



**Tree Survey, Arboricultural Impact Assessment
Arboricultural Method Statement & Tree Protection Plan
In Accordance with BS 5837:2012**

Proj. No 7921	Rustington Golf Centre, Golfers Lane, Angmering, West Sussex BN16 4NB		
Client:		Brian Heap	
Date of Report:	22/01/2020	Revision:	Original

Tree Survey, Arboricultural Impact Assessment, Arboricultural Method Statement & Tree Protection Plan – In Accordance with BS 5837:2012

Summary

The purpose of this report is to provide a consideration of the arboricultural implications created by the proposed development. In accordance with the feasibility and planning sections of BS5837:2012 "*Trees in relation to design, demolition and construction – Recommendations*", trees deemed to be within the influencing distance of the projected construction have been evaluated for quality, longevity and initial maintenance requirements. Where trees do not have to be removed for health and safety reasons, a detailed and objective assessment has been made of the consequences of the intended layout.

In this circumstance it is intended to increase the height of part of the existing chain link fencing on the east and west of the driving range from 6m to 10m in height by attaching new 4m sections to the existing fence towers. It is also proposed to shorten the length of the driving range by moving the existing 10m high fencing to the south and installing fencing 20m in height. As a result thirty one individual trees and eight groups of trees were inspected. The arboricultural related implications of the proposal are as follows:

- 1 It is not necessary to fell any trees in order to achieve the proposed layout. One tree (T021) and two groups of trees (G002 and G007) require minor work to permit construction, as discussed at item 4.10.
- 2 The alignment of one new fence tower and its foundations encroach within the Root Protection Area of one tree to be retained (T021). Given the negligible incursion proposed into the tree's Root Protection Area, in this instance it is considered acceptable to undertake linear root pruning as discussed at item 4.4.1.
- 3 The processes of demolition and construction will require the installation of a temporary load bearing surface, as discussed at item 4.6.
- 4 All trees and landscape features that are to remain as part of the development should suffer no structural damage provided that the findings with this report are complied with in full. This includes ensuring that protective fencing and ground protection are installed as detailed at items 4.6 and 5.1 of this report.

Given the above, there are no overt or overwhelming arboricultural constraints that can be reasonably cited to preclude the proposed construction.



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1.0 Introduction

1.1 Terms of Reference

- 1.1.1 Hayden's Arboricultural Consultants Limited has been commissioned by Brian Heap to prepare a Tree Survey, Arboricultural Impact Assessment, Arboricultural Method Statement and Tree Protection Plan for the existing trees at Rustington Golf Centre, Golfers Lane, Angmering, West Sussex BN16 4NB.
- 1.1.2 The site survey was carried out on the 16/01/2020. The relevant qualitative and quantitative tree data was recorded in order to assess the condition of the existing trees, their constraints upon the prospective development and the necessary protection and construction specifications required to allow their retention as a sustainable and integral part of the completed development.
- 1.1.3 Information is given on condition, age, size and indicative positioning of all the trees, both on and affecting the site. This is in accordance with the British Standard 5837:2012 *Trees in relation to design, demolition and construction - Recommendations*.

1.2 Scope of Works

- 1.2.1 The survey of the trees and any other factors are of a preliminary nature. The trees were inspected on the basis of the Visual Tree Assessment (VTA) method as developed by Mattheck and Breloer (1994). The trees were inspected from ground level with no climbing inspections undertaken. It is not always possible to access every tree and as such some measurements may have to be estimated. Trees with estimated measurements are highlighted in the schedule of trees. No samples have been removed from the site for analysis. The survey does not cover the arrangements that may be required in connection with the removal of existing underground services.
- 1.2.2 Whilst this is an arboricultural report, comments relating to non arboricultural matters are given, such as built structures and soil data. Any opinion thus expressed should be viewed as provisional and confirmation from an appropriately qualified professional sought. Such points are clearly identified within the body of the report.
- 1.2.3 An intrinsic part of tree inspection in relation to development is the assessment of risk associated with trees in close proximity to persons and property. Most human activities involve a degree of risk with such risks being commonly accepted, if the associated benefits are perceived to be commensurate. In general, the risk relating to trees tends to increase with the age of the trees concerned, as do the benefits. It will be deemed to be accepted by the client that the formulation of the recommendations for all tree management will be guided by the cost-benefit analysis (in terms of amenity) of the tree work.

