

arboricultural impact assessment [AIA]

and tree protection strategy

for proposed development at

1 Danbury Court
Emsworth
PO10 7RD

On Behalf of: **Mr & Mrs Todd**

Reference: **MW.20.0409.AIA**

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Mark Welby DipArb(RFS), TechCert(ArborA), FARborA,
Arboricultural Association Registered Consultant
01730 239 492 | mark@mwelby.com | www.mwelby.com
M Welby Ltd. Hampshire, UK



executive summary

This report provides the requisite information to enable the local planning authority to meet the duty placed upon them by s.197 of the Town and Country Planning Act (1990).

Included, to support the proposals for an extension to the existing dwelling at 1 Danbury Court, Emsworth, are:

- A BS5837:2012 compliant tree survey
- An arboricultural impact assessment
- A tree protection strategy including a method statement and protection plan

No trees are to be removed to facilitate the proposals. One small tree is proposed for removal as good arboricultural practice due to its poor condition and risk to highway users.

The new structure is sited slightly within root protection area of the principal tree on site; a protected field maple. The encroachment is minor at less than 3% of the overall RPA. Nonetheless, to minimise any impact, excavation will be carried out in a sensitive manner.

Tree protection barriers and ground protection will be used.

Provided the tree protection strategy is implemented as outlined, it is my opinion that this application is of **low** arboricultural impact, and thus acceptable.

Correct adherence to the tree protection strategy proposed within this report is critical for ensuring the tree is successfully protected through the construction process. Should any of the protection measures prove incompatible with elements of the build program, please call 01730 239 492.

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1. instructions and terms of reference

- 1.1. In April 2020, I was instructed by Mr & Mrs Todd to undertake a tree survey and subsequently, in June 2020, to produce this report in support of a planning application for an extension to the existing dwelling at 1 Danbury Court, Emsworth.
- 1.2. Following the recommendations of the British Standard¹, this report includes the necessary information to enable the local planning authority to meet the duty placed upon them by s.197 of the Town and Country Planning Act (1990).
- 1.3. It demonstrates that the impact, both direct and indirect, of the proposal, has been assessed and where appropriate, mitigation, compensation and tree protection proposed.
- 1.4. Correct implementation of the tree protection specified within this report is critical for ensuring the retained trees are successfully protected throughout the construction process.
- 1.5. Documents supplied to assist this assessment included:
 - Proposed: P 2010 Site Plan
- 1.6. The assessment considers the impact of the proposal on the constraint presented by trees retained within the site, and those on adjacent land. Such impact can be caused directly through construction damage and indirectly from post development resentment and pressure to detrimentally prune or remove the trees. The latter is often due to a poor juxtaposition between the proposal and the trees.
- 1.7. The root protection area (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 fundamentally an area of rooting volume. This is often adjusted to account for constraints to root growth within the site (primarily highways and buildings). Recommendations are provided in the British Standard as to the protection of existing trees during the construction process. This is achieved by ensuring a tree protection strategy is implemented before any demolition or construction on site.

¹BS5837:2012 Trees in relation to design, demolition and construction

2. [site description](#)

- 2.1. The site is residential dwelling in an urban location. The main dwelling is accompanied by a detached garage, and front and rear gardens.
- 2.2. It is predominantly flat in nature.
- 2.3. The site is centred at Ordnance Survey Grid Reference: SU 75076 06778. [Here](#)² is a link to view the site's location online.



