

46 ALBERT ROAD
CAVERSHAM
RG4 7AW

ARBORICULTURAL
IMPACT
ASSESSMENT
&
METHOD
STATEMENT



ELEGANT HOMES
CAVERSHAM LTD

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Date:	28/11/2018
Ref:	EHC22199aia-ams
Revision:	A: 14.12.2018

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1.0 Executive Summary

- 1.1. This document has been drafted to support a reserved matters application pursuant to outline consent ref: 171753 from Reading Borough Council.
- 1.2. In comparison to the outline layout, the arboricultural implications of this detailed layout are that the drive requires more no-dig surfacing and that an additional tree is proposed for removal.
- 1.3. The removal of T4 is additional to the tree removals cited in the outline documents. It is deemed acceptable as it is a rear garden tree and thus offers less amenity than the principal tree on the site, T9. Any loss that may be felt as a result of its removal can be more than mitigated through the new planting proposed for the site.
- 1.4. The increase in drive area within the RPA of T9 is within the limits recommended in BS5837 and shall be constructed above ground using a no-dig style surface.
- 1.5. The beech T9 is protected by a tree preservation order.
- 1.6. This assessment is based upon third party tree information, submitted with the outline application. An extract is appended for clarity.
- 1.7. The arboricultural method statement and tree protection plan include details of all tree protection measures required.
- 1.8. The tree protection must be erected after tree removals and surgery but before any demolition or construction contractor enter the site, and before any soil stripping takes place.
- 1.9. There will be no changes in levels, service routeing, machine activity, storage of materials or site hut positioning within areas to be protected, and the protective fencing shall remain in position for the duration of the construction process.

2.0 Introduction

- 2.1. Elegant Homes Caversham Ltd instructed ACD Environmental in November 2018 to prepare the following impact assessment to support a reserved matters planning application pursuant to the outline consent ref: 171753.
- 2.2. Following the recommendations of the British Standard¹, this report includes the necessary information to support the application. It demonstrates that the impact, both direct and indirect, of the proposed development within the site, has been assessed and where appropriate, mitigation and tree protection proposed.
- 2.3. The implementation of the protection methods recommended within this report is critical for ensuring the retained trees are successfully protected through the construction process and must be implemented prior to any work on the site.
- 2.4. This assessment is based on the supplied layout drawing, ref: 45 ALBERT ROAD - SITE PLAN and third party tree survey information (appended) ref: SJ Stephens Associates, dated 20th September 2017 (an extract is appended for clarity).
- 2.5. This assessment considers the impact of the development on the constraints posed by the retained trees (both beneath ground: the root protection area (RPA), and above ground: the canopy).
- 2.6. Direct impact from development comes in six main forms: 1) Surface installation within RPAs, 2) Root loss from excavation for foundations, drainage and other utilities within RPAs, 3) Soil stripping, removal and level changes within RPAs, 4) Excessive access facilitation pruning to retained trees, 5) Soil compaction from storage and vehicle movements within RPAs, 6) Soil contamination.
- 2.7. Indirect impact can come from changes to the site hydrology, future pressure to prune or fell, failure of trees exposed by removal of neighbouring trees, and other environmental changes which can take several years to manifest.

¹ BS5837:2012 *Trees in relation to design, demolition and construction- Recommendations*, London: British Standards Institute

2.8. The RPA for each tree represents a minimum area in m² that should be left undisturbed around each retained tree. This is initially represented by a circle but is often adjusted to account for constraints to root growth within the site (primarily highways and buildings). It is, therefore, important to ensure the protection of trees both above and below ground. Recommendations are provided in the British Standard as to the protection of existing trees before, during and after development. This is achieved by ensuring the tree protection plan and arboricultural method statement are implemented before any commencement on site.

3.0 Arboricultural Impact Assessment

- 3.1. A single residential dwelling is proposed on this site. The layout of which can be seen on the appended plan.
- 3.2. This proposal is a slight variation on the outline consent (ref: 171753) and includes an increased drive area.
- 3.3. With reference to the indicative outline layout, changes include the removal of T4 and the inclusion of a no-dig type drive surface to facilitate a drive that is separate from the adjacent dwelling.
- 3.4. The removal of T4 is deemed acceptable as it is a rear garden tree and thus offers less wider amenity than the principal tree on the site, T9. Any loss that may be felt as a result of its removal can be more than mitigated through the new planting proposed for the site.
- 3.5. The increase in drive area within the RPA of T9 is within the limits recommended in BS5837 and shall be constructed above ground using a no-dig style surface. The installation of which will be supervised by the project arboriculturist and installed as per the method statement section of this document.

