

**Tree Condition Report
Arboricultural Impact Assessment
Tree Protection Plan and Method Statement**

Land at Aston Hall, Aston Munslow, Shropshire



For

From 6.8.2021

Terry Merchant Chartered Forester M.Arbor.A



The Root Protection Area barrier must be erected and then approved by the Local Planning Authority **before** the start of demolition and construction works on site; including the installation of temporary site office, storage and welfare facilities if required. Refer to the Tree location and protection drawing appended for location of the protective fencing

AIA Full (4th Iteration) 12.12.2022 (Change to development boundary and drive construction method)

16.2.2024 Revision to realign the new driveway corner section.

Identification No.	Tag 546
Species	Norway spruce <i>Picea abies</i> (L.) Karst.
Current Height (M)	20m
Ultimate Height (M)	20m
Current Stem Dia (cm) at 1.5m	55cm
Crown clearance	3m
Crown Spread (M)	Radius N = 4m; E = 2m; S = 4m; W = 4m
Growth stage	Mature
<p>Tree Condition: Root: No evidence of soil movement Stem: no evidence of stem bleeds Crown: No evidence of recent breakouts or dieback Evaluation: adequate annual shoot extension, foliage retention, colour and density are indicative of the tree maintaining vitality to grow in the prevailing conditions Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category B2: 'trees occurring as collectives but situated as to make little visual contribution to the wider locality Safe, Useful, Life expectancy >20 years Water Demand NHBC 4.2-B: Moderate Root Protection Area RPA: for tree of 55cm diameter at 1.5m (0.55 x 12) = 6.6m Radius Total RPA required at current stage of growth = 137m² Arboricultural Impact Assessment AIA: The proposed new drainage system falls outside the RPA. The proposed new <u>re-aligned</u> driveway falls within the RPA and 60% of the area will be supported above ground using the Green Grid construction system (protecting the RPA of T544 and T545) <u>Trial hole 2 east of T546:</u> Depth of existing stone-surfaced track is 350mm. No evidence of >25mm diameter lateral roots in trial hole. Excavation for conventional foundation area within the RPA must not exceed 350mm depth. Method Statement: <u>Construction of new driveway</u> Install section of Heras fence set back within the RPA as indicated on Tree Protection plan. Specification as recommended in BS5837 (2012) Fig 3 appended.</p>	

Identification No.	Tag 548
Species	Norway spruce <i>Picea abies</i> (L.) Karst.
Current Height (M)	18m
Ultimate Height (M)	20m
Current Stem Dia (cm) at 1.5m	29cm
Crown clearance	5m
Crown Spread (M)	Radius N = 2.5m; E = 2.5m; S = 2.5m; W = 2.5m
Growth stage	Early-Mature
<p>Tree Condition: Root: No evidence of soil movement Stem: no evidence of stem bleeds Crown: No evidence of recent breakouts or dieback Evaluation: adequate annual shoot extension, foliage retention, colour and density are indicative of the tree maintaining vitality to grow in the prevailing conditions Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category B2: 'trees occurring as collectives but situated as to make little visual contribution to the wider locality Safe, Useful, Life expectancy >20 years Water Demand NHBC 4.2-B: Moderate Root Protection Area RPA: for tree of 29cm diameter at 1.5m (0.29 x 12) = 3.5m Radius Total RPA required at current stage of growth = 38m² Arboricultural Impact Assessment AIA: The tree falls within the footprint of the proposed new <u>re-aligned</u> driveway corner section. Method Statement: <u>Construction of new driveway</u> The tree is proposed for removal and a replacement species established with the development boundary; Common hornbeam <i>Carpinus betulus</i> L. supplied as root ball Standard</p>	

Identification No.	Tag 549
Species	Common beech <i>Fagus sylvatica L.</i>
Current Height (M)	16m
Ultimate Height (M)	20m
Current Stem Dia (cm) at 1.5m	20+22cm
Crown clearance	2m
Crown Spread (M)	Radius N = 1m; E = 4m; S = 5m; W = 5m
Growth stage	Young
<p>Tree Condition: Root: No evidence of soil movement Stem: no evidence of stem bleeds Crown: No evidence of recent breakouts or dieback Evaluation: adequate annual shoot extension, foliage retention, colour and density are indicative of the tree maintaining vitality to grow in the prevailing conditions Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category B2: 'trees occurring as collectives but situated as to make little visual contribution to the wider locality Safe, Useful, Life expectancy >20 years Water Demand NHBC 4.2-B: Moderate Root Protection Area RPA: for tree of 20+22cm diameter at 1.5m $\sqrt{(0.20^2 + 0.22^2)} \times 12 = 3.6m$. Radius Total RPA required at current stage of growth = 40m² Arboricultural Impact Assessment AIA: The tree falls within the footprint of the proposed new <u>re-aligned</u> driveway corner section. Method Statement: <u>Construction of new driveway</u> The tree is proposed for removal and a replacement species established with the development boundary; Common hornbeam <i>Carpinus betulus L.</i> supplied as root ball Standard</p>	

