

BS 5837 Trees in Relation to Design, Demolition and Construction – Recommendations Report

Gorelands Farm development

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1 Report Limitations

- 1.1 This report is written from an arboricultural standpoint; it does not offer specific technical engineering competence.
- 1.2 The fieldwork and analysis have been undertaken, and this report prepared, in accordance with BS 5837:2012 'Trees in Relation to Design, Demolition and Construction – Recommendations' which, according to its scope.
- ...gives recommendations and guidance on the relationship between trees and design, demolition and construction processes.
 - ...sets out the principles and procedures to be applied to achieve a harmonious and sustainable relationship between trees and structures.
 - ...is applicable whether or not planning permission is required.
- 1.3 In addition, the general principles of sustainable development in the National Planning Policy Framework have been considered.
- 1.4 The report is not, nor should be taken to be, a thorough assessment of the health and condition of the trees on or adjacent to the site. If such an assessment is required, then it is recommended that a separate tree inspection be carried out to comply with the landowner's overall duty of care and to satisfy health and safety requirements.
- 1.5 I confirm that I have made clear which facts and matters referred to in this report are within my own knowledge and which are not, those that are within my own knowledge I confirm to be true. The opinions I have expressed represent my true and complete professional opinions on the matters to which they refer.
- 1.6 The authority of this report ceases after two years from the date of the fieldwork or when any site conditions change or pruning or other works unspecified in the report are carried out to, or affecting, the subject tree(s), whichever is the sooner.
- 1.7 Abbreviations used in this report:
- Arboricultural Method Statement: AMS
 - BS 5837:2012 Trees in Relation to Design, Demolition and Construction – Recommendations: BS 5837
 - Construction Exclusion Zone (CEZ)
 - National Planning Policy Framework: NPPF
 - Root Protection Area: RPA
 - Table 1 Cascade chart for tree quality assessment of BS 5837: Table 1
- 1.8 Terminology used in this report:
- Construction Exclusion Zone is used as defined in BS 5837 at clause 3.6 as: *'...area based on the root protection area from which access is prohibited for the duration of a project.'*
 - Root Protection Area is used as defined in BS 5837 at clause 3.7 as: *'layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain a tree's viability, and where the protection of the roots and soil structure is treated as a priority.'*
 - Site drawing is used to mean the information that has been made available concerning the proposed development.

- Site traffic is given the widest possible definition, to capture and embrace any traffic or vehicle movement associated with demolition, services, construction, delivery, storage or temporary office accommodation and so on
- 1.9 No enquiries have been made with the Local Planning Authority to ascertain whether the site is within a Conservation Area or if there are any Tree Preservation Orders on or near the site.

2 The Trees

- 2.1 The fieldwork was conducted during a site visit on Saturday the 8th of November 2025.
- 2.2 The trees were visually assessed in some detail and are made up of 4 trees of variable quality and were of various ages and heights. They were made up of two Pedunculate Oak (*Quercus robur*), one Field maple (*Acer campestre*) and one Apple (*Malus domestica*).
- 2.3 The trees were placed into one of four broad categories under Table 1, as follows:
Category A: Trees of high quality with an estimated remaining life expectancy of at least 40 years.
Category B: Trees of moderate quality with an estimated life expectancy of at least 20 years.
Category C: Trees of low quality with an estimated life expectancy of at least 10 years, or young trees with a stem diameter of below 150mm.
Category U: Those trees in such a condition that they cannot be realistically retained as living trees in the context of the current land use for longer than 10 years.
- 2.4 2 of these trees were placed under category A using Table 1, 1 in category B and the remaining 1 in category U.

3 The Development Proposal

- 3.1 It is understood that the proposal includes the construction of a new dwelling on the site of an existing Farm Building.

4 The Arboricultural Impact Assessment

- 4.1 The impact of the proposed development for the site will be in part significant, but also a positive. The buildings are to be built and sited around the existing trees. However, prior to any work activity, it would be prudent to crown lift, reduction and/or deadwood several of the trees as this will improve the overall aesthetic and amenity value of the retained trees.
- 4.2 No foundation work will be done within the RPA without specialised arboriculture advise.

