



MARK WELBY
CONSULTING ARBORISTS

Arboricultural Report

Including a tree survey, impact assessment and method statement
for residential dwellings at

Padnell Grange, Waterlooville, PO8 8ED

Reference: MW.2512.PGW.AIA

Client: Stonebond Properties (Guildford) Ltd and the Borrow Foundation

Date: 31 March 2026

Revision:



Mark Welby DipArb(RFS), TechCert(ArborA), FArborA
01730 239 492 | mark@mwelby.com | www.mwelby.com
M Welby Ltd, trading as Mark Welby Consulting Arborists
Hampshire, UK



Executive Summary

Trees are a significant consideration in this planning application for residential dwellings. This report has therefore been drafted to provide the information required to enable the local planning authority to meet the duty placed upon them by Section 197 of the Town and Country Planning Act (as amended, 2021).

Included are a BS 5837:2012 compliant tree survey, an arboricultural impact assessment, and a tree protection strategy incorporating a method statement and tree protection plan.

A total of twenty-one individual trees and four groups are proposed for removal. Whilst all high-quality Category A trees are to be retained, five Category B oaks need to be removed; three of these are at the site entrance, the removal of which is necessary to facilitate service and utility connections to the site. All other removals comprise low or poor-quality trees. Losses will be mitigated through new planting within the site.

The design has been carefully considered to accommodate the retained trees, many of which are protected by TPO. No-dig cellular confinement surfacing is proposed for the upgraded access track, the eastern footpath link, and internal footpath areas to avoid root damage to adjacent trees. Where minor encroachments into calculated root protection areas occur, barriers have been extended so that an equivalent or greater area is protected overall.

Tree protection commitments include the erection of barriers to the specification outlined, a pre-start arboricultural audit, and supervision during the no-dig surfacing and play equipment installation.

Provided the tree protection strategy is implemented as outlined in the following method statement, this application has a low arboricultural impact and is thus acceptable.



Table of Contents

1. Instructions and Terms of Reference	2
Documents Supplied	2
2. Statutory & Other Relevant Constraints	3
Tree Preservation Orders	3
Conservation Areas	3
Veteran Trees	3
Ecology	4
3. Survey Scope & Methodology	5
4. Arboricultural Impact Assessment	6
Proposal	6
Tree Removals	6
Tree Surgery	6
Construction Impact	6
Supervision & Monitoring	7
Service & Utility Provisions	8
Future Pressure	8
Planning Policy Context and Consideration	8
Summary	9
5. Arboricultural Method Statement	10
Phasing	10
Pre-commencement Audit/Meeting	11
Construction Exclusion Zone (CEZ)	11
Protection Barriers	12
Ground Protection	13
Site Induction	14
Tree Surgery	14
Installation of Underground Services	15
Fencepost/Hoarding/Ball Stop Netting Installation in RPA	16
Play Equipment Installation in RPA	16
Hard Surface Removal	17
Installation of 'No-Dig' Geocell Surface	18
Demolition	20
6. Limitations of Use and Copyright.	21
Appendix	22
i. Tree Protection Barriers	23
ii. Tree Preservation Order	25
iii. Tree Categories Explained	26
iv. Tree Removal Plan	27
v. Tree Protection Plan	28

1. Instructions and Terms of Reference

- 1.1. In December 2025, I was instructed by Stonebond Properties (Guildford) Ltd and the Borrow Foundation to undertake a tree survey and, subsequently, in March 2026, to produce this report to accompany a planning application for residential dwellings at Padnell Grange, Waterloooville, PO8 8ED.
- 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 section 197 of the Town and Country Planning Act (as amended, 2021).
- 1.3. It demonstrates that the proposal's impact, both direct and indirect, has been assessed, and mitigation, compensation, and tree protection have been proposed where appropriate.
- 1.4. Correctly implementing the tree protection specified in this report is critical for ensuring the retained trees are successfully protected throughout construction.
- 1.5. The assessment considers the proposal's impact on the constraints of 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.
- 1.6. A tree's root protection area (RPA) represents a minimum area in m² that shall be left undisturbed around it. This is initially represented by a circle but is fundamentally an area of rooting volume. It is often adjusted to account for constraints to root growth within the site (primarily highways and buildings). The British Standard provides recommendations regarding 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.

Documents Supplied

- Proposed: 24143 - P101 (Site Layout) - 31-03-26.dwg
- Site survey: 78296TVLS_01-09.dwg

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

2. Statutory & Other Relevant Constraints

Tree Preservation Orders

- 2.1. Several trees on the site are covered by Tree Preservation Orders (TPOs) ref: TPO:1980, which cover mature oak trees and one maple. Not all trees protected by the TPO are present on site, and there is some ambiguity as to exactly which trees are covered. For reference, a copy of the TPO map is appended. Those trees thought to be covered are identified on the appended tree protection plan.
- 2.2. The woodland to the north is also covered by a woodland preservation order (ref: 954).
- 2.3. A TPO issued by a local planning authority to protect specific trees, groups of trees, or woodlands for the sake of public amenity. A TPO prohibits actions such as cutting down, topping, lopping, uprooting, or causing intentional damage or destruction to the trees without obtaining written consent from the local planning authority. If consent is granted, it may come with conditions that must be adhered to. This process is regulated by the Town and Country Planning Act 1990.

Conservation Areas

- 2.4. The site is not within a Conservation Area.