Identification No.	Tag 563
Species	Common beech <i>Fagus sylvatica L.</i>
Current Height (M)	16m
Ultimate Height (M)	20m
Current Stem Dia (cm) at 1.5m	43cm
Crown clearance	3m
Crown Spread (M)	Radius N = 4m; E = 4m; S = 4m; W = 4m
Growth stage	Early-Mature
<p>Tree Condition: Root: No evidence of soil movement Stem: no evidence of stem bleeds Crown: No evidence of recent breakouts or dieback Evaluation: adequate annual shoot extension, foliage retention, colour and density are indicative of the tree maintaining vitality to grow in the prevailing conditions Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category B2: 'trees occurring as collectives but situated as to make little visual contribution to the wider locality Safe, Useful, Life expectancy >20 years Water Demand NHBC 4.2-B: Moderate Root Protection Area RPA: for tree of 43cm diameter at 1.5m (0.43 x 12) = 5.2m Radius Total RPA required at current stage of growth = 84m² Arboricultural Impact Assessment AIA: T563 Beech sits on a rock outcrop which is visible as an exposure at the side of the existing stone track – the majority of rooting will be in the field and garden area. Raising the level of the existing track where it passes through the RPA is unlikely to impact the tree root system RPA. 'BS 7.7.2.1: <i>The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation</i>'. Method Statement: Construction of new driveway Install section of Heras fence as indicated on Tree Protection plan. Specification as recommended in BS5837 (2012) Fig 3 appended.</p>	

Identification No.	New Tag 246 (16.2.24)
Species	Lawson cypress <i>Chamaecyparis lawsoniana</i> (Murr.) Parl.
Current Height (M)	8m
Ultimate Height (M)	8m suppressed
Current Stem Dia (cm) at 1.5m	20cm
Crown clearance	1.8m
Crown Spread (M)	Radius N = 2m; E = 2m; S = 2m; W = 2m
Growth stage	Young
<p>Tree Condition: Root: No evidence of soil movement Stem: no evidence of stem bleeds Crown: Suppressed. No evidence of recent breakouts or dieback Evaluation: adequate annual shoot extension, foliage retention, colour and density are indicative of the tree maintaining vitality to grow in the prevailing conditions Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category B2: 'trees occurring as collectives but situated as to make little visual contribution to the wider locality Safe, Useful, Life expectancy >20 years Water Demand NHBC 4.2-B: High Root Protection Area RPA: for tree of 20cm diameter at 1.5m (0.2 x 12) = 2.4m Radius Total RPA required at current stage of growth = 18m² Arboricultural Impact Assessment AIA: The tree falls within the footprint of the proposed new <u>re-aligned</u> driveway corner section. Method Statement: <u>Construction of new driveway</u> The tree is proposed for removal and a replacement species established with the development boundary; Common hornbeam <i>Carpinus betulus</i> L. supplied as root ball Standard</p>	

Identification No.	New Tag 247 (16.2.24)
Species	Lodgepole pine <i>Pinus contorta</i> Doug.
Current Height (M)	16m
Ultimate Height (M)	20m
Current Stem Dia (cm) at 1.5m	26cm
Crown clearance	3m
Crown Spread (M)	Radius N = 2m; E = 2m; S = 2m; W = 4m
Growth stage	Early-Mature
<p>Tree Condition: Root: No evidence of soil movement Stem: no evidence of stem bleeds Crown: No evidence of recent breakouts or dieback Evaluation: adequate annual shoot extension, foliage retention, colour and density are indicative of the tree maintaining vitality to grow in the prevailing conditions Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category B2: 'trees occurring as collectives but situated as to make little visual contribution to the wider locality Safe, Useful, Life expectancy >20 years Water Demand NHBC 4.2-B: Moderate Root Protection Area RPA: for tree of 26cm diameter at 1.5m (0.26 x 12) = 3.1m Radius Total RPA required at current stage of growth = 30m² Arboricultural Impact Assessment AIA: The proposed new drainage system falls outside the RPA. The proposed new <u>re-aligned</u> driveway corner section falls at the RPA perimeter The tree provides shelter for T546 Norway spruce from the prevailing wind Method Statement: <u>Construction of new driveway</u> Install section of Heras fence set back within the RPA as indicated on Tree Protection plan. Specification as recommended in BS5837 (2012) Fig 3 appended.</p>	