Site photograph

3. [statutory legislation](#)

- 3.1. According to Havant Borough Council's on-line service³, the principal tree, a field maple, is protected by tree preservation order ref: 21.03

² <https://what3words.com/simple.cowboy.card>

³ <http://maps.havant.gov.uk/>

4. tree survey - scope and methodology

- 4.1. Tree survey data can be found on the appended plan.
- 4.2. The tree survey has been carried out following the recommendations of The British Standard and the trees are assessed objectively and without reference to any site layout proposals. Categories are based on each tree's health and condition, together with an assessment of its life expectancy if its surroundings were to be unchanged.
- 4.3. The reference numbers of surveyed trees and groups of trees are shown on the tree reference plan, which is appended to this report and based on the supplied survey drawing. Stem locations within groups may be estimated, and indicative of canopy only.
- 4.4. The tree survey was carried out from ground level only, with the aid of binoculars as necessary, following the Visual Tree Assessment⁴ (VTA) method.
- 4.5. Where trees are located on neighbouring land an estimated appraisal has been made of their quality and dimensions.
- 4.6. Where stems or branches are obscured by ivy or other materials a full assessment of those parts will not be possible.
- 4.7. Tree heights were measured with a clinometer or estimated in relation to those measured.
- 4.8. Trunk diameters are measured at 1.5m above ground level, where this is not possible, then Figure C.1 of the British Standard is followed.
- 4.9. Tree canopies, where markedly asymmetrical, were measured (or estimated by pacing) in four directions using a laser measure. Symmetrical canopies are measured in one direction only, with dimensions in the remaining directions assumed to be similar. For the canopies of groups of trees, the maximum radius for each compass point is measured (more complicated groups will have further notes taken and an accurate representation will be shown on the plan).
- 4.10. All estimated dimensions are noted in the data.

⁴ Mattheck, C. & Breloer, H., 1998. The Body Language of Trees: A Handbook for Failure Analysis.

London:H.M.S.O.

5. arboricultural impact assessment

- 5.1. It is proposed to build an extension to the east of the existing dwelling. The location and layout of which can be seen on the appended plan.

Tree Removals

- 5.2. No trees are to be removed to facilitate this proposal.
- 5.3. One small plum tree is proposed for removal as good arboricultural practice, regardless of this application, due to its poor condition and risk to highway users.

Tree Surgery

- 5.4. Prescribed work is limited to cutting back the filed maple's western spread. It has been growing unchecked and this work is simply to contain it within its garden setting.

Construction Impact

- 5.5. The new structure is sited slightly within root protection area of the principal tree on site; the protected field maple. The encroachment is minor at less than 2.5% of the overall RPA, and some of that area is occupied by existing hard-scape (potentially limiting root presence). Nonetheless, to minimise any impact, excavation will be carried out in a sensitive manner. This is detailed in the method statement section of this document.
- 5.6. There is also a slight encroachment into the RPA of an off-site ash tree. This is minor as well and, as above, ground protection will be used along with sensitive excavation.
- 5.7. In addition to the sensitive excavation, inline with 5.3.1a) of the British Standard, the protection barriers have been located to protect a greater rooting area, thus allowing for greater overall protection for the protected tree.

Service & Utility Provisions

- 5.8. There will be no new external service feeds. The existing provisions will be used.

Future Pressure

- 5.9. The proposal doesn't radically change the relationship between the dwelling with the tree.
- 5.10. The extension is for a single storey structure that will house a study and utility room. The study will be dual aspect.
- 5.11. I have worked with the design team to achieve the proposed layout and am confident that it maximises the available space whilst not resulting in a situation where excessive shade might bring forth future requests to heavily prune or remove the subject tree.

Summary

- 5.12. Provided the tree protection strategy is implemented as outlined in the following method statement, it is my opinion that this application is of **low** arboricultural impact, and thus acceptable.
- 5.13. Should the council wish to see more onerous tree protection methods, this can be ensured via an appropriately worded planning condition and should not be the basis for a reason for refusal.