Veteran Trees

- 2.5. Although on the site we have a number of very large and established trees, during the survey, none were noted to present features or be of an age that would indicate they were ancient or veteran.
- 2.6. However, an online check with the Ancient Tree Inventory² revealed that one hawthorn (#103) in the south-eastern corner of the site is listed as a veteran (ATI Ref:271028). When looked at in detail, it appears this tree might well be a notable tree, but it does not present any significant veteran features. Nonetheless, the recommended buffer zone is shown around it on the tree protection plan, and it can be adequately protected (albeit a no-dig footpath link is to be installed within the buffer).
- 2.7. Veteran trees are commonly protected through planning policies and, in some cases, TPOs. They are often ancient trees that have significant ecological, cultural, or historical value. Local planning authorities are required to consider the impact of development on veteran trees and to protect them where possible. This is also supported by the National Planning Policy Framework (NPPF).

² /ati.woodlandtrust.org.uk/

2.8. Natural England advises that a buffer zone should be established around veteran trees to protect both the above-ground structure and the below-ground root environment. Whilst no single fixed distance applies in all cases, a buffer equivalent to the area within 15 times the stem diameter is commonly used as a starting point, though Natural England and the NPPF both recognise that veteran trees may require considerably greater protection depending on their size, condition, and ecological importance. Development within or adjacent to this zone risks causing irreversible damage through soil compaction, changes to drainage, and severance of roots, all of which can lead to a tree's decline over a period of years rather than immediately. Clients should be aware that the ecological value of a veteran tree frequently extends beyond the tree itself into the surrounding soil and deadwood habitat, and that a qualified arboriculturalist and, where appropriate, an ecologist should be consulted at the earliest stage of any proposed development in the vicinity of such trees.

Ecology

- 2.9. The Natural Environment and Rural Communities Act 2006 places a duty on public authorities to have regard to conserving biodiversity when carrying out their functions. This includes protecting trees that provide habitats for wildlife. The Wildlife and Countryside Act 1981 also provides protection for certain species of plants and animals, making it an offence to intentionally damage or destroy their habitats.
- 2.10. All UK bat species are European Protected Species under the Conservation of Habitats and Species Regulations 2017, making it a criminal offence to deliberately harm bats, disturb them whilst roosting, or damage, destroy or obstruct access to a roost — whether or not bats are present at the time. This is particularly relevant to tree works, as trees with cavities, loose or fissured bark, split limbs, or dense ivy may provide roost habitat. Where a roost is confirmed or cannot be ruled out, a European Protected Species licence from Natural England may be required before works proceed, and a qualified bat surveyor should be consulted.
- 2.11. Wild birds, their active nests, and eggs are protected under Section 1 of the Wildlife and Countryside Act 1981, making it an offence to intentionally damage or destroy a nest in use or being built. Most birds breed between March and August, though this can vary by species. Tree works and vegetation clearance during this period carry a real risk of committing an offence if nests are present. Clients should be aware that responsibility for avoiding disturbance to nesting birds does not rest solely with the contractor, and a pre-works check by a suitably qualified person is strongly advisable where works are proposed during the nesting season.
- 2.12. Ecology falls outside the scope of this document, and therefore, reference should be made to the reports submitted by Hankinson Duckett Associates.

3. Survey Scope & Methodology

- 3.1. Tree survey data can be found on the appended plan.
- 3.2. 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.
- 3.3. 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.
- 3.4. The tree survey was carried out from ground level only, with the aid of binoculars as necessary, following the Visual Tree Assessment³ (VTA) method.
- 3.5. Where trees are located on neighbouring land, an estimated appraisal of their quality and dimensions has been made.
- 3.6. Where stems or branches are obscured by ivy or other materials a full assessment of those parts will not be possible.
- 3.7. Tree heights were measured with a clinometer or estimated in relation to those measured.
- 3.8. 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.
- 3.9. Tree canopies were markedly asymmetrical, and 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).
- 3.10. All estimated dimensions are noted in the data.

³ Mattheck, C. & Breloer, H., 1998. The Body Language of Trees: A Handbook for Failure Analysis. London: H.M.S.O.

4. Arboricultural Impact Assessment

Proposal

- 4.1. Full planning application for the demolition of existing buildings and the erection of 90 residential dwellings with upgraded access to Padnell Road, associated landscaping and other works.
- 4.2. The proposed layout can be seen on the appended tree protection plan.

Tree Removals

- 4.3. A total of twenty-one individual trees and four groups are proposed for removal. The schedule includes a broad mix of species and quality categories and can be seen on the appended tree removal plan.
- 4.4. Five Category B oaks are to be removed to facilitate the proposed construction. Three of these are at the site entrance, and their removal is proposed to allow new service and utility supplies into the site. Two of these trees are included within the TPO (#169 & 171). Given how constrained by trees this site is, and that installation under no-dig surfacing is not possible, their removal will facilitate the routing of services and utilities whilst avoiding the RPA's of the other retained trees.
- 4.5. Other TPO'd trees to be removed are: #138, 143, & 111. One is a category B, the other two are categories C & U, respectively.
- 4.6. All other trees to be removed are of low or poor quality.
- 4.7. Any loss that may be felt as a result of their removal will be mitigated through new planting within the site.

Tree Surgery

- 4.8. There are no plans for any tree surgery work at this stage. Once the tree removals have been carried out, the trees will be assessed for possible risk and also for any work that may be required to improve their relationship with the proposed scheme.

Construction Impact

- 4.9. The site is heavily constrained by trees, some of which are afforded statutory protection by Tree Preservation Orders. The design has been subject to considerable iteration to accommodate these constraints alongside the wider site requirements.
- 4.10. The existing access track requires upgrading to serve the development. To avoid construction impact on the trees adjacent to the track, a 'no-dig' cellular confinement system is proposed as the surfacing solution. This system is laid above the existing ground level, avoiding the need for excavation and the associated risk of root severance and soil compaction within the root zone of

nearby trees. The same no-dig approach will be adopted for the footpath link along the eastern boundary of the site and for internal footpath areas within the design.