1.3 Documentation

- 1.3.1 The following documentation was provided prior to the commencement of the production of this report;
- Email of instruction from Brian Heap received on the 06/01/2020
 - Definition of site boundary – drawing no. 19-170094-AE02
 - Existing site plan – drawing no. 19-170094-E01
 - Proposed site plan – drawing no. 19-170094-AP01



2.0 The Site

2.1 Overview

- 2.1.1 The site is the driving range at Rustington Golf Centre, Angmering. The driving range is bounded by chain link fencing that measures 6m in height on the east and west and is 10m in height on the chevron at the north of the range. The trees subject to this survey are outside of the driving range and comprise of various species and maturity that provide some amenity benefit, primarily in terms of screening between the driving range and golf course beyond.

2.2 Soils

- 2.2.1 The soil type commonly associated with this site are generally freely draining slightly acid loams. They are of low fertility and typically support neutral and acid pastures, and deciduous woodland type habitats. This soil type constitutes approximately 15.5% of the total land mass of England.
- 2.2.2 The data given was obtained from a desk top study which provides indications of likely soil types. By definition, this information is not comprehensive and therefore any decisions taken with regards the management, usage or construction on site should be based on a detailed soil analysis.
- 2.2.3 Further to item 2.2.2, this report provides no information on soil shrinkability. It may be necessary for practitioners in other disciplines (e.g. engineers considering foundation design) to obtain this data as required.

2.3 Statutory Tree Protection

- 2.3.1 Hayden's Arboricultural Consultants Limited have been informed that at the *date of the tree inspection* the trees concerned were not located within a Conservation Area or the subject of a Tree Preservation Order (TPO). As such, no written permission would be required from the Local Planning Authority (LPA), Arun District Council, prior to commencing works to trees. However, it should be noted that Arun District Council have the power to serve Tree Preservation Orders very rapidly. It is therefore incumbent upon owners, managers or any persons wishing to undertake work to any trees to contact the LPA prior to undertaking work to ensure that the situation has not changed.

This information was sourced using the LPA's Online Mapping System and to our best knowledge was current and accurate at the time the information was accessed. Before any tree work commences, this must be checked directly with the LPA to confirm that their online mapping system is definitive.

3.0 Tree Survey

- 3.1 As part of this survey a total of thirty one individual trees and eight groups of trees have been identified. These have been numbered T001 - T031 and G001 - G008 respectively.
- 3.2 An accurate topographical survey was not available at the time of inspection. The position of each tree shown on the attached drawing no. 7921-D-AIA has therefore been fixed by use of a hand-held GPS surveying unit.



Given this, the position of the trees must be considered indicative, although drawing no. 7921-D-AIA provides a fair representation of the relationship of the trees as distributed across the site.

- 3.3 In order to provide a systematic, consistent and transparent evaluation of the trees included within this survey, they have been assessed and categorised in accordance with the method detailed in item 4.3 of *BS 5837:2012 "Trees in Relation to Design, Demolition and Construction - Recommendations"*. For further information, please see the attached Explanatory Notes.
- 3.4 The detailed assessment of each tree and its work requirements with priorities are listed in the attached Schedule of Trees.
- 3.5 Several items would benefit from tree surgery or additional investigation, be it for health and safety, cultural, aesthetic or structural reasons as detailed in the attached Schedule of Trees. The item requiring the **most urgent** intervention is as follows:

Within six months:

T007	Remove hanging branches.
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- 3.6 In accordance with item 4.2.4 (c) of BS 5837:2012, the items inspected and detailed within this report have been selected for inclusion due to the likely influence of any proposed development on the trees, rather than strictly adhering to the curtilage of the site. However, it must be understood that there may be trees beyond the site and not included in this survey which may exert an influence on the development. Where works for cultural, health and safety, quality of life or development purposes have been recommended on trees outside the ownership of the site, these can only progress with the agreement of the owner, except where it involves portions of the trees overhanging the boundary.

4.0 Arboricultural Impact Assessment

4.1 The Proposal

- 4.1.1 It is proposed to increase the height of part of the existing chain link fencing on the east and west of the driving range from 6m to 10m in height by attaching new 4m sections to the existing fence towers. It is also proposed to shorten the length of the driving range by moving the existing 10m high fencing to the south and installing fencing 20m in height.

4.2 Access

- 4.2.1 Site access is encumbered by the theoretical Root Protection Area (RPA) of the following retained trees – T028, T029, T030 and T031. In this case the RPA is safeguarded by existing hard surfaces. Therefore, from a purely arboricultural perspective, it will not be necessary to install a proprietary temporary load bearing road to protect tree roots.