4.0 Arboricultural Method Statement

TO BE READ IN CONJUNCTION WITH THE APPENDED TREE PROTECTION PLAN REF: EHC22199-03

4.1. Phasing of operations & site supervision

4.1.1. The tree protection and other arboricultural works must be carried out in the following order:

	Operation	Present	Notes
1	Tree Removals	Tree contractor	See Tree Protection Plan for trees to be removed
2	Protection barriers erected	Fencing contractor	See Tree Protection Plan for position and type of barriers
3	Pre-start meeting	ACD, site manager, groundwork, foreman, demolition foreman	To 'sign-off' protection prior to any plant activity, demolition & groundworks on site
4	No-dig surface installation	ACD, groundwork contractor, site manager	Groundwork staff to receive toolbox-talk from project arboriculturist. See method statement
5	Removal of protection barriers and landscape work	ACD, landscape contractor, site manager	See method statement

4.1.2. Supervision is required should any unplanned access and/or work be required in the construction exclusion zone.

4.1.3. Supervision will require the arboriculturist to be present throughout the task, to ensure all the arboricultural objectives are met. If the task is to take a long period of time, provided the arboriculturist is satisfied, and after an initial 'tool-box talk', the supervision may be reduced to telephone contact between the site foreman/contractor and arboriculturist.

4.2. Construction exclusions zone

4.2.1. Barriers and/or ground protection must be used to protect all retained trees before any machinery or materials are brought onto the site, and before any demolition, development or stripping of soil commences.

4.2.2. Where all activity can be excluded from the RPA, vertical barriers must be erected to create the construction exclusion zone (CEZ). The default position of which is shown on the appended Tree Protection Plan.

4.2.3. Where, due to site constraints, construction activity cannot be fully or permanently excluded from all, or part of a tree's RPA, appropriate ground protection can be installed.

4.2.4. It is the responsibility of everyone engaged in the construction process to respect the tree protection measures and observe the necessary precautions within and adjacent to them.

4.2.5. Inside the exclusion zone, the following shall apply:

- No mechanical excavation whatsoever.
- No excavation by any other means without arboricultural site supervision.
- No hand digging without a written method statement having first been approved by the project arboriculturist.
- No lowering of levels for any purpose (except removal of grass sward using hand tools).
- No storage of plant or materials.
- No storage or handling of any chemical including cement washings.
- No vehicular access.
- No fire lighting.

4.2.6. In addition to the above, further precautions are necessary adjacent to trees:

- No substances injurious to tree health, including fuels, oil, bitumen, cement (including cement washings), builders sand, concrete mixing

and other chemicals shall be stored or used within or directly adjacent to the protection area of retained trees.

- No fire shall be lit such that flames come within 5m of tree foliage.

4.3. Tree protection barriers

4.3.1. The construction exclusion zone will be protected as per the appended tree protection plan that shows the default alignment of the tree protection barriers, to be installed prior to any of the following taking place:

- Archaeology
- Demolition
- Plant and material delivery
- Soil stripping
- Utility installation
- Construction works
- Landscaping

4.3.2. Stages of installation of barriers:

- 1) Hand clearance of any vegetation to allow clear working access.
- 2) Setting out of node points
- 3) Barriers erected
- 4) Site meeting with project arboriculturist to 'sign-off' tree protection fencing.
- 5) Site accessible to demolition/construction traffic

4.3.3. Once erected, all barriers will be regarded as sacrosanct, and will not be removed or altered without prior recommendation by the project arboriculturist and approval of the local planning authority.

4.3.4. The default barrier construction is suitable for areas of high-intensity development and shall comprise of interlocking weld-mesh panels, well braced to resist impacts by attachment to a scaffold framework that is set firmly into the ground. A detailed specification can be found on the TPP.

4.3.5. The images below are alternative barrier designs that have been successfully used on site and that ACD are happy to support if a variation from the default style is required. If such a variation is necessary, the approval of the project arboriculturist will be obtained prior to any implementation on site.

4.3.6. Once barriers and/or ground protection have protected the exclusion zone, construction work can commence.

4.3.7. All weather notices should be erected on the barriers (for example see figure below).



Tree protection sign (download from <http://www.acdenvironmental.co.uk>)



Weld-mesh panels on scaffold uprights



Weld-mesh panels on wooden posts



Chain-link on angle-iron uprights

4.4. Ground protection

4.4.1. If required (or as shown on the appended tree protection plan), ground protection is to be installed as follows. It must be capable of supporting the expected loads and avoiding rutting, compaction and damage to the soil: as advised in section 6.2.3 of the British Standard.