- 4.11. The tree protection barriers shown on the appended Tree Protection Plan are considered adequate to protect all retained trees throughout the construction period. The layout has been designed to fence off root protection areas in accordance with BS 5837:2012 wherever practicable. Where minor encroachments into the calculated circular root protection areas occur, the tree protection barriers have been extended to run contiguous with the root protection area boundary, such that the same or greater area is protected overall, consistent with the provisions of BS 5837:2012.
- 4.12. Whilst ground protection measures can, in principle, permit limited access into root protection areas, such arrangements carry an operational risk of non-compliance during the construction process and are, in my professional experience, best avoided wherever possible. Accordingly, no access into fenced root protection areas is proposed.
- 4.13. Two sections of ball-stop netting are to be erected to protect the proposed dwellings from errant golf balls. These will be positioned alongside the existing hawthorn hedge on the eastern boundary. Supporting posts will be installed in accordance with the accompanying method statement, using sensitive installation techniques appropriate to the proximity of the hedge.
- 4.14. Play equipment is proposed beneath several of the retained oak trees. Following discussion with the project architects, it has been agreed that no formal play surfacing will be installed within the root protection areas of the retained trees, and that all equipment will be founded on small pad foundations hand-excavated in accordance with the method statement contained within this report. This approach avoids the continuous soil disturbance and compaction associated with conventional surfacing systems, confining any ground intervention to discrete, limited excavations. Where hand excavation encounters significant root material, the flexibility inherent in the equipment layout allows individual foundations to be repositioned to avoid root severance. Provided works are carried out in strict accordance with the method statement, this installation method is considered entirely appropriate and will not result in any long-term detriment to the retained trees.

Supervision & Monitoring

- 4.15. Some sites require more arboricultural involvement during the construction process than others. This is typically commensurate with the pressure on retained trees and the complexity of the tree protection strategy.
- 4.16. For this project, a pre-start meeting/tree protection audit before demolition starts is proposed. Supervision will also be required during the installation of any no-dig surfacing.
- 4.17. It is my opinion that regular monitoring visits would be necessary for this project.

Service & Utility Provisions

- 4.18. Subject to the approved removal of the three oak trees at the site entrance, there is adequate space to service the site whilst avoiding all RPAs.
- 4.19. A drainage outfall is to be routed east into the adjacent golf course. The trees along the golf course boundary have been assessed, and the drainage can be adequately installed outside of all root protection areas.

Future Pressure

- 4.20. It can be seen from the appended plan that there is sufficient offset from the trees to provide some open space around the dwellings and allow construction without impact.
- 4.21. The proposal can be built within the recommendations of the British Standard and the acceptability of the juxtaposition of tree and building is something the future occupier needs to discern upon purchase.
- 4.22. I have worked with the design team to achieve the subject layout and am confident that the proposed dwelling locations maximise the available space whilst not resulting in situations where excessive shade might bring forth requests to heavily prune or remove the retained trees.
- 4.23. The siting of play equipment under the canopy of mature oak trees is considered a positive and deliberate design outcome. Engagement with natural environments during play is well established as beneficial to children's physical and psychological wellbeing, and the shade, sensory interest, and connection to nature afforded by a woodland canopy setting enhances the play experience considerably. In respect of risk from falling branches, it is recognised that all trees carry some inherent residual risk; however, the retained oaks have been assessed as part of this assessment, and no significant structural defects have been identified that would give cause for concern. The risk presented by these trees in their current condition is consistent with that routinely accepted in public open space and parkland settings across the country, and is not considered a material constraint on the proposed use.

Planning Policy Context and Consideration

- 4.24. The National Planning Policy Framework (NPPF, December 2024) does not contain a dedicated trees policy but addresses trees and green infrastructure within the broader context of achieving well-designed, sustainable development. Paragraph 136 recognises the important contribution that trees make to the character and quality of the built environment and to climate change mitigation, and requires that existing trees are retained wherever possible and that provision is made for the long-term maintenance of both existing and newly planted trees. Paragraph 96 identifies the role of trees and green infrastructure in supporting health and wellbeing, and paragraph 187 requires that planning decisions contribute to and enhance the natural and local

environment, including by protecting and enhancing valued landscapes and minimising impacts on biodiversity.

4.25. The Padnell Grange site contains tree groups and boundary vegetation that positively contribute to the established landscape character. The proposed development has been designed to ensure that trees of value are retained and appropriately protected, and that new planting is incorporated to reinforce the green infrastructure network. The proposal accords with the relevant provisions of the NPPF through the retention and protection of existing trees that contribute to site character, the incorporation of appropriate root protection measures within the layout, and provision for the long-term management of retained and newly planted trees through the site's open space and green infrastructure strategy.

4.26. Havant Borough Council's current adopted Local Plan documents, Design Guide SPD (2011), and the emerging Local Plan policies do not include any tree-specific standards, protections, or requirements. Policy CS13 provides only broad green infrastructure principles, the SPD covers general layout guidance without arboricultural content, and the emerging policies relate to matters such as density, housing standards and sustainability rather than trees.

Summary

4.27. Provided the tree protection strategy is implemented as outlined in the following method statement, this application has a low arboricultural impact and is thus acceptable.

4.28. 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.