6. [arboricultural method statement \(ams\)](#)

- 6.1. The tree protection on this site is subject to implementation as detailed in the following sections.
- 6.2. The recommendations of the British Standard have been applied where viable. Where deviations from the preferred approach are required, impact on any retained trees is minimised through a combination of supervision from an Arboricultural Clerk of Works and adherence to the associated method statement.
- 6.3. It is imperative that the strategy is followed to avoid not only impact upon the trees, but to adhere to any planning conditions, should consent be granted.
- 6.4. The information from this section forward must be passed to the site foreman and cascaded to all relevant personnel involved in the project.
- 6.5. Any questions about the content or its implementation should be directed to **Mark Welby on 01730 239 492**, before action is taken.
- 6.6. A plan showing the types of tree protection and their locations is appended. It includes the tree survey data, existing site features along with the proposed construction, drainage changes in level and other factors that could impact trees.
- 6.7. The plan must be read in conjunction with this method statement.

Timing of Operations

- 6.8. It is essential that the following phasing is followed if trees are to be effectively protected throughout construction.

1.Tree removal & surgery

2.Erection of protection barriers and installation of ground protection

3.Demolition of existing porch and removal of paving

4.Excavation for groundwork/foundations

5.Construction phase

6. Removal of tree protection after all construction work has been completed

7. Soft landscaping (if required)

6.9. The above has been drafted at planning stage. Should any of the protection measures prove incompatible with elements of the build program, please call 01730 239 492 to discuss options.

[Arboricultural Clerk of Works \(ACoW\)](#)

6.10. Where works have the potential to impact retained trees, supervision may be specified within the method statement.

6.11. This is typically the project arboriculturist, who will document the process and provide an auditable record of the operation.

6.12. See subsections for requirements.

[Construction Exclusion Zone \(CEZ\)](#)

6.13. 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.

6.14. 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.

6.15. 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), builder's 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.

6.16. Variation from the above may be specified in the following sections of this method statement.

This is only acceptable where detailed and will typically be subject to supervision by the ACoW.

Protection Barriers

6.17. Given the simplicity of this project, the installation of barriers as shown on the appended plan will be more than adequate to protect the subject trees throughout construction.



Typical tree protection barrier construction

6.18. Barriers must be fit for the purpose of excluding construction activity and appropriate to the degree and proximity of work taking place around the retained tree(s). Barriers should be maintained to ensure that they remain rigid and complete.

6.19. The default specification comprises a vertical and horizontal scaffold framework, well braced to resist impacts, as illustrated on the tree protection plan (TPP). The vertical tubes should be spaced at a maximum interval of 3 m and driven securely into the ground. Onto this framework, welded mesh panels should be securely fixed. Care should be exercised when locating the vertical poles to avoid underground services and, in the case of the bracing poles, also to avoid contact with structural roots. If the presence of underground services precludes the use of driven poles, an alternative specification should be prepared in conjunction with the project arboriculturist that provides an equal level of protection. Such alternatives could include the attachment of the panels to a free-standing scaffold support framework.

Ground Protection

6.20. 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.

6.21. 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;



Scaffold ground protection

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;
 9. Any scaffolding required within the area will be erected with the uprights placed on spreader boards;
 10. The boarding will be left in place until the construction works are finished.
- 6.22. 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.
- 6.23. Track-boards can be sourced from Trakmats Europe Ltd, 0845 6435388, www.trakmatseurope.com, or groundguards.com
- 6.24. There is to be no excavation within ground protection area whatsoever. This includes installation of services and associated utilities.

Tree Surgery

- 6.25. Tree surgery work is listed in the schedule on the appended plan, along with all trees to be removed.
- 6.26. All work will be carried out in accordance with BS3998⁵ industry best practice and in line with any works already agreed with the council.
- 6.27. The statutory protection^{6 7} 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.
- 6.28. 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.
- 6.29. 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.