4.4.2. Stages of ground protection installation:

- 1) No plant machinery to be used in the area of ground protection for whatever reason
- 2) Dismantle primary TPF and re-erect in secondary location as shown on TPP (if required) OR erect fencing to protect any newly exposed CEZ not to be covered by ground protection.
- 3) Any shrubs, saplings or trees to be removed, are to be cut or ground out to just below ground level rather than grubbed or winched out, which can damage roots of retained trees.
- 4) Lay woven geotextile over existing ground surface by hand

- 5) Cover the area with compressible layer, woodchip, for example, using hand tools only
- 6) Cover compressible layer with side butting scaffold boards or plywood boards
- 7) Confirm surface is acceptable for use with project arboriculturist
- 8) Area ready for construction access

4.4.3. Any scaffolding required within the area will be erected with the uprights placed on spreader boards.

4.4.4. The boarding will be left in place until the construction works are finished.

4.4.5. A single thickness of boarding laid on the soil surface will provide sufficient protection for pedestrian loads. However, for wheeled or tracked construction traffic movements within the RPA, ground protection will involve the use of temporary cellular confinement systems, reinforced concrete slabs or track-board systems details of which are to be specified by the project engineer and approved for use by the project arboriculturist and local authority before construction commences.

4.4.6. Track-boards can be sourced from Trakmats Europe Ltd, 0845 6435388, www.trakmatseurope.com, or groundguards.com

4.4.7. There is to be no excavation within ground protection area whatsoever. This includes installation of services and associated utilities.



Scaffold board pedestrian ground protection



Vehicular ground protection trackway

4.5. Site storage, parking, welfare facilities, etc.

4.5.1. The site will require provision for; site storage, contractor parking, welfare facilities, temporary services/drainage, material drop off points, etc.

4.5.2. It is acceptable to place site cabins and walkways within the CEZ provided they are installed sensitively:

- Cabins must be placed on sleepers (or similar) to spread the load, avoiding point loading and associated soil compaction.
- The delivery of cabins should ensure that any unloading via 'hi-ab' crane can be carried out without impact on the crowns of retained trees.
- Walkways, if required, should be installed as per the ground protection specification.
- Any utilities for site compounds must be run above ground. For example, WC foul pipes/drainage and temporary electrical connections.

4.5.3. It is imperative that if cabins and walkways are installed, that fencing is erected to limit access to the protected areas. If amendments are made, the project arboriculturist should sign off the proposals prior to their implementation.

4.5.4. Contractor parking and storage areas should be sited outside the CEZ.

4.6. Tree surgery and removal

4.6.1. The following surgery works are to be carried out:

- T9: Crown lift to 5m over the proposed drive and garden area.

4.6.2. All trees to be removed are indicated on the TPP.

4.6.3. If any further surgery work is proposed, details will be submitted to, and approved by, the council, before being carried out.

4.6.4. All work will be carried out in accordance with BS3998² industry best practice and in line with any works already agreed with the council.

4.6.5. The tree surgeon shall ideally be chosen from The Arboricultural Association's Approved Contractor list. All work shall be undertaken at the appropriate time and with the consent and approval of the site agent.

4.6.6. The statutory protection^{3 4} will be adhered to. If further advice is required, particularly if bats are discovered during tree work, it will be obtained from Natural England or other competent persons and recommendations adhered to.

4.6.7. The stumps of any trees removed from within the Construction Exclusion Zone or the RPAs of retained trees will be either cut flush to ground level and left in situ or ground out using a stump grinder. They will not be winched out.

4.6.8. All operations shall be carefully carried out to avoid damage to the trees being treated or neighbouring trees. No trees to be retained shall be used for anchorage or winching purposes.

4.7. Soft landscaping

4.7.1. All landscaping and associated ground preparation within exclusion zones will be carried out sensitively to ensure root damage is minimised as much as is practicable.

4.7.2. At no time is any heavy plant to be used within any protected area.

4.7.3. Removal of existing vegetation (including turf) will be carried out with hand tools only.

4.7.4. Should the soil be compacted or have a poor structure that may hinder the development of any new planting, soil decompaction techniques may be used upon consultation with the project arboriculturist.

² BS3998:2010- *Recommendations for Tree Work*. London: British Standards Institute

³ *Wildlife and Countryside Act*. (1981) London: HMSO.

⁴ *Countryside and Rights of Way Act*. (2000) London: HMSO.

4.7.5. Tree protection barriers may be removed to allow access and then replaced as required/per approved documents (in liaison with the arboricultural clerk of works)

4.7.6. Levels (high spots) will not be reduced or excavated in any way. Use good quality topsoil to level any low-lying areas and hollows, and provide a fine tilth to lay turf on. This imported soil must not result in a level increase of more than 100mm in any area.

4.7.7. Import materials by hand in wheelbarrow or using a digger sited outside the sensitive area.

4.7.8. Any excavation for planting pits must be dug using hand tools only.

4.7.9. No works will be carried out within any protected areas if the soil moisture is at a level likely to allow compaction to occur.