5. Arboricultural Method Statement

- 5.1. The tree protection on this site is subject to implementation as detailed in the following sections.
- 5.2. The recommendations of the British Standard have been applied where viable. Where deviations from the preferred approach are required, the impact on any retained trees is minimised through a combination of supervision from an arboriculturist and adherence to the associated method statement.
- 5.3. Once permission is granted, the strategy must be followed to avoid impacting the trees and adhere to any planning conditions.
- 5.4. The information within this section must be passed to the site foreman and cascaded to all relevant personnel involved in the project.
- 5.5. Any questions about the content or its implementation shall be directed to **Mark Welby Consulting Arborists at 01730 239492** before action is taken.
- 5.6. A tree protection plan showing the types of tree protection and their locations is appended. It includes the tree survey data, existing site features and the approved construction. The plan must be read in conjunction with this method statement.

Phasing

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

1	Tree removals
2	Installation of protection barriers
3	Pre-start tree protection audit/meeting
4	Demolition & site clearance phase
5	Installation of 'no-dig' access road in RPAs (for construction access): under arboricultural supervision
	Construction Phase
6	Installation of remaining 'no-dig' roads and paths in RPAs: under arboricultural supervision
7	Installation of play equipment in RPAs: under arboricultural supervision
8	Removal of tree protection barriers upon completion of work

Table 1: Timing of operations in relation to trees

- 5.9. The above has been drafted at the planning stage. Shall any of the protection measures prove incompatible with elements of the build programme, contact the project arboriculturist to discuss options.

Pre-commencement Audit/Meeting

- 5.10. The most important step in the tree protection process: a meeting with the project arboriculturist and the site manager shall be undertaken to review the measures before any main construction work starts on site. Usually included as a specific item in any planning conditions.
- 5.11. It is an opportunity to discuss any conflicts with the approved AMS and to seek changes if necessary.
- 5.12. An auditable record is to be kept on file and forwarded to the LPA if required.

Construction Exclusion Zone (CEZ)

- 5.13. The CEZ is a root-sensitive area where construction activities are to be excluded. The default method of doing so is through the installation of tree protection barriers. If construction access is required in the CEZ then ground protection can be used to facilitate this.
- 5.14. Everyone engaged in the construction process is responsible for respecting the tree protection measures and observing the necessary precautions within and adjacent to them.
- 5.15. 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 (unless ground protection is installed);
 - No fire lighting.
- 5.16. 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.
- 5.17. Variations 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 arboriculturist.

Protection Barriers

- 5.18. Barriers must be fit to exclude construction activity and appropriate to the degree and proximity of work around the retained tree(s). Barriers shall be maintained to ensure that they remain rigid and complete.
- 5.19. See [Appendix i](#) for barrier specifications.
- 5.20. The default specification comprises a vertical and horizontal scaffold framework, well-braced to resist impacts. The vertical tubes shall be spaced at a maximum interval of 3 m and driven securely into the ground. Onto this framework, welded mesh panels shall be securely fixed. Care shall 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 shall 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.
- 5.21. On smaller projects or those where the level of construction is less intensive, alternative specifications may be acceptable (see [Appendix i](#)), subject to agreement with the project arboriculturist and written approval LPA (local planning authority).

Ground Protection

5.22. If required to facilitate access within the CEZ (or as shown on the appended tree protection plan), ground protection is to be installed. If not already included on the tree protection plan, it must be approved in writing by the local planning authority before implementation. The ground protection 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.



GP1: Tree protection barriers and scaffold ground protection



GP2: Tree protection barriers & trackmat ground protection

5.23. Stages of ground protection installation:

1. If required, dismantle barriers and re-erect them to protect any newly exposed CEZ not to be covered by ground protection;
2. 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 the roots of retained trees;
3. Lay woven geotextile over the existing ground surface by hand;
4. Cover the area with a compressible layer (200mm of woodchip, for example), using hand tools only;
5. Cover compressible layer with side butting scaffold boards, plywood boards of proprietary trackway/trackmats;
6. Confirm surface is acceptable for use with the project arboriculturist;
7. Area ready for construction access;
8. Any scaffolding required within the area will be erected with the uprights placed on spreader boards;
9. The boarding will be left in place until the construction works are finished.

5.24. 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 geocell/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.

5.25. Track-boards can be sourced from Trakmats, 0800 622 6838, www.trakmats.co.uk, or GroundGuards, 0113 209 3685, www.ground-guards.co.uk.

5.26. There is to be no excavation within the ground protection area whatsoever. This includes the installation of services and associated utilities, without prior approval.

Site Induction

5.27. All site staff are to be briefed on the tree protection strategy for the site as part of the general site induction procedure. This can be carried out by the site manager once he has been briefed by the project arboriculturist.

5.28. In general, this will include the following:

1. Explanation of the purpose of the tree protection barriers and any ground protection
2. Explanation of the demolition procedures near trees
3. Explanation of the sensitive/supervised excavation areas
4. What to do if access is needed within a protected area for any reason
5. What to do if damage occurs to any tree protection barriers and how to contact the project arboriculturist if necessary.

Tree Surgery

5.29. Should any pruning work be required, the following must be adhered to once any requisite permissions are obtained.

5.30. All work will be carried out under BS3998⁴ industry best practice and in line with any works already agreed upon with the council.

5.31. The statutory protection^{5 6} 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 BS3998:2010- *Recommendations for Tree Work*. London: British Standards Institute

⁵ *Wildlife and Countryside Act*. (1981) London: HMSO.

⁶ *Conservation of Habitats and Species Regulations (2017)* London: HMSO.

- 5.32. 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.
- 5.33. 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.