5 Arboricultural Method Statement

5.1 Introduction

- 5.1.1 BS 5837 defines the AMS at Clause 3.2 as:
methodology for the implementation of any aspect of development that is within the root protection area or has the potential to result in loss of or damage to a tree to be retained.
- 5.1.2 Damage to the retained trees' roots and the soil volumes they occupy may arise from:
- excavations for new roadways or paths, or foundations, or
 - the need to remove or install service connections and infrastructure, or
 - the passage of site traffic, or
 - the siting of material stores or site buildings, or
 - the installation of hard surfacing, or
 - the accidental spillage of toxic substances.
- 5.1.3 Damage to the retained trees' stems and canopies may arise from:
- accidental collisions caused by site traffic, or
 - the need to erect scaffolding outside the building line to construct the development, or
 - the need to allow space for crane or jib movements, or
 - the encroachment of the retained tree's canopy upon the new development.
- 5.1.4 The AMS is required because a tree's roots are alive and serve two distinct purposes:
- to take up the moisture and the range of nutrients from the soil (generally dissolved or in suspension) that will allow the tree to grow, and
 - to securely anchor the tree in the ground.
- 5.1.5 Roots are found at relatively shallow depths where they can access the oxygen and water held in the voids between the soil particles, allowing the take up the moisture and nutrients to take place. In consequence, soil compaction will have a negative impact as it will deny the roots the access to the oxygen and water that they need to survive and to allow the tree to thrive. Therefore, any tree roots that are at risk from work activity will require protection from damage throughout the term of the development.
- 5.1.6 Two generic control measures exist:
- A barrier fence to create a CEZ that will prevent access for site traffic to area of soil where trees' roots may be found; a suitable specification is given in BS 5837 at Figure 2 (see below), or
 - Ground protection measures over those areas of soil where trees' roots may be found to spread the load from any site traffic and so reduce the risk of harm to the soil structure to acceptable level. Several proprietary solutions are available, from simple mats to interlocking tiles, and adopting any one of these (or similar), access can be achieved for site traffic constructed whilst no harm

to retained tree's roots and the soil volumes in which those roots might be expected to be found; for specific example see:

- <http://bogmats.co.uk/hire/>
- <http://gallagherstaging.com/hexagon-ground-protection-rentals/>
- <http://www.ground-guards.co.uk/products/bog-mats/>