4.8. Installation of underground services

4.8.1. Mechanical trenching for the installation of underground apparatus and drainage severs any roots present and can change the local soil hydrology in a way that adversely affects the health of the tree. For this reason, particular care should be taken in the routeing and methods of installation of all underground apparatus. Wherever possible, apparatus should be routed outside RPAs. Where this is not possible, it is preferable to keep apparatus together in common ducts. Inspection chambers should be sited outside the RPA.

4.8.2. Where underground apparatus is to pass within the RPA, detailed plans showing the proposed routeing should be drawn up in conjunction with the project arboriculturist. In such cases, trenchless insertion methods should be used: Microtunnelling, Surface-launched directional drilling, Pipe ramming or Impact moling (see BS5837:2012 Table 3), with entry and retrieval pits being sited outside the RPA. Provided that roots can be retained and protected, excavation using hand-held tools might be acceptable for shallow service runs. If this is the case, the following methodology must be followed:

4.8.3. Stages for installing services by hand within tree protection areas:

No plant machinery to be used in the area for whatever reason

- 1) Contact project arboriculturist to hold pre-start site meeting and 'toolbox' talk before starting work.
- 2) Remove just enough tree protection fencing to allow access to area and facilitate trenching.
- 3) Remove any surface vegetation or existing hard surfaces using hand tools.
- 4) Using an air-pick excavate the trench, keeping to minimum dimensions required.
- 5) Roots occurring in clumps of 25 mm diameter and over are encountered they will be retained and kept damp by covering with hessian (re-wetted as required). If required, these should be severed only following consultation with an arboriculturist; as such roots might be essential to the tree's health and stability.
- 6) Feed in services.
- 7) Backfill trench with 200-300mm depth of excavated soil, or a mixture of excavated and imported topsoil to BS3882: 2015, firming down with heels.
- 8) Repeat step 7 until trench is filled.
- 9) Re-erect tree protection fencing as per approved plan.

4.8.4. The method of excavation above, for trenching within RPAs, is using air excavation. This tool utilises compressed air to remove soil from around tree roots causing minimal damage and can be run off a typical site compressor. ACD can provide details of contractors supplying air excavation services if required.

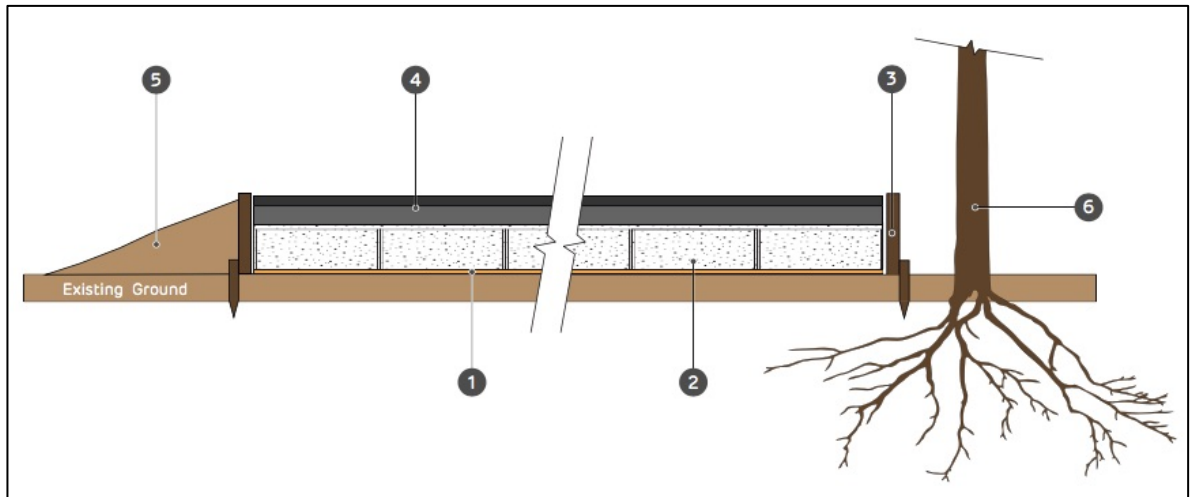
4.8.5. Alternatively, trenchless technology, such as thrust boring can be used in some instances and is particularly effective as it can pass directly under the tree, at a depth which is likely to avoid almost all impact on roots of the subject tree. As no access/thrust pits will be located within the RPAs of the subject trees, the need for arboricultural supervision is limited.

4.8.6. Reference can be made to NJUG Vol 4⁵ for guidance, but any approach must be approved by the project arboriculturist and brought to the attention of the local authority tree officer.

4.9. Installation of 'no-dig' surface

4.9.1. To ensure that tree roots, within the ground under this proposed surface, continue to survive during and after construction a cellular confinement system (CCS) such a ProtectaWeb⁶ of 75-200mm depth is to be used.

4.9.2. The following example CCS spec is courtesy of Wrekin Products and shows an asphalt finish. Other surfaces can be used, and similar CCS are available from other suppliers.