Identification No.	New Tag 248 (16.2.24)
Species	Lodgepole pine <i>Pinus contorta</i> Doug.
Current Height (M)	14m
Ultimate Height (M)	20m
Current Stem Dia (cm) at 1.5m	35cm
Crown clearance	3m
Crown Spread (M)	Radius N = 1m; E = 2m; S = 2m; W = 4m
Growth stage	Early-Mature
<p>Tree Condition: Root: No evidence of soil movement Stem: no evidence of stem bleeds Crown: No evidence of recent breakouts or dieback Evaluation: adequate annual shoot extension, foliage retention, colour and density are indicative of the tree maintaining vitality to grow in the prevailing conditions Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category B2: 'trees occurring as collectives but situated as to make little visual contribution to the wider locality Safe, Useful, Life expectancy >20 years Water Demand NHBC 4.2-B: Moderate Root Protection Area RPA: for tree of 35cm diameter at 1.5m (0.35 x 12) = 4.2m Radius Total RPA required at current stage of growth = 55m² Arboricultural Impact Assessment AIA: The proposed new drainage system falls outside the RPA. The proposed new driveway <u>re-aligned</u> driveway corner section falls within the RPA perimeter by 1m at the widest point. No further excavation for conventional foundation is proposed within the RPA as the drive level will be raised at this point and surfaced with porous material. The tree provides shelter for T546 Norway spruce from the prevailing wind. RPA. 'BS 7.7.2.1: <i>The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation</i>'. Method Statement: Construction of new driveway Install section of Heras fence set back within the RPA as indicated on Tree Protection plan. Specification as recommended in BS5837 (2012) Fig 3 appended.</p>	

Identification No.	Tag 249 (16.2.24) Lapsed Hedge
Species	Common beech <i>Fagus sylvatica</i> L.
Current Height (M)	10m
Ultimate Height (M)	2.4m proposed for future management at height of the stone wall
Current Stem Dia (cm) at 1.5m	13cm
Crown clearance	2m
Crown Spread (M)	Radius N = 1m; E = 1m; S = 1m; W = 1m
Growth stage	Young
<p>Tree Condition: Root: No evidence of soil movement Stem: no evidence of stem bleeds Crown: No evidence of recent breakouts or dieback Evaluation: adequate annual shoot extension, foliage retention, colour and density are indicative of the tree maintaining vitality to grow in the prevailing conditions Tree Quality Assessment: Ref.BS5837 (2012) 4.5.1 Category B2: 'trees occurring as collectives but situated as to make little visual contribution to the wider locality Safe, Useful, Life expectancy >20 years Water Demand NHBC 4.2-B: Moderate Root Protection Area RPA: for tree of 13cm diameter at 1.5m $0.13 \times 12 = 1.6\text{m}$ Radius Total RPA required at current stage of growth = 7m^2 /tree Arboricultural Impact Assessment AIA: The proposed new driveway <u>re-aligned</u> driveway corner section falls within the RPA perimeter by 50cm at the widest point. The existing stone-surfaced drive occupies 50cm of the RPA at the widest point. No further excavation for conventional foundation is proposed within the RPA as the drive level will be raised at this point and surfaced with porous material. RPA. 'BS 7.7.2.1: The design should not require excavation into the soil, including the lowering of levels and/or scraping, other than the removal, using hand tools, of any turf layer or other surface vegetation'. Method Statement: <u>Construction of new driveway</u> Install section of Heras fence set back within the RPA as indicated on Tree Protection plan. Specification as recommended in BS5837 (2012) Fig 3 appended.</p>	

General Arboricultural Method Statement ref. BS 5837 (2012)

3.0 The root protection area (RPA) recommendation in BS 5837 2012 (Trees in relation to design, demolition and construction – Recommendations), is based upon a minimum area (in m²) calculated from the measurement of the stem diameter and a factor of the radial distance between the tree stem and the outer extent of the main lateral roots. The resulting area is usually recorded as a generalised circle on the tree survey. However, the significant figure is the equivalent available rooting area in m² rather than the circular shape; tree roots exploit the optimum ground conditions for their physical development dependent upon soil aeration, plant-available water, mineral elements and physical barriers to growth. Providing the total minimum area in m² recommended in the RPA is available to the tree, the actual shape of the area is less significant, *providing* it can be demonstrated that the construction process will not result in significant damage to existing roots greater than 25mm in diameter. 'The viable retention of trees on construction sites is dictated by the successful protection of their root systems throughout the development process from initial site clearance to installation of the new landscape. Healthy soils contain five basic components: oxygen, organic matter, mineral matter, living organisms and moisture. A soil's porosity allows water to drain through, carbon dioxide to escape and oxygen to enter. Construction vehicles operating on exposed soils, particularly in wet conditions, compact the soil pores and prevent these processes from occurring'(Cowan 2005)

3.1 The Tree Protection Plan (TPP) and method statement details how the construction work will be carried out in proximity to the retained trees, protective barrier specification, timing of work, other mitigation measures where required and supervision of the protection measures during construction.

3.2 Summary of works

Drainage and Utilities: Follow recommendation in the NJUG Volume 4 Code of practice relating to work in proximity to tree roots within the RPA; specifically, the avoidance of trench excavations within the RPA. Any drainage or service-related works to be carried out within the Root Protection Area must be subject to the prior written approval of the LPA of a method statement detailing how such works are to be carried out and monitored, so as to avoid undue damage to the tree.

Site Compound, construction materials, soil/demolition debris storage mixing of concrete and washings: Must be located outside of the Root Protection Areas. Vehicle movements, storage of vehicles or heavy machinery, lighting of fires and no excavations or alterations of ground level is permitted within the protective barrier or areas of temporary ground protection

Method of work for individual trees retained in proximity to construction works or access to the works: refer to the work method described for each retained tree ref. section 2.2 of the report.

