as shown on the tree protection plan in **Appendix 5**, prior to works commencing on site. If scaffolding is required to be erected close to or within the confines of the RPA it will be set up as shown in **diagram 2**. Any tree surgery works required will have taken place prior to the fencing being erected. 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. 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.

1.2.2

If access is required within the RPA on soft ground or it is felt further protection is needed on the existing hard surfaces, then suitable ground protection will be installed as set out in 1.7 before access into the protected area is allowed.

Diagram 1

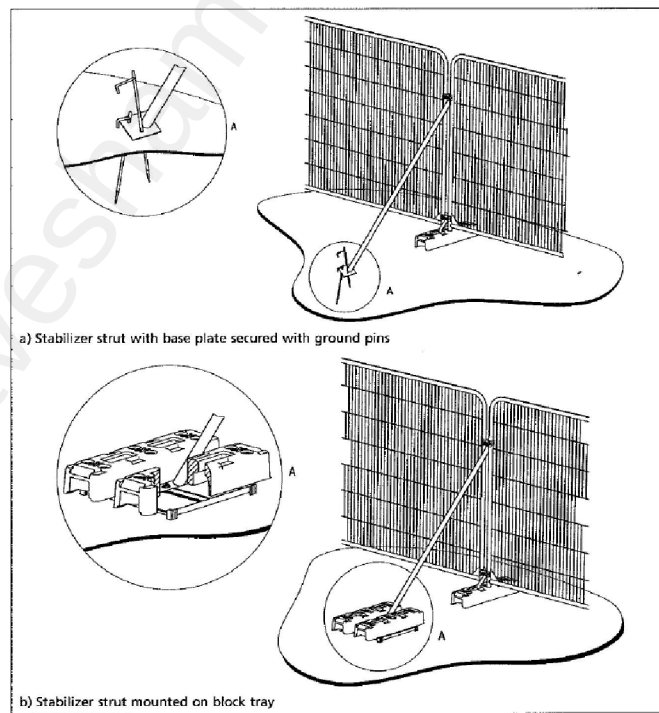
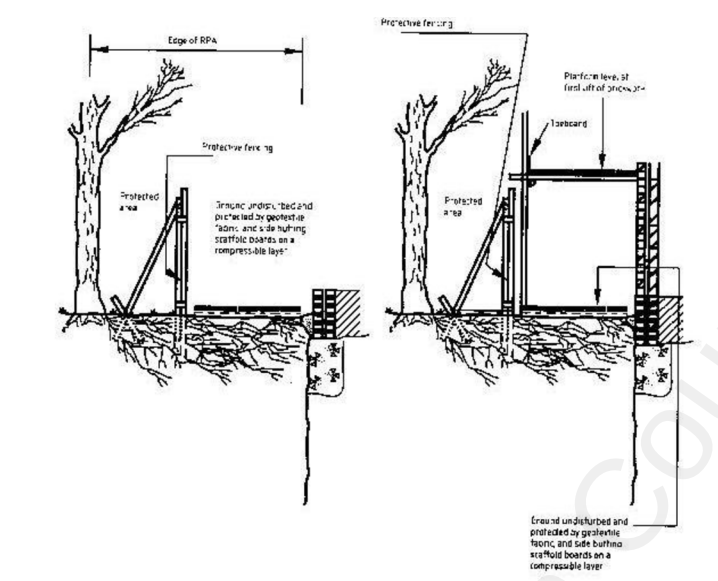


Diagram 2



1.2.3

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 a visit by a suitably qualified arborist on a monthly basis, or at times when works to undertake excavations in the RPA or other periods where the tree is more likely to be at risk of damage. A log of these visits and any actions required will be kept and made available to the council on request. **It will be the responsibility of the site manager or other named person to ensure this is maintained for the duration of the project.**

1.2.4

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.

1.2.5

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

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.

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 work 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 in the RPA, then the arboricultural hand dig method statement provided will be strictly adhered to. This includes the opening of the assessment trenches to determine if roots present a constraint and if the foundation needs to be designed around them.**
- 1.5.2 The bases for the parking bays and path will be excavated by hand in to the minimum depth required. If a traditional build is not permitted to be used, then it will be facilitated using a 'No Dig' construction method is not permitted by the council of r hard surfaces in the RPA, then a 'No dig' solution or similar, that demonstrates that the trees will not be directly or indirectly impact will be in place. An example of a 'No Dig' 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 later. Details of how this surface will be installed will be provided by the project architect / engineer.
- 1.5.3 The foundation design for the building and 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.
- 1.5.4 If access across the RPA on soft ground is required to facilitate construction, suitable ground protection will be laid down as detailed in section 1.7 below.
- 1.5.5 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 with arboricultural supervision present to facilitate root pruning where required.

1.6 Material storage / site parking

- 1.6.1 Particular attention will be made to the type of materials to be stored and the type of machinery needed to move them, ensuring that sufficient protection measures in accordance with this method statement and space are provided to prevent damage to the trees to remain. The details outlined in 1.4 above will be adhered to.
- 1.6.2 At no point will materials be allowed to be stored in the RPA unless on existing hard surfaces and with the tree officers gives permission, or any area where the tree could be impacted. This will be strictly policed by the site manager.**

1.7 Ground Protection

- 1.7.1 If access across the RPA is required that is not currently covered in hard surfacing or it is felt extra ground protection is required, the following ground protection measures will be implemented as required.

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 of 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 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: Ascot Arms, Gravesend, Kent

- 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

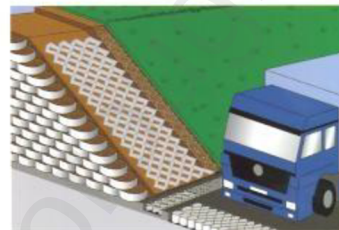
Bodcell™ Cellular Confinement System

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.



Applications include slope protection and ground reinforcement.

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

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 manager. Table 1 shows the contact details of the project manager who is to be contacted if any enquires relating to this project need answering.

Table 1

Name	Relation to Site	Contact Details
Craig Lavery	Project Manager	07960 515907

**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 constraints of trees in relation to development and 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 Arboricultural Consultancy 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 if any building works which were not disclosed during the inspection are undertaken. If extreme weather changes occur such as heavy winds, snow etc., the trees will need to be re-inspected to ensure their condition has not been affected or has altered from the initial inspection details obtained.

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 reasonable 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)