- 1 Root-tex 30 geotextile
- 2 70-200mm deep ProtectaWeb tree root protection system infilled with 4/20 clean angular stone to BS EN 13242 / EN 12620
- 3 Treated timber edging (or other edging detail acceptable)
- 4 Asphalt surface to engineer's details
- 5 Soil graded to edging (if required)
- 6 Existing tree

⁵ National Joint Utilities Group. (2010). *Volume 4: NJUG Guidelines For The Planning, Installation And Maintenance Of Utility Apparatus In Proximity To Trees (Issue 2) – Operatives Handbook*. NJUG.

⁶ Wrekin Products, www.wrekinproducts.com, 01543 440440.

4.9.3. Stages for Installation of the cellular confinement surface:

- 1) Contact project arboriculturist to hold pre-start site meeting and 'toolbox' talk before starting work
- 2) Dismantle TPF and re-erect in secondary location as shown on TPP
- 3) Remove existing vegetation by using a specific herbicide (as advised by a specialist) or manual removal with hand tools only. Agreed removal of shrubs, saplings or trees, within the protected areas of retained trees are to be cut or ground out to just below ground level rather than grubbed or winched out, which can damage roots of retained trees.
- 4) Retain all original ground levels after vegetation removal. No excavation whatsoever.
- 5) Remove any existing hard surfaces (paving, tarmac etc.) Hand tools should be used if possible. If machinery is required for this operation, it must be used only on existing surfaces or outside the protection areas and tree canopies (approval from project arboriculturist must be sought before using machinery). The sub base of existing surfaces or foundations should be left in situ where possible to avoid unnecessary root disturbance and provide a base for the new surface.
- 6) Install a non-woven geotextile (such as Root-tex 30) directly over soil grade level (levelled where necessary, by non-compacted washed sand) and fix in place.
- 7) Lay the cellular system over the geotextile, which is secured open under tension during the infill process with steel staples or wooden pegs.
- 8) Install kerbs and edgings directly on top of existing soil grade level. For light structures, a treated peg and board may be acceptable. For more substantial structures, railway sleepers, haunched concrete with road pins, drilled kerbstones, gabions or cast in situ kerbs will be appropriate.

- 9) Fill the cellular system ensuring any machinery works only on already filled areas. Typical infill consists of no fines angular granular material 20-40mm, which will remain uncompacted.
- 10) Cover with a non-woven geotextile (Root-tex 30 or similar).
- 11) Install porous wearing surface.

4.9.4. Any variation to the above specification must meet the following design criteria for low-invasive surfaces to provide the conditions for continued tree survival and growth:

- Maintain oxygen diffusion through new surface to rooting area (5-12% by volume⁷)
- Maintain sufficient passage of water to the rooting area (12-40% by volume⁸)
- Avoid compaction by maintaining a soil structure sufficient to sustain root growth (soil bulk density below 1.4g/cc⁹).

4.9.5. Site analysis of the soil type and its structural characteristics will be required prior to determining the specific depth of products to be adopted for example, footpaths normally require a depth of 75mm and, 100mm to 200mm depths are used for residential driveways, while greater depths may be required for the passage of heavier traffic such as for construction access and delivery vehicles.

4.9.6. If ground levels are to be raised more than 150mm this should be achieved by the use of a granular material, which does not inhibit vertical gaseous diffusion. For example no-fines gravel, washed aggregate, structural soil (min. 20% sand content) or cobbles.

⁷ Smith, R. J. (2006). *Tree Roots in the Built Environment*. HSO

⁸ Coder, D. K. (2000). *Tree Root Growth Requirements*. University of Georgia

⁹ Harris, C. M. (2004). *Arboriculture, Tree Management of Shade Trees and Vines*.

4.10. Installation of boundary fencing within protected areas

4.10.1. Stages for installing wooden fence posts:

No plant machinery to be used in the area for whatever reason

- 1) Contact project arboriculturist to hold pre-start site meeting and 'toolbox' talk before starting work.
- 2) Remove TPF to allow access to area.
- 3) Dig postholes using hand tools, avoiding damage to the protective bark covering larger roots. Roots smaller than 25mm diameter may be pruned back using either secateurs or a hand saw, leaving a clean cut.
- 4) Damage or severance of roots above 25mm diameter must be avoided. If roots of this size are discovered, the hole should be relocated. If there are a large number of such roots it may be necessary to relocate the hole by half a fence panels length and adjust the fence panels accordingly.
- 5) Line hole with non-porous lining, for example, durable polyethene bag.
- 6) Insert post and fill post-hole with concrete to just below ground level.
- 7) Trim polyethene to ground level and fill with clean topsoil.