3.3 Protective Fencing

Protective barriers should be erected with verticals positioned to avoid the lateral roots of the larger trees. Refer to BS 5837 (2012) figure 3 Protective barrier for details of the recommended specification.

Protective barrier should be erected and then approved by the Local Planning Authority before the start of demolition and construction works on site, including the installation of temporary site office, storage and welfare facilities if required

The barrier and ground protection shall be maintained in a satisfactory condition throughout the duration of development. There is to be no access or operations of any kind within the barrier, nor repositioning of the barrier even temporarily, without the prior written approval of the LPA.

The inclusion of all-weather notices to be attached to every third panel of the tree protection fence stating that the fence is a tree protection fence and the zone beyond it is a construction exclusion zone.

3.4 Arboricultural Supervision (subject to conditioning by LPA)

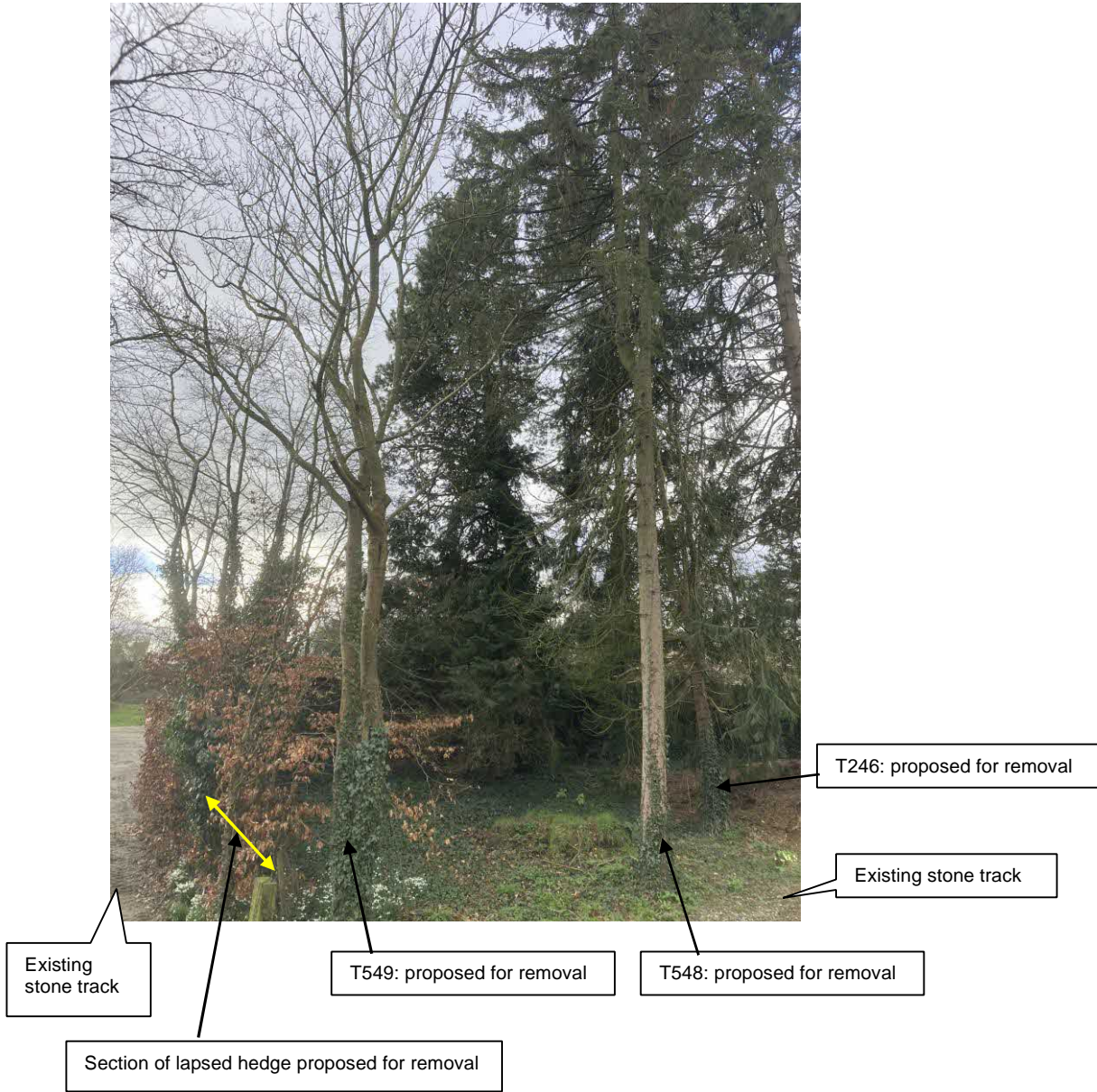
The person responsible for day-to-day supervision will be the Construction site manager/foreman (named)

The Arboricultural Consultant (to be appointed) role will be:

1. Pre-commencement site meeting with foreman/manager and site owner to discuss the practical impact of the method statement and mark out position of protective fencing/ground protection
2. 2nd visit as soon as fencing is in place and **before ground works have started** for photo evidence.
3. 3rd visit unannounced to check on protective measures in place and method statement followed.
4. Final visit on completion of works for photo evidence

Appendix 1

Photo Detail: Tree condition illustration ref. Sect 2.2



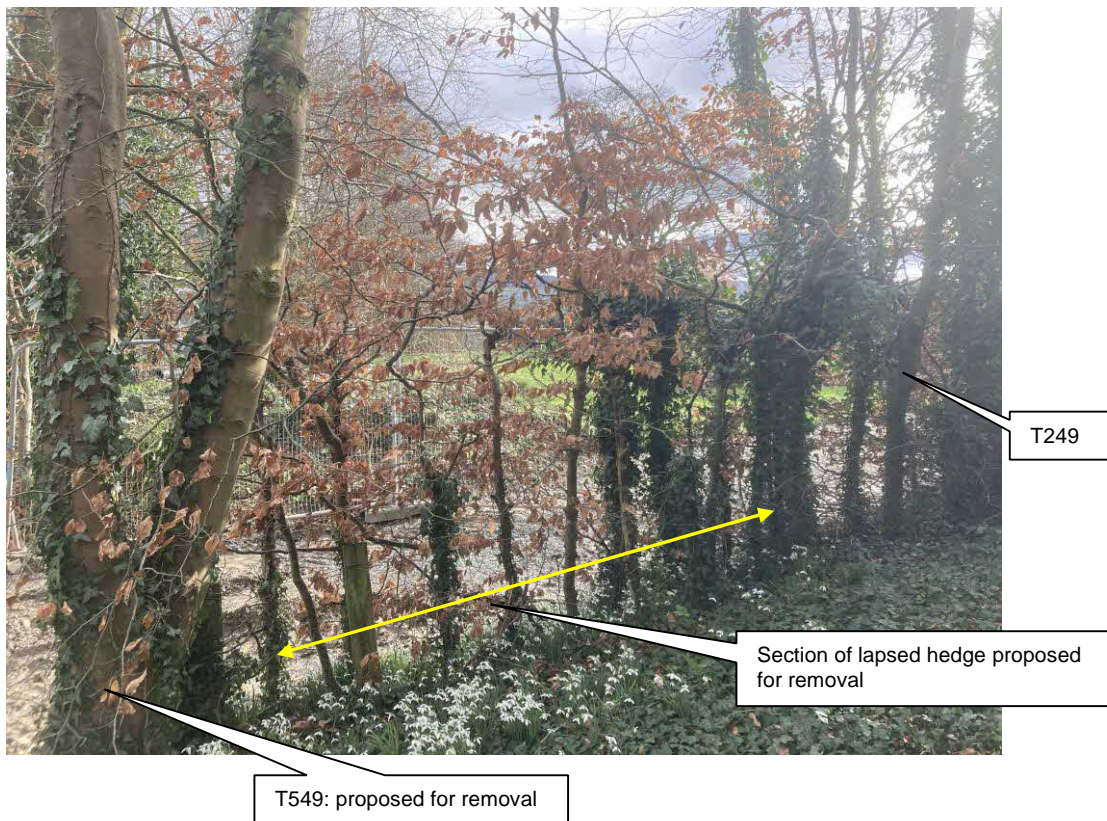


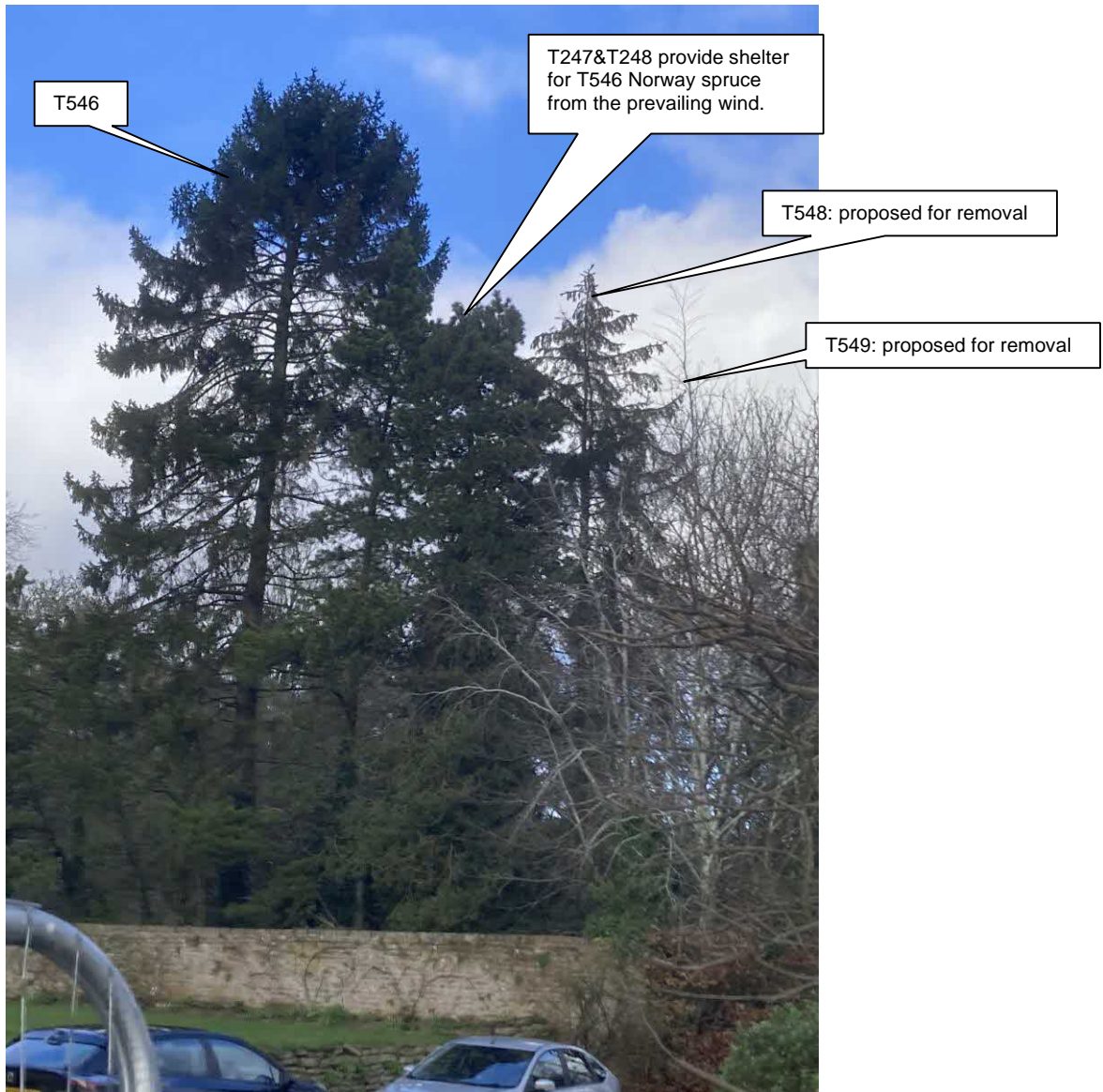
T248

T247

T549 & T548: proposed for removal

T246: proposed for removal



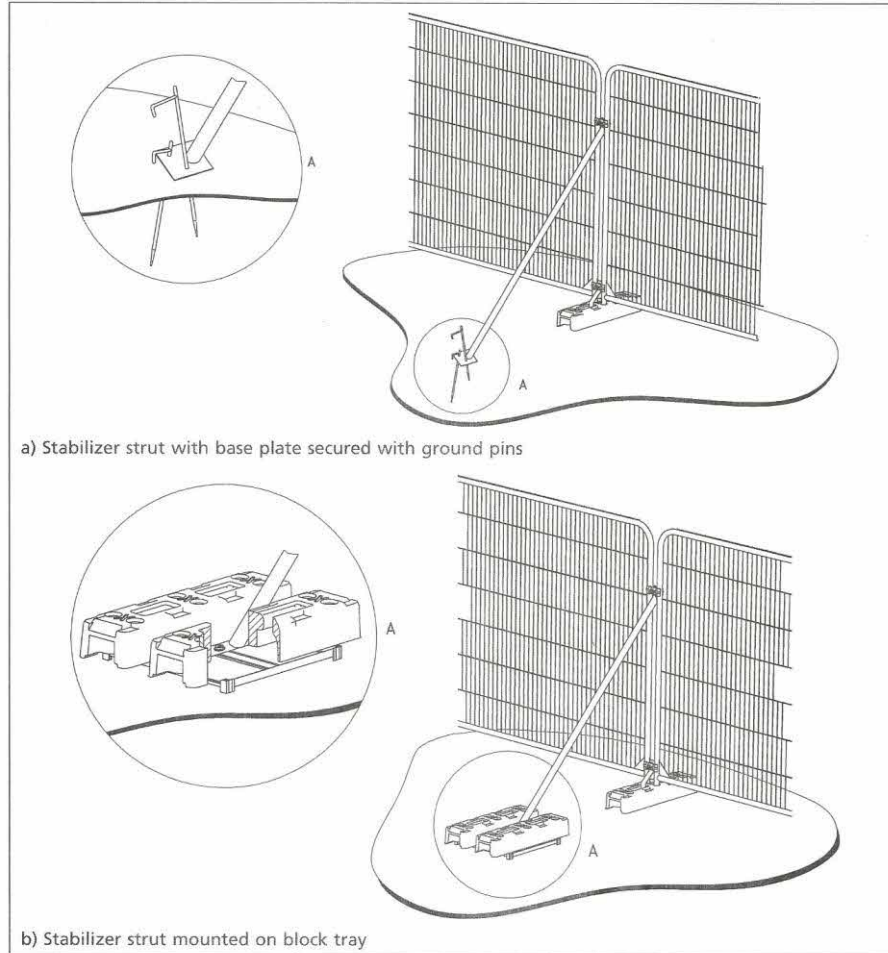


Appendix 3
BS 5837 2012 Protection illustrations

BRITISH STANDARD

BS 5837:2012

Figure 3 Examples of above-ground stabilizing systems



a) Stabilizer strut with base plate secured with ground pins

b) Stabilizer strut mounted on block tray

6.2.3 Ground protection during demolition and construction

6.2.3.1 Where construction working space or temporary construction access is justified within the RPA, this should be facilitated by a set-back in the alignment of the tree protection barrier. In such areas, suitable existing hard surfacing that is not proposed for re-use as part of the finished design should be retained to act as temporary ground protection during construction, rather than being removed during demolition. The suitability of such surfacing for this purpose should be evaluated by the project arboriculturist and an engineer as appropriate.