4.3. Demolition

- 4.3.1 Demolition of existing fence towers and their foundations affect the theoretical RPA of the following retained trees – T003, T004, T007, T008, T015, T021, T022, T023, T024, T026, G003, G004, G005 and G006. In order to prevent damage to these specimens work must only be completed with appropriate machinery, or by hand, within the RPA. The fence towers will be dismantled in sections and lifted away from the adjacent trees and the foundations will be broken out with extreme care, either manually or with a breaker and small mini digger operating on the temporary load bearing surface to be installed. As the existing towers are dismantled, the associated fencing will be lifted away from the adjacent trees crowns thereby ensuring no damage occurs to their branches.

4.4 Construction

- 4.4.1 Construction of one new fence tower and its associated foundation encroaches within the RPA of one tree to be retained – T021. Given the minor extent of the intrusion into the tree's RPA (2.1%) which also occurs at the periphery of its RPA, in this instance it is considered acceptable to undertake linear root pruning as part of the access facilitation pruning (AFP) works. To ensure any potential impacts are minimised, where the foundation pad is located within the RPA, this will be excavated by hand. Should roots be exposed these will be cleanly severed with secateurs, or a handsaw, ensuring the final wounds are as small as possible and free from ragged, torn ends. Following this and prior to being backfilled, the foundation pad will be lined with a non-permeable geotextile membrane to prevent phytotoxic concrete adversely affecting the retained tree's roots. These operations will be supervised by the appointed Arboriculturalist and photographs forwarded to the LPA.
- 4.4.2 Where it is proposed to increase the height on the existing fencing from 6m to 10m on the eastern and western aspects of the driving range, new 4m sections of tower will be bolted onto the existing towers and the additional fencing then attached to these. Where these operations occur within the RPA of retained trees, all machinery will operate on a temporary load bearing surface, as shown on the attached drawing no. 7921-D-AIA.

4.5 Implications of Sloping Ground

- 4.5.1 The arboricultural implications of the proposed structures are based on an assumption that because there are no significant existing slopes on site, level changes will not occur within the RPA of trees that are shown to be retained.

4.6 Requirement for Tree Protection

- 4.6.1 Prior to the commencement of demolition and immediately after the completion of the necessary tree work, ground protection will be installed on site. This will be in full accordance with the requirements of BS 5837:2012 and positioned as shown on the attached Arboricultural Impact Assessment & Tree Protection drawing no. 7921-D-AIA.
- 4.6.2 Following demolition and prior to the new fence towers being erected on the chevron at the north of the range, protective fencing will erected. This will be in full accordance with the requirements of BS 5837:2012 and positioned as shown on the attached Arboricultural Impact Assessment & Tree Protection drawing no. 7921-D-AIA.



4.6.3 The ground protection and protective fencing will be retained until completion of the proposed development.

4.7 Compound

4.7.1 The site provides adequate internal space to locate a construction compound outside the RPA of any trees and landscape features that are to be retained.

4.8 Phasing

4.8.1 The proposal involves the integration of a number of aspects that affect tree protection. For this reason the project must be carefully phased to ensure the highest level of protection for retained trees at all times. Shown on the attached drawing no. 7921-D-AIA is a phasing recommendation to cover the salient operations on site as they affect retained trees.

4.9 Monitoring

4.9.1 In accordance with item 6.3 of BS 5837:2012, the site and associated development should be monitored regularly by a competent Arboriculturalist to ensure that the arboricultural aspects of the planning permission are complied with. Shown on the attached drawing no. 7921-D-AIA is an auditable monitoring schedule to assess the progress of key site events/activities.

4.10 Cultural Implications for Retained Trees

4.10.1 It is necessary to undertake access facilitation pruning (AFP) which includes above and/or below ground works to T021, G002 and G007, as outlined in the *Schedule of Works to Allow Development*. These works are necessary to permit construction and provide appropriate working space. Given the amount of pruning necessary and the locations of the work, it is considered the AFP will have a negligible impact on the trees longevity and amenity value.

4.11 Landscape Implications

4.11.1 It is not necessary to fell any trees in order to achieve the proposed layout.

4.12 Post Development Implications

4.12.1 No adverse arboricultural implications are considered reasonably foreseeable for the trees that remain provided that the recommendations of this report are complied with in full.

4.12.2 Due to the dynamic nature of trees and their interaction with the environment, their health and structural integrity is liable to change over time. It is therefore recommended that all trees on or adjacent to the site be inspected on an annual basis.



5.0 Design Advice, Arboricultural Method Statement & Tree Protection Plan

5.1 Securing of Tree Structure and Root Protection Areas (RPA)

- 5.1.1 The trees to be retained will be protected by the use of stout barrier fencing and ground protection installed in the positions indicated on the attached Arboricultural Impact Assessment & Tree Protection drawing no. 7921-D-AIA. This fencing and ground protection will be in accordance with the requirements of BS 5837:2012.
- 5.1.2 All fencing