Demolition

- 6.30. All barriers and/or ground protection to be installed as per approved Tree Protection Plan prior to commencement on site.
- 6.31. Stages of demolition within tree protection areas;
1. No plant machinery to be sited on any exposed rooting area or soft ground;
 2. Buildings to be folded in on themselves, or pulled away from trees;
 3. Removal debris by hand or with plant machinery not located on any exposed rooting area;
 4. Floor to be broken up with hand-held breaker and pieces removed by hand. Slab floor can be lifted carefully by machinery if appropriate;
 5. Underlying ground levels to be retained. No excavation to occur;
 6. Any exposed roots and surrounding newly exposed areas to be covered with up to 100mm of topsoil, from elsewhere on site, or imported topsoil to BS3882 . Soil may be placed in area by plant but must be spread by hand;
 7. Tree protection barriers to be erected in final position to protect any newly exposed soft ground (as advised by supervising arborist).

⁵ BS3998:2010- *Recommendations for Tree Work*. London: British Standards Institute

⁶ *Wildlife and Countryside Act*. (1981) London: HMSO.

⁷ *Countryside and Rights of Way Act*. (2000) London: HMSO.

Foundations in RPA

6.32. Excavation within the areas marked on the appended plan must be supervised by an Arboricultural Clerk of Works and carried out as follows.

6.33. Stages of supervised excavation:

1. Identify sensitive area as shown on appended plan;
2. Using hand tools, or a very sensitively applied small excavator, start to excavate;
3. If roots are found, clear by hand around them;
4. Roots smaller than 25mm diameter may be cleanly severed with bypass secateurs, loppers or pull cut saw at right angles to root. Avoid tearing or ripping the root;
5. If roots found are greater than 25mm diameter, then cover with damp hessian and keep moist.
Contact the project arboriculturist for guidance on the correct way to proceed;

- 5.1. Can root can be moved out of the way and pegged in place to allow its retention?
- 5.2. Can foundation be cast around root? If so, maintain moist hessian covering and sleeve with poly-pipe of diameter at least 50% greater than root (cut longitudinally along it and work it over root taking care not to damage bark). Keep hessian moist until foundation is complete.
- 5.3. If none of the above are viable, then under the guidance of the project arboriculturist, the root may be removed.
- 5.4. Whichever approach is adopted, an auditable record of the work must be kept.
- 5.5. Cast foundation as required.

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[appendices](#)

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I.

tree categories explained

BS5837:2012 Table 1 -Cascade chart for tree quality assessment			
Category and definition	Criteria (including subcategories where appropriate)		
Trees unsuitable for retention (see Note)			
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	*Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) *Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline *Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality <i>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.</i>		
	1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation
Trees to be considered for retention			
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value
Category C Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value

II.

protection plan

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Survey by M Welby RCarborA, FArborA, April 2020

Where dimensions are not listed please refer to the plan graphics for an indicative representation (typically for groups).