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28 November 2018

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Appendix 1: Outline Arboricultural Information

Extracted from SJ Stephens Associates report dated Sept 2017

Tree/ Group No.	Species	Height (m)	Stem Diam. at 1.5m (mm)	Branch Spread (m)				Canopy Clearance (m)	Age Class	Observations	Management Recommendations	Estimated Remaining Contribution (years)	BS 5837 Category Grading	Protect ion Distance (m)	Root Protect. Area (m ²)
				N	S	E	W								
T1	Apple	3	190	2	2	3.5	0	1.5	Dead.			<10	U	2.3	16
T2	Apple	3	170	2	2	2	2	0.9	Early mature	Showing good vigour. Requires pruning.		15-30	B-C2	2.0	13
T3	Apple	3.5	140	2.5	2.5	2.5	2.5	0.4	Early mature	Basal suckers.		15-30	C2	1.7	9
T4	Lawson cypress	5.5	530	3.5	5	3.5	5	1.7	Mature	Seven stems at 1.5m - average 200mm. Has been topped, leaving a wide spreading, flat topped specimen. Dense ivy. Dead branches through centre of canopy.		15-30	B-C2	6.4	127
T5	Birch	9.5	410	4	4	4	4	1.7	Mature	Heavily reduced two to three years ago, which has reduced amenity value. Birch polypore fungal brackets.	Remove to facilitate development.	15-30	B-C2	4.9	76
T6	Thorn	3	260	3	3	3	3	1.5	Mature	Completely engulfed in ivy, with occasional live stems growing through.	Remove to facilitate development.	10-20	C2	3.1	31
T7	Dead tree	3.5	190	3.5	1.5	1.5	3	1.7	Dead	Growing in adjacent property.	Cut back to boundary, if not removed by neighbour.	<10	U	2.3	16
G8	Laurel	1.5 - 2.2	50 - 95					0.1	Early mature	Patchy hedge growing along boundary.	Remove western section to facilitate development	10-20	C2	1.1	4
T9	Beech	15	700	8	6.5	7	7	N 5.5 S 1.8 E 5.5 W 1.8	Mature	Attractive tree, in prominent position, providing high amenity value. Previous crown reduction. Showing good vigour. Some cracking of tarmac on pavement due to underlying roots. Street lamp under canopy.		>40	A2	8.4	222
T10	Lilac	2.5	60	1.5	0.5	0	1.5	1.5	Early mature	Leaning.		5-15	C2	0.7	2
T11	Yew	1.1	60	0.6	0.6	0.6	0.6	0.2	Semi- mature	Tightly clipped shape.	Remove to avoid blocking vision splay	>40	C2	0.7	2

Appendix 2: Tree Protection Plan

EHC22199-03



CONSTRUCTION EXCLUSION ZONE

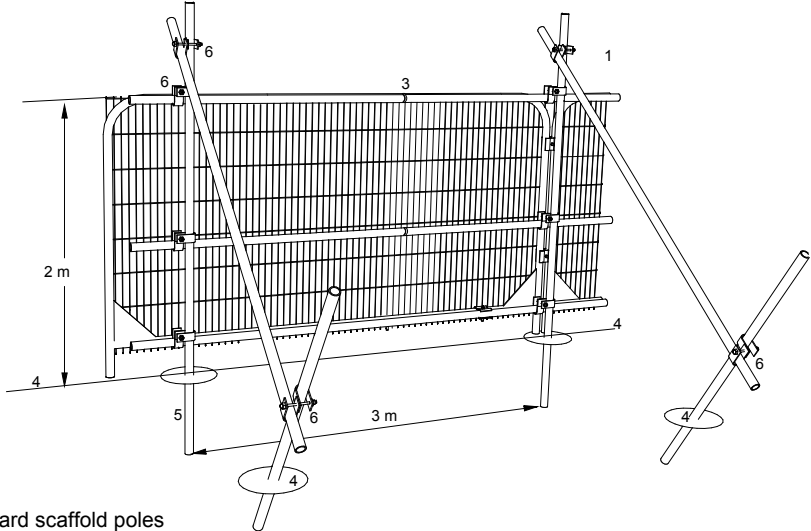
Root protection areas (RPA) of retained trees within which all construction activity is restricted.

All trees that are being retained on site must be protected by barriers and/or ground protection before any materials or machinery are brought onto the site, and before any demolition, development or stripping of soil commences. Where all activity can be excluded from the RPA, vertical barriers must be erected to create a construction exclusion zone. Where, due to site constraints, construction activity cannot be fully or permanently excluded in this manner from all or part of a tree's RPA, appropriate ground protection can be installed.



DEFAULT POSITION FOR THE TREE PROTECTION BARRIERS.