Installation of Underground Services

- 5.34. 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 must be taken in the routeing and methods of installation of all underground apparatus. Wherever possible, apparatus must be routed outside RPAs. Where this is not possible, it is preferable to keep the apparatus together in common ducts. Inspection chambers shall be sited outside the RPA.
- 5.35. Where underground apparatus is to pass within the RPA, detailed plans showing the proposed routeing must be drawn up in conjunction with the project arboriculturist. In such cases, trenchless insertion methods shall 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:

5.36. Stages for installing services:

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 the 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 the 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 shall 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 the 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 the trench is filled.

9. Re-erect tree protection fencing as per the approved plan.

5.37. 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. I can provide details of contractors supplying air excavation services if required.

5.38. 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 the 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.

5.39. Reference can be made to NJUG Vol 4⁷ for guidance, but any approach must be approved by the project arboriculturist and brought to the attention of the local authority tree officer.

Fencepost/Hoarding/Ball Stop Netting Installation in RPA

5.40. Stages for installing wooden posts:

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

1. Remove TPF to allow access to the area. If working inside the tree's RPA, ground protection boarding must be used to avoid compaction and contamination of the root zone.
2. Dig postholes using hand tools, avoiding damage to the protective bark covering larger roots. Roots smaller than 25mm in diameter may be pruned back using either secateurs or a hand saw, leaving a clean cut.
3. Damage or severance of roots above 25mm diameter must be avoided. If roots of this size are discovered, the hole shall 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.
4. Line holes with non-porous lining, for example, a durable polyethene bag.
5. Insert post and fill post-hole with concrete to just below ground level.
6. Trim polyethene to ground level and fill with clean topsoil.
7. Reinstall TPF as approved.

Play Equipment Installation in RPA

5.41. Stages for installing concrete foundations:

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

⁷ 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.

8. Remove TPF to allow access to the area. If working inside the tree's RPA, ground protection boarding must be used to avoid compaction and contamination of the root zone.
9. Dig holes using hand tools, avoiding damage to the protective bark covering larger roots. Roots smaller than 25mm in diameter may be pruned back using either secateurs or a hand saw, leaving a clean cut.
10. Damage or severance of roots above 25mm diameter must be avoided. If roots of this size are discovered, the hole shall 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.
11. Line holes with a non-porous lining, for example, a durable polyethene bag.
12. Cast cement pad/foundation as required.
13. Fix the play equipment to the foundation.
14. Reinstall TPF as approved.

Hard Surface Removal

- 5.42. Hard surfaces close to trees come in many different forms and makeups. Until removal (or trial pits) have ascertained the presence/absence of roots in the area, the final treatment of the area cannot be determined. Therefore, the initial phase of this work is somewhat exploratory.
- 5.43. No surface removal within RPAs will occur without arboricultural supervision.
- 5.44. Stages for hard surface removal within tree protection areas:
 1. Contact the project arboriculturist to hold a pre-start site meeting and 'toolbox' talk before starting work and oversee the process.
 2. Plant machinery to run only on existing hard surfaces with consent from an arboriculturist.
 3. The plant may be used to carefully peel up existing tarmac and concrete.
 4. Other surfaces are to be removed by hand (paving etc.)
 5. Where any sub-base is unlikely to contain roots and only on approval from the project arboriculturist, it may also be carefully removed.
 6. If the supervisor concludes that there are no significant roots in the area following the surface (and possible sub-base) removal then there is no longer a need to proceed cautiously. The supervising arboriculturist will note their conclusions within the record of the overall works. Proceed to step 9.
 7. If the supervisor concludes that significant roots are still present then the underlying ground levels are to be retained. No further excavation is to occur.

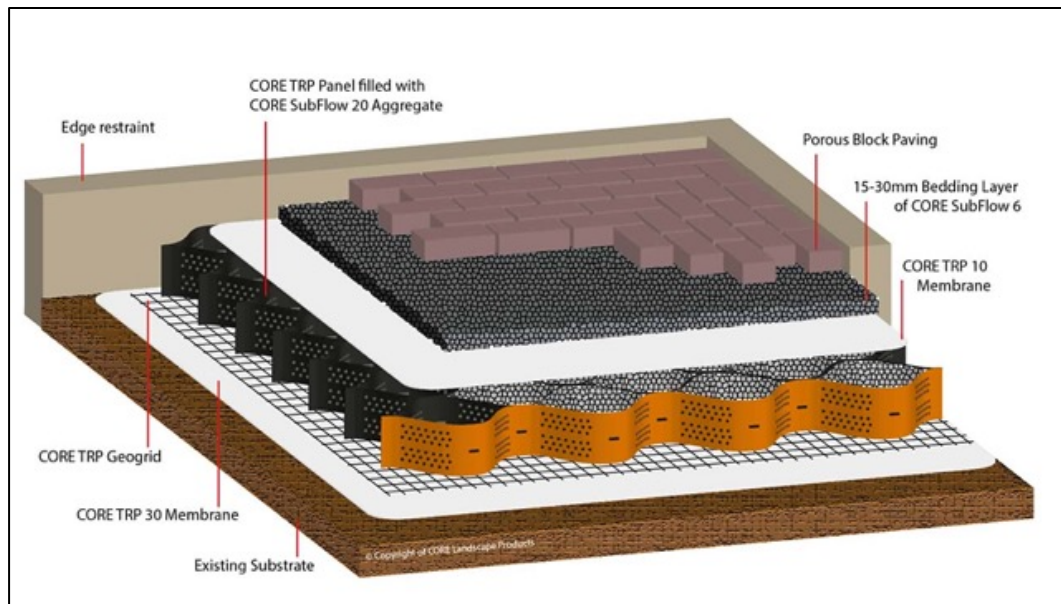
8. Any exposed roots and surrounding newly exposed areas are to be covered with up to 200mm of topsoil, from elsewhere on site, or imported topsoil to BS3882 Soil may be placed in the area by plant but must be spread by hand.
9. As deemed necessary by the supervising arborist, tree protection barriers are to be erected to protect tree stems and, if appropriate, the newly exposed soft ground. Reference the Tree Protection Plan for approved tree barrier alignments.
10. Work records are to be circulated by supervising arboriculturist and forwarded to the LPA as required.