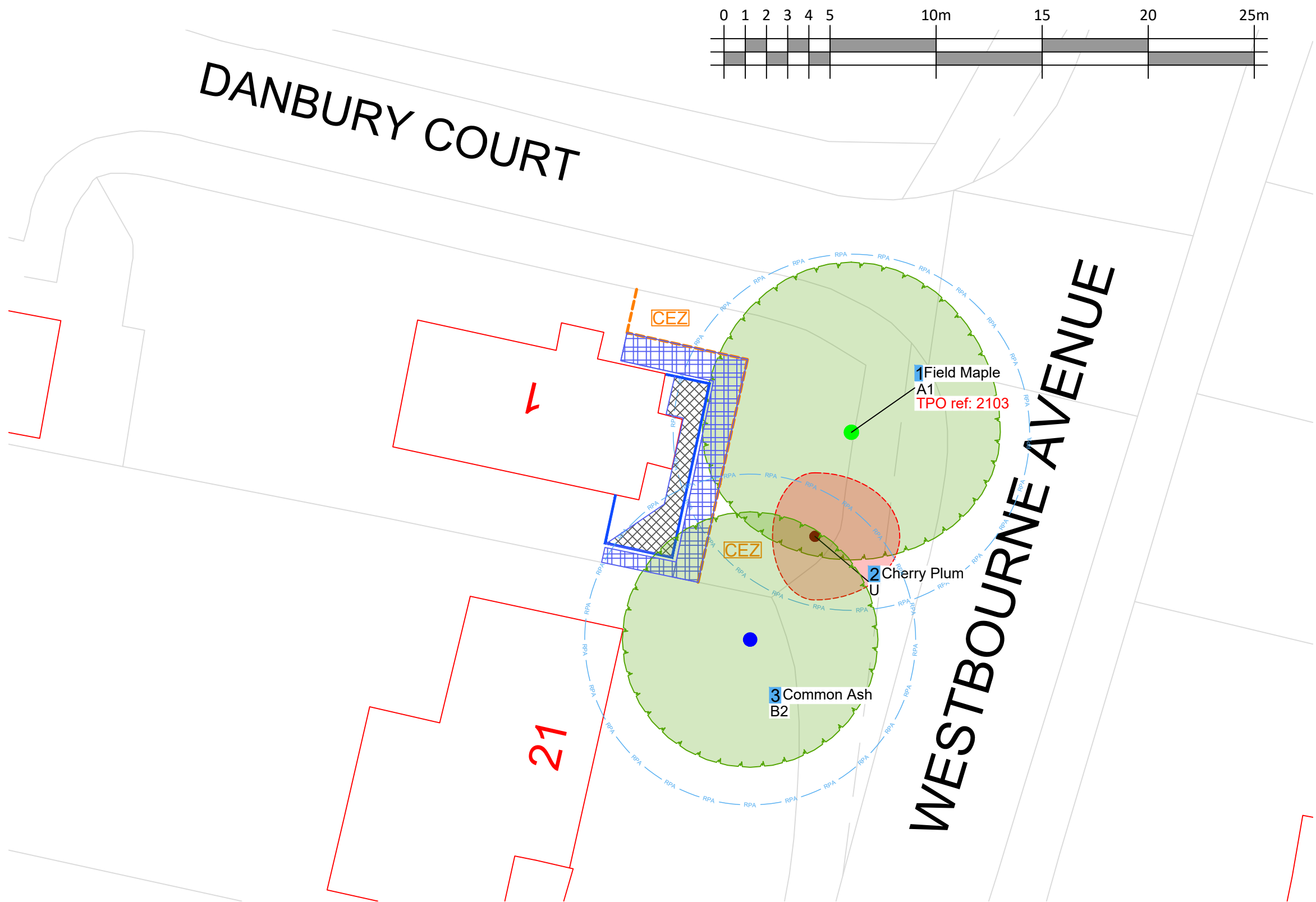
Trees for Removal or Retention

Retained Trees			
Ref	Species	Common Name	Category
1	Acer campestre	Field Maple	A1
3	Fraxinus excelsior	Common Ash	B2

Trees for Removal			
Ref	Species	Common Name	Category
2	Prunus cerasifera	Cherry Plum	U

Tree Work Schedule

Work to Retained Trees				
Ref	Species	Common Name	Recommendations	Category
1	Acer campestre	Field Maple	Reduce westerly crown spread by 2m from 7 to no less than 5m	A1
2	Prunus cerasifera	Cherry Plum	Remove tree	U

[illegible]