BS5837:2012 Figure 2- barrier specification



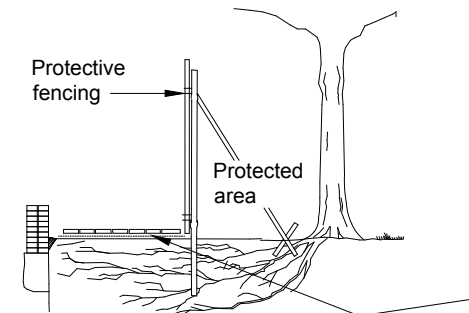
- 1 Standard scaffold poles
- 2 Heavy gauge 2m tall galvanized tube and weld mesh infill panels
- 3 Panels secured to uprights and cross-members with wire ties
- 4 Ground level
- 5 Uprights driven into the ground until secure (minimum depth 0.6m)
- 6 Standard scaffold clamps

Examples of alternative barrier designs can be found in the method statement. Should an alternative design be more viable and appropriate, it must be agreed with the project arboriculturist before its implementation.

GROUND PROTECTION

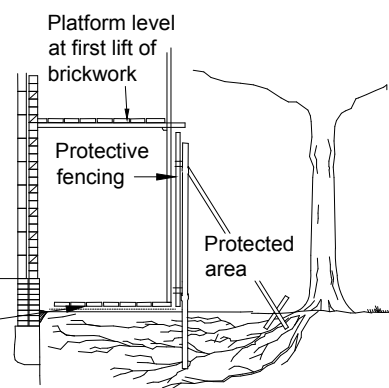
Where the set-back of the tree protection barrier would expose unmade ground to construction damage, new temporary ground protection should be installed as part of the implementation of physical tree protection measures prior to work starting on site.

Foot traffic



Ground undisturbed and protected by geotextile fabric, woodchip and side-butting scaffold boards

Scaffolding

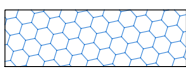


For pedestrian movements only, a single thickness of scaffold boards should be placed either on top of a driven scaffold frame, so as to form a suspended walkway, or on top of a compression-resistant layer (e.g. 100 mm depth of woodchip), laid onto a geotextile.

For pedestrian operated plant up to a gross weight of 2 t, proprietary, inter-linked ground protection boards should be placed on top of a compression-resistant layer (e.g. 150 mm depth of woodchip), laid onto a geotextile.

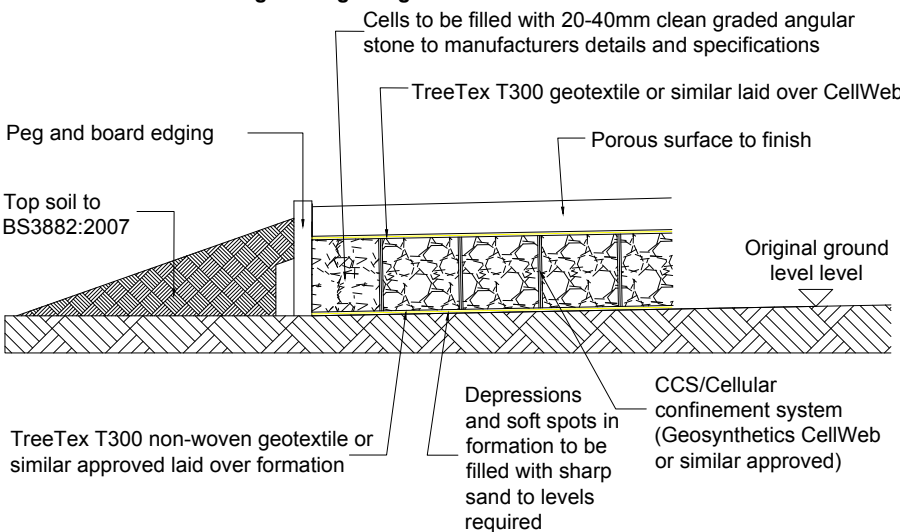
For wheeled or tracked construction traffic exceeding 2 t gross weight, an alternative system (e.g. pre-cast reinforced concrete slabs) should be employed to an engineering specification designed in conjunction with arboricultural advice to accommodate the likely loading to which it will be subjected.

ROOT PROTECTION AREA (RPA) FOR RETAINED TREES



NO-DIG SURFACE

Cellular confinement system (CCS) to be used to create this area of hard surface, above the existing ground level. Topsoil to be retained. Depth of CCS to be 50-75mm for pedestrian surfaces and 100-200 for vehicular surfaces. Surface to be porous to approved details and specifications. To be installed under arboricultural supervision. **All specifications subject to engineering design.**