Installation of 'No-Dig' Geocell Surface

- 5.45. To ensure that tree roots, within the ground under this proposed surface, continue to survive during and after construction, a geocell/cellular confinement system (CCS) is proposed. The following is a guide to installation, not an engineering specification. It is critical that an engineer design this surface to ensure long-term durability.
- 5.46. Stages for Installation of the cellular confinement surface:
1. Contact project arboriculturist to hold pre-start site meeting, a 'toolbox' talk before starting work and provide supervision throughout the process;
 2. Remove existing grass sward to 50mm with hand tools or turf stripper only;
 3. 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 the roots of retained trees;
 4. Retain all original ground levels after vegetation removal. No further excavation whatsoever within RPAs;
 5. Remove any existing hard surfaces (paving, tarmac etc.) Hand tools shall be used if possible. If machinery is required for this operation, it must be used only on existing surfaces or outside the protected areas and tree canopies (approval from the project arboriculturist must be sought before using machinery). The sub-base of existing surfaces or foundations shall 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 the 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. If required, cover with a non-woven geotextile (Root-tex 30 or similar).
11. Install porous wearing surface.



ND1: CORE Tree Root Protection © Porous block paving

5.47. 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 the new surface to the rooting area (5-12% by volume)
- Maintain sufficient passage of water to the rooting area (12-40% by volume)
- Avoid compaction by maintaining a soil structure sufficient to sustain root growth (soil bulk density below 1.4g/cc).

5.48. Site analysis of the soil type and its structural characteristics will be required before 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.

5.49. If ground levels are to be raised more than 150mm this shall 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.

5.50. See <https://www.corelp.co.uk/core-tree-root-protection/> and <https://www.geosyn.co.uk/product/cellweb-tree-root-protection> for more information.

Demolition

5.51. All barriers and/or ground protection are to be installed as per the approved Tree Protection Plan before commencement on site.

5.52. Sensitive demolition must only occur under supervision from the project arboriculturist

5.53. Stages of demolition within tree protection areas:

1. No plant machinery is 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 of debris by hand or with plant machinery not located on any exposed rooting area;
4. The floor is to be broken up with a hand-held breaker and pieces removed by hand. The slab floor can be lifted carefully by machinery if appropriate;
5. Underlying ground levels are to be retained. No excavation is to occur;
6. Any exposed roots and surrounding newly exposed areas are to be covered with up to 100mm of topsoil, from elsewhere on site, or imported topsoil to BS3882. Soil may be placed in an area by plant but must be spread by hand;
7. Tree protection barriers are to be erected in the final position to protect any newly exposed soft ground (as advised by supervising arborist).

6. Limitations of Use and Copyright.

Copyright M Welby Ltd trading as Mark Welby Consulting Arborists. All rights reserved.

No part of this report may be copied or reproduced by any means without prior written permission from M Welby Ltd. If you have received this report in error, please destroy all copies in your possession or control and notify M Welby Ltd. This report has been prepared for the exclusive use of the commissioning party and unless otherwise agreed in writing by M Welby Ltd, no other party may use, make use of or rely on the contents of the report. No liability is accepted by M Welby Ltd for any use of this report, other than for the purposes for which it was originally prepared and provided. Opinions and information provided in the report are based on M Welby Ltd using due skill, care and diligence in the preparation of the same and no explicit warranty is provided as to their accuracy. It shall be noted, and it is expressly stated that no independent verification of any of the documents or information supplied to M Welby Ltd. has been made.

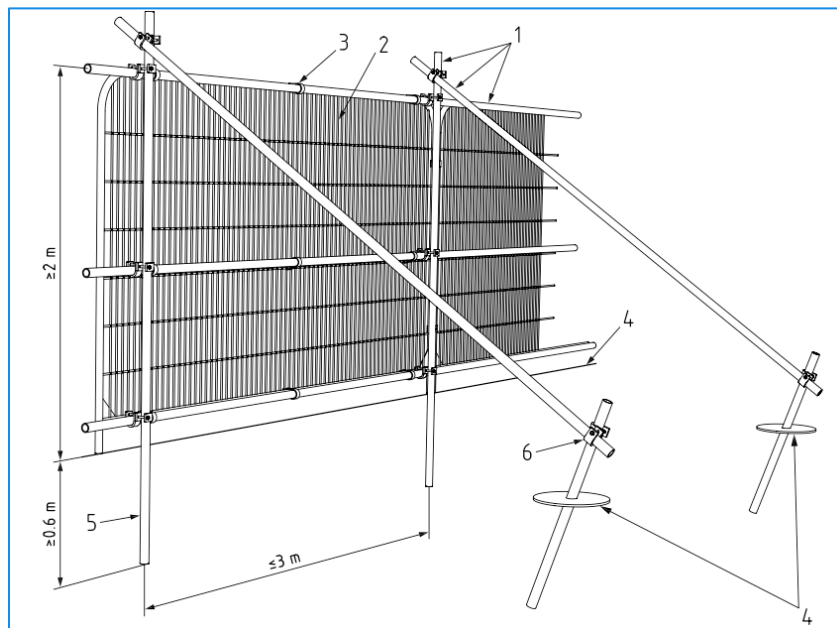


Appendix



i.