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

6.2.3.3 New temporary ground protection should be capable of supporting any traffic entering or using the site without being distorted or causing compaction of underlying soil.

NOTE The ground protection might comprise one of the following:

- a) for pedestrian movements only, a single thickness of scaffold boards placed either on top of a driven scaffold frame, so as to form a suspended walkway, or on top of a compression-resistant layer (e.g. 100 mm depth of woodchip), laid onto a geotextile membrane;
- b) for pedestrian-operated plant up to a gross weight of 2 t, proprietary, inter-linked ground protection boards placed on top of a compression-resistant layer (e.g. 150 mm depth of woodchip), laid onto a geotextile membrane;
- c) for wheeled or tracked construction traffic exceeding 2 t gross weight, an alternative system (e.g. proprietary systems or pre-cast reinforced concrete slabs) to an engineering specification designed in conjunction with arboricultural advice, to accommodate the likely loading to which it will be subjected.

6.2.3.4 The locations of and design for temporary ground protection should be shown on the tree protection plan and detailed within the arboricultural method statement (see 6.1).

6.2.3.5 In all cases, the objective should be to avoid compaction of the soil, which can arise from the single passage of a heavy vehicle, especially in wet conditions, so that tree root functions remain unimpaired.

6.2.4 Additional precautions outside the exclusion zone

6.2.4.1 Planning of site operations should take sufficient account of wide loads, tall loads and plant with booms, jibs and counterweights (including drilling rigs), in order that they can operate without coming into contact with retained trees. Such contact can result in serious damage to the trees and might make their safe retention impossible. Consequently, any transit or traverse of plant in proximity to trees should be conducted under the supervision of a banksman, to ensure that adequate clearance from trees is maintained at all times. Access facilitation pruning should be undertaken where necessary to maintain this clearance.

NOTE In some instances, local planning authority consent for pruning might be required.

6.2.4.2 Fires on sites should be avoided if possible. Where they are unavoidable, they should not be lit in a position where heat could affect foliage or branches. The potential size of a fire and the wind direction should be taken into account when determining its location, and it should be attended at all times until safe enough to leave.

NOTE Local environmental health authorities might have specific restrictions.

6.2.4.3 Any materials whose accidental spillage would cause damage to a tree should be stored and handled well away from the outer edge of its RPA.