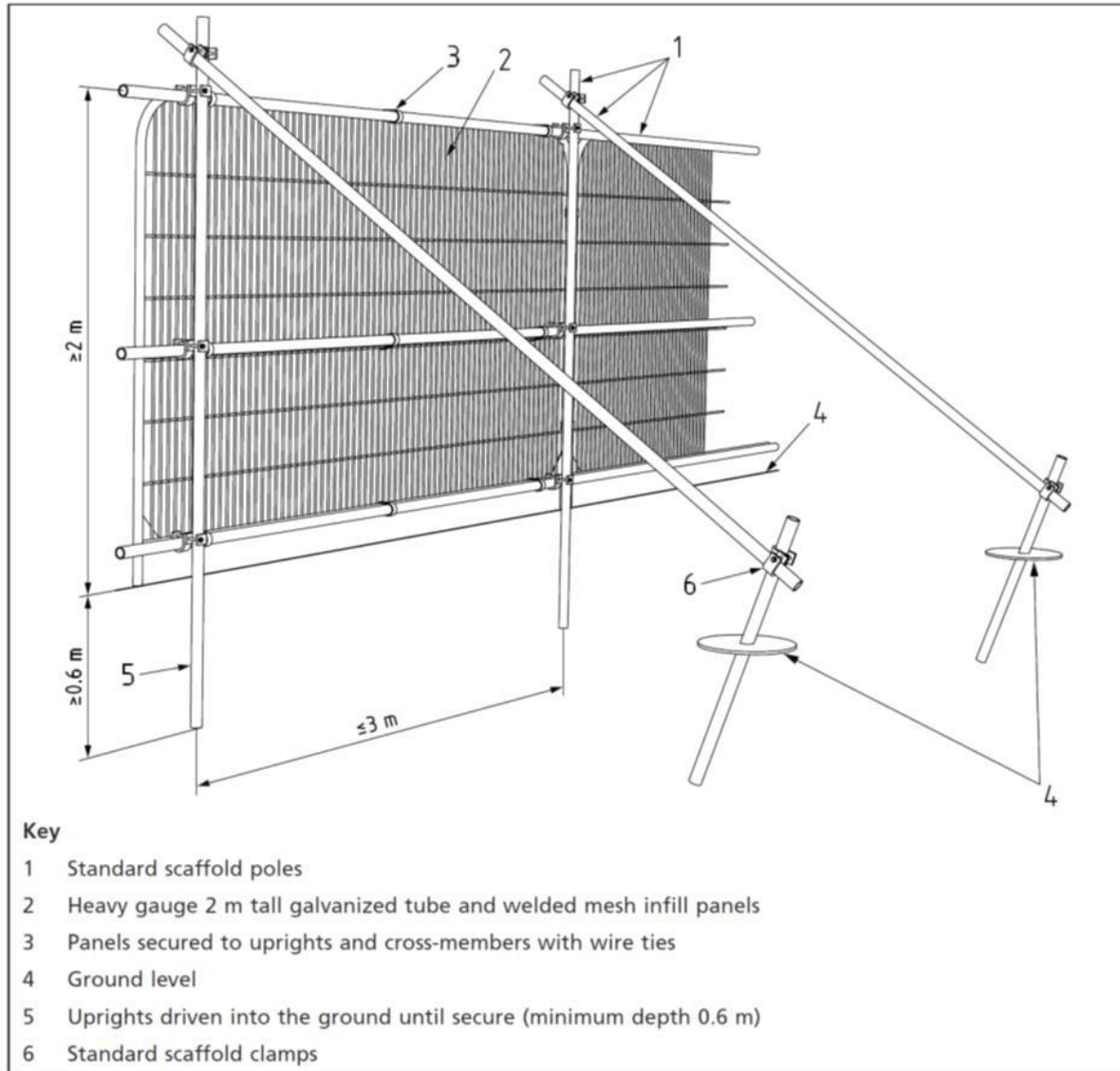


Image 3: Figure 2 from BS 5837

5 The Development Site

- 4.1 The majority of the trees on site will not be influenced, nor affected, by the redevelopment of the existing building.
- 4.2 No trees will be removed as part of the proposed development, although some arboriculture works may be necessary.

- 4.3 The layout of the features and the plotting of the retained trees' RPAs will help clarify the need for control measures to protect the retained trees from damage during the work activity. BS 5837 states, at clause 6.2.1.1:

Where all activity can be excluded from the RPA, vertical barriers should be erected to create a construction exclusion zone. Were, 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 should be installed.

- 4.3 The ideal control measure to protect the retained trees from damage during the work activity would be the creation of a temporary CEZ to protect their stems and crowns from accidental damage. The barrier should be to the specification from BS 5837 given above, aligned with the maximum limit of the individual tree's RPAs. The CEZ should be tied into the existing fence at either end, and the bracing should be on the inside of the CEZ.

- 4.4 If a number of significant roots are found that are in excess of 25 mm diameter during initial excavation, an arborist must attend site and the below needs to be followed:

Any tree roots that are exposed during the excavation of trial pits should be treated in accordance with the following details from NJUG:

- roots, whilst exposed, should be wrapped in dry, clean hessian sacking to prevent desiccation and to protect from rapid temperature changes,
- roots smaller than 25 mm diameter may be pruned back, preferably to a side branch, using a sharp proprietary cutting tool such as secateurs or handsaws,
- roots larger than 25 mm may only be severed following consultation with an arboriculturist, as they may be essential to the tree's health and stability,
- prior to backfilling, any hessian wrapping should be removed and retained roots should be surrounded with sharp sand (builders' sand should not be used because of its high salt content which is toxic to tree roots), or other loose granular fill, before soil or other material is replaced. This material should be free of contaminants and other foreign objects potentially injurious to tree roots.