Tree Protection Barriers



1 Standard scaffold poles

2 Heavy gauge 2 m tall galvanised tube and welded mesh infill panels

3 panels secured to up rights and cross members with wire-ties

4 ground level

5 uprights driven into the ground until secure (minimum depth 0.6 m)

6 Standard scaffold clamps

TPF1: Default specification for protective barrier (Fig 2 from BS5837:2012)



TPF 2: Alternative fencing option: scaffold uprights with backstay



TPF 3: Alternative fencing option: on boots with backstay



TPF 4: Plastic barrier for low intensity areas of construction

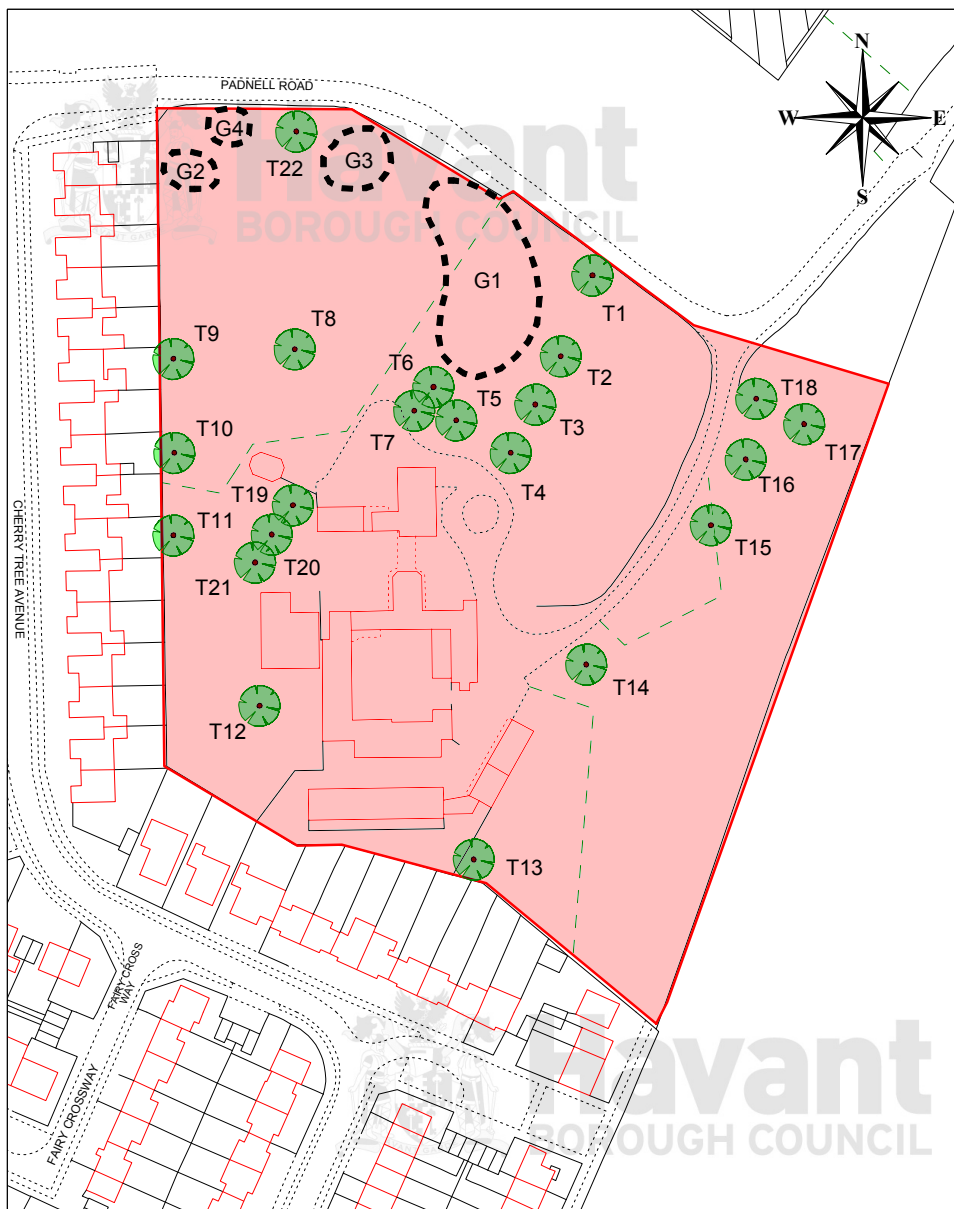


TPF 5: Chain-link for low intensity areas on large projects



ii.

Tree Preservation Order



T11 - Maple (*Acer* spp.)
All other trees - Oak (*Quercus robur*)

G1 - 10 X Oak (*Quercus robur*)
G2 - 2 X Oak (*Quercus robur*)
G3 - 2 X Oak (*Quercus robur*)
G4 - 2X Oak (*Quercus robur*)

	Title: TPO 1980. Padnell Grange.	Drawn By: Scale: 1:1500
Civic Offices, Civic Centre Road, Havant, Hampshire PO9 2AX t: 023 9247 4174		Drawing No:
		Cleaner, Safer, More Prosperous
Reproduced from the Ordnance Survey Digital Data with the permission of the Controller of HMSO, Crown Copyright Reserved 2010. Licence No LA100019217		

iii.

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	<p>*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)</p> <p>*Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline</p> <p>*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</p> <p><i>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.</i></p>		
	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



iv.