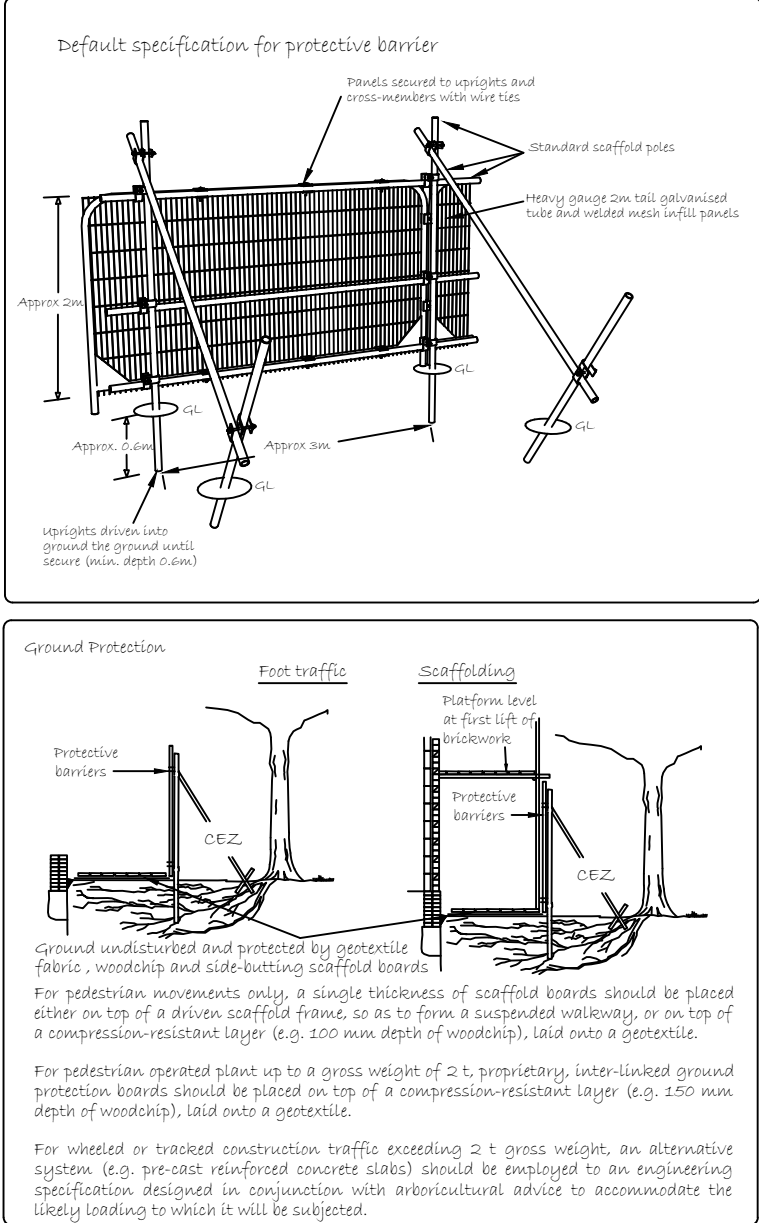
Key

	Temporary protective barriers in accordance with section 6.2 - BS5837:2012. See inset details for example barriers.
	Construction Exclusion Zone (CEZ)
	Tree to be removed
	Sensitive foundation excavation in RPA's. See method statement.
	Ground protection. See inset and method statement.

NOTES:

- Refer to Method Statement & Schedule for further details.
- Survey based on a visual inspection from the ground and is not intended as a full arboricultural inspection.
- All protective measures to be installed prior to commencement of any site works
- All works to conform with requirements of:
 - BS 3998:2010 - Tree Works
 - BS 5837:2012 - Trees in relation to design, demolition and construction

BS5837:2012 Cascade chart for tree quality assessment			
Category & Definition		Criteria (including subcategories where appropriate)	
Trees unsuitable for retention			
Category U			
Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	• Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) • Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline • Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve		
Trees to be considered for retention			
	1. Mainly arboricultural qualities	2. Mainly landscape qualities	3. Mainly cultural values, including conservation
Category A			
Trees of high quality with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)
Category B			
Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value
Category C			
Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value



Construction Exclusion Zone

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.

- 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.

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), builder's 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.

All weather signs shall be erected at reasonable intervals on the barriers. See example inset

This plan has been drafted in colour. A monochrome version must not be relied upon

Date	Notes	Rev
20.07.20	I T3 added	I A



Tree Protection

1 Danbury Court
Emsworth
PO10 7RD

Client: Mr & Mrs Todd

Date: 15/06/2020

Scale:
1:200 @A2

DWG Ref: MW.20.0409.TPP.RevA