- 4.5 As per 6.2.3.1 of BS5837:2012 where works are to be carried out within the RPA, '...this should be facilitated by a set-back in the alignment of the tree protection barrier.'

- 4.6 Where possible, existing suitable hard surfacing (that is not intended to be part of the finished design) within the RPA should be retained to act as temporary ground protection.

- 4.7 At 6.2.3.3 the temporary ground protection '...should be capable of supporting any traffic... without... causing compaction of underlying soil.'

- 4.8 For pedestrian movements, it is recommended that either a '...driven scaffold frame, so as to form a suspended walkway' or '...on top of a compression-resistant layer...', laid on top of a geo-textile membrane is utilised.

- 4.9 BS5837:2012 6.2.3.3 should be referred to for specific information for ground protection for plant machinery movements.

affected

6 The NPPF

- 6.1 The National Planning Policy Framework states at paragraph 174(c) (December 2023 NPPF):

There are three objectives to sustainable development: economic, social and environmental. These objectives give rise to the need for the planning system to perform a number of roles:

- an economic objective – to help build a strong, responsive and competitive economy...
- a social objective – to support strong, vibrant and healthy communities...
- an environmental objective – to protect and enhance our ... environment.

and paragraph 174 states:

Plans and decisions should apply a presumption in favour of sustainable development.

and paragraph 118 states:

When determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles:

- if significant harm resulting from a development cannot be avoided, adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused.

- 6.2 There will be no harm to the landscape as a consequence of the implementation of the development proposal, and to conserve and enhance the biodiversity of the site the development proposal will be accompanied by a landscape scheme.

7 Conclusions

- 7.1 This report concludes that:

7.11 The arboricultural impact of the proposed development of the site will be slightly positive, tree pruning to facilitate the development will enhance the overall amenity of the individual retained trees as a group overall. The trees to be removed are self-set, of poor form and are preventing light to the trees to be retained.

8 Recommendations

- 8.1 This report recommends that:

8.1.1 None of the individual trees be considered a constraint upon development.

8.1.2 If necessary, a schedule of crown lifting/ reduction and deadwooding be prepared to be implemented as facilitation works prior to any work activity.

Appendix 1 – Tree Attribute Data

NEW Tree Number	Species	Tree Height	Stem diameter (mm)	Life Stage				General observations and comments			Est'd remaining contribution (yrs)				BS 5837 category	RPA radius (m)	RPA (sq. m)	
				Y	SM	M	OM	Structural condition	Physiological condition	Preliminary management recommendations	<10	10+	20+	40+				
T1	Pedunculate Oak	Quercus robur	23	650			Yes		Hollow trunk at 1.5m off the ground	Average	Retain: reduce overall crown height and spread by a maximum of 50% and monitor				Yes	A	7.8	191.2
T2	Apple	Malus domestica	12	400				Yes	Very poor less than 30% internal structure remaining	Protruding cavity 70+cm in basal area	Remove due to high target zones	Yes				U	4.8	72.4
T3	Field Maple	Acer campestre	12	400			Yes			Weak V union at base	Remove ivy and monitor			Yes		B	4.8	72.4
T4	Pedunculate Oak	Quercus robur	20	645			Yes			Minor basal decay	Retain: reduce lateral spread over proposed development by 4m			Yes		A	7.74	188.1

Appendix 2 - BS 5837:2012 Table 1: Cascade chart for tree quality assessment

Table 1 Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
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>			See Table 2
	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)	See Table 2
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	See Table 2
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	See Table 2



5 References

Barrell, J. (1993). PRE-PLANNING TREE SURVEYS: SAFE USEFUL LIFE EXPECTANCY (SULE) IS THE NATURAL PROGRESSION. *Arboricultural Journal*, 17(1), pp.33–46.

BS 5837:2012 Trees in Relation to Design, Demolition and Construction. (2012).