BS 5837:2005

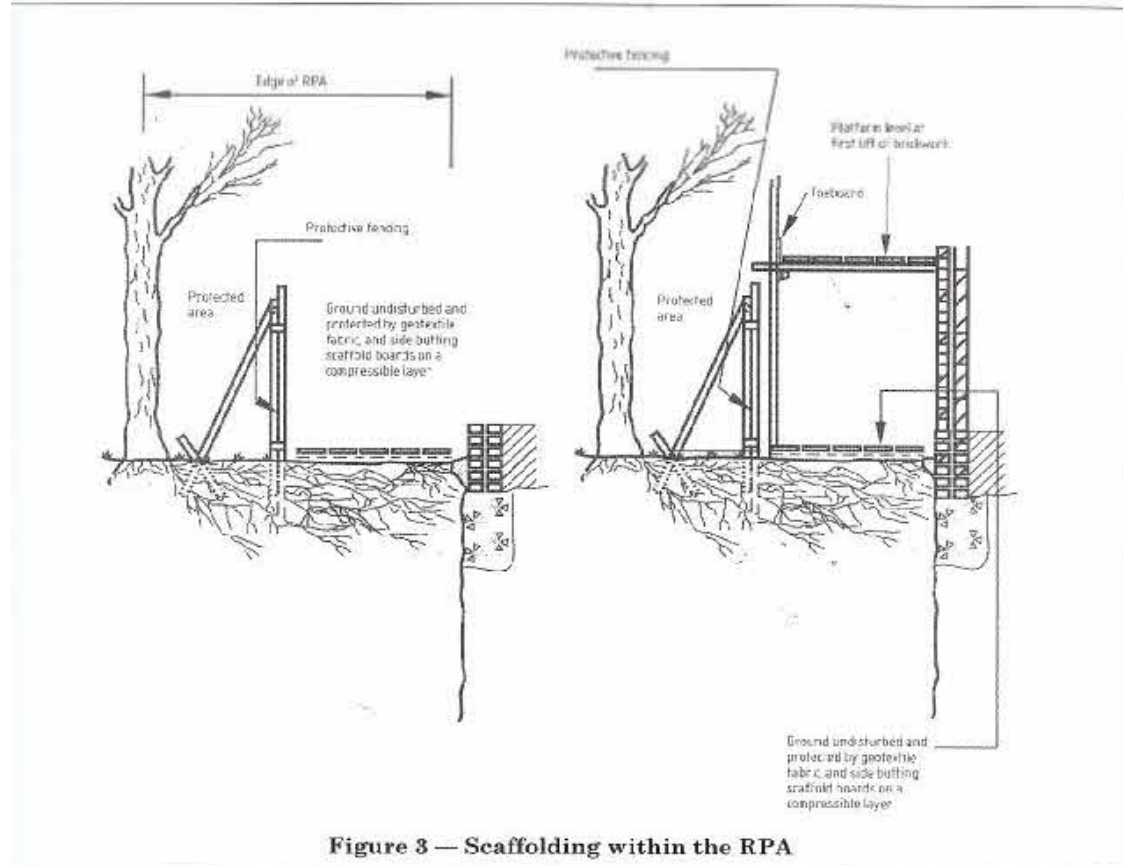


Figure 3 — Scaffolding within the RPA

4.4 Additional precautions outside the exclusion zone

4.4.1 Once the exclusion zone has been protected by barriers and/or ground protection, construction work can commence. All weather notices should be erected on the barrier with words such as:

“Construction exclusion zone — Keep out”.

4.4.2 In addition the following should be addressed or avoided.

- Care should be taken when planning site operations to ensure that wide or tall loads, or plant with booms, jibs and counterweights can operate without coming into contact with retained trees. Such contact can result in serious damage to them and might make their safe retention impossible. Consequently, any transit or traverse of plant in close proximity to trees should be conducted under the supervision of a banksman to ensure that adequate clearance from trees is maintained at all times. In some circumstances it may be impossible to maintain adequate clearance thus necessitating access facilitation pruning (see 11.2.1).
- Material which will contaminate the soil, e.g. concrete mixings, diesel oil and vehicle washings, should not be discharged within 10 m of the tree stem.
- Fires should not be lit in a position where their flames can extend to within 5 m of foliage, branches or trunk. This will depend on the size of the fire and the wind direction.
- Notice boards, telephone cables or other services should not be attached to any part of the tree.

Appendix 4

Glossary of Arboricultural Terms

Adaptive Growth: Woundwood.	New strengthening woody growth in response to loss of tissue through decay or physical damage
Age Class: Young	Up to 1/3 rd life expectancy
Early-mature	Between 1/3 rd and 2/3rds life expectancy
Mature	Over 2/3rds life expectancy
Late-mature	Onset of natural limb loss; increase in dysfunctional tissue
Over-mature	Declining or moribund trees of low vigour. NB Late-mature and over-mature trees are more prone to structural failure than young or early-mature trees.
Breakout:	Loss of a limb usually close to the junction the main stem or scaffold limb
Branch bark ridge:	Natural feature in the axil of the branch providing a simple guide for locating the best position for the top edge of a pruning cut.
Buttressing:	Root flare at the base of the stem
Crown dieback:	Significant loss of foliage throughout the crown; often the result of root damage. Usually indicating a tree in decline.
Deadwood:	Dead secondary branching persisting on the scaffold limbs. Minor deadwood <50mm diameter is less likely to cause damage in the event of failure. Major deadwood >50mm present a greater hazard and is a greater risk of failure in trees without durable heartwood e.g. Lime and ash. Deadwood which is not presenting a hazard to the highway is excluded from the inspection report. Deadwood stubs: Prevent the sealing of the wound site, providing sites of decay and increasing risk of limb failure.
Epicormic Response:	Growth of dormant buds on areas of the stem or scaffold limbs effected by loss of woody tissue or foliage. New woody tissue is laid down in areas of vigorous epicormic growth.
Included bark:	Weak regions of bark-to-bark contact at the stem or branch junctions.
Retrenchment:	Describes the response in new growth in the lower crown, following dieback in the upper crown. A feature of some over-mature trees, enabling survival into great age (veteran trees)
Scaffold limbs:	1 st order limbs; the major limbs supporting the secondary branching or 2 nd & 3 rd order branches
Soil Heave:	Raised lateral roots or loosened soil surrounding the base of the tree.

References and main literature sources.

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Rose B. *The use of Cellular Confinement Systems near Trees a Guide to Good Practice*. Arbor Association Guidance Note 22.

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Report date:	23.7.2021	Preliminary Arboricultural Constraints Inspection
	10.8.2021	AIA part 1 PRE-DESIGN DRAFT
	6.9.2021	AIA Full (1 st iteration)
	8.9.2021	AIA Full (2 nd iteration)
	10.9.2021	AIA Full (3 rd iteration)
	12.12.2022	AIA Full (4th iteration) Change in development boundary and drive construction method.
	22.2.2024	Revision to realign the new driveway corner section.