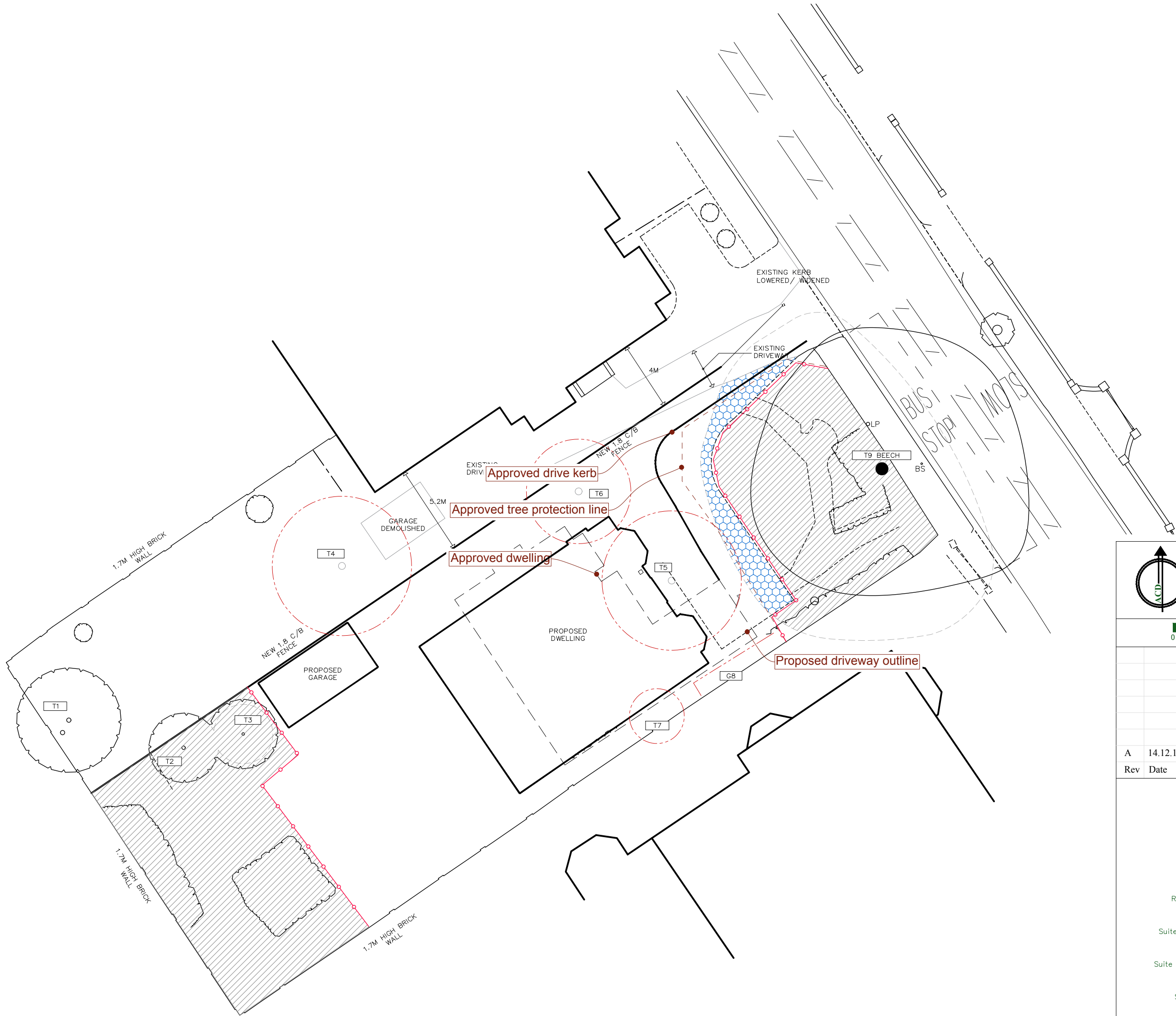
RESTRICTIONS WITHIN TREE PROTECTION AREAS

Inside the exclusion area of the fencing, the following shall apply:

- No mechanical excavation whatsoever
- No excavation by any other means without arboricultural site supervision
- No hand digging without a written method statement having first been approved by the project arboriculturist.
- No lowering of levels for any purpose (except removal of grass sward using hand tools)
- No storage of plant or materials
- No storage or handling of any chemical including cement washings
- No vehicular access
- No fire lighting

In addition to the above, further precautions are necessary adjacent to trees:

- No substances injurious to tree health, including fuels, oil, bitumen, cement (including cement washings), builders sand, concrete mixing and other chemicals shall be stored or used within or directly adjacent to the protection areas of retained trees
- No fire shall be lit such that flames come within 5m of tree foliage.



The original of this drawing was produced in colour- a monochrome copy should not be relied upon.

0 1 2 3 4 5 10m

A	14.12.18	Layout revised	MW
Rev	Date	Details	Drawn



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scheme: 49 Albert Road
Caversham
client: Elegant Homes Caversham
drawing: Tree Protection Plan
date: November 2018
scale: 1:200@A2
dwg no: ECH22199-03A
drawn: MW checked: RA



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