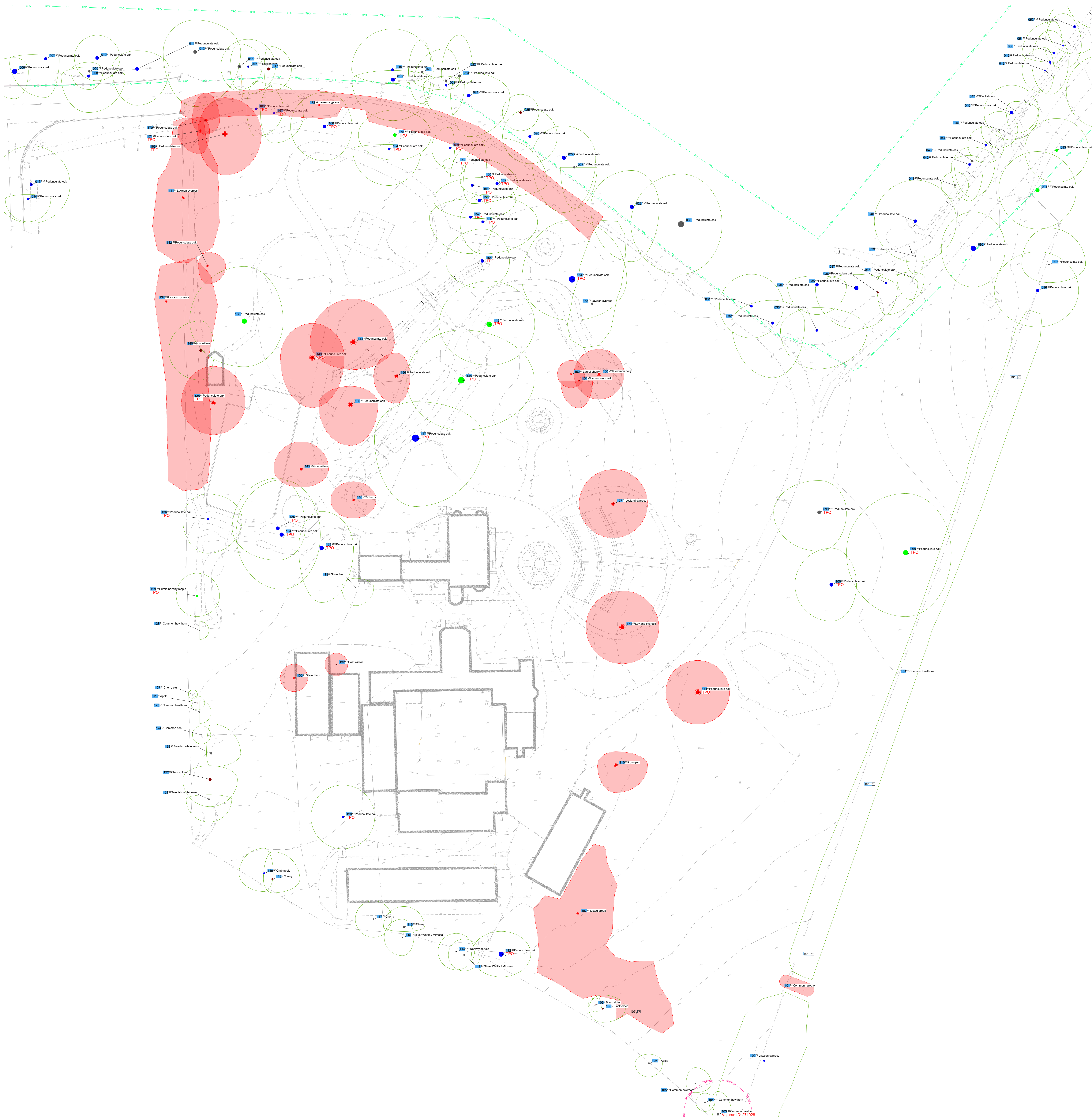
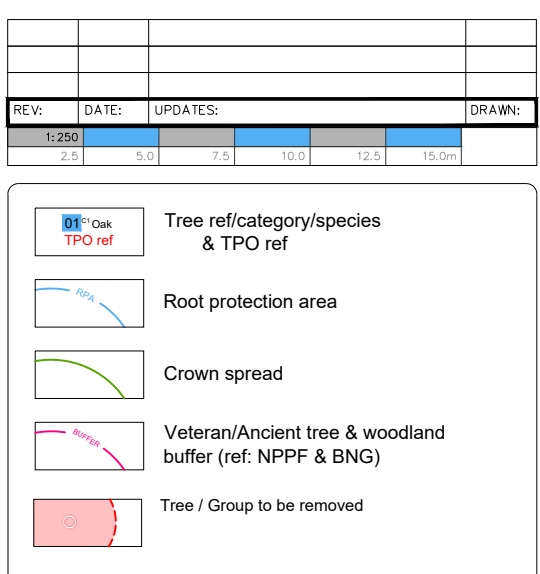
Tree Removal Plan



See the following page

[illegible]

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

[illegible][illegible]

RS 5839-2012 Tree Quality Categories

- Category A - High quality
- Category B - Moderate quality
- Category C - Low quality
- Category U - Unsuitable for retention

Guidance on the implementation and use of this information, along with its limitations and more can be downloaded here: <https://bit.ly/5837FAQ>

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

Tree Removals

Free Removals

Padnell Grange,
Waterlooville, PO8 8ED

Date: 31/03/2026 Scale: NTS
DWG Ref: MW_2512_PGW_TB


 DEPARTMENT OF HEALTH AND HUMAN SERVICES





V.

Tree Protection Plan



See the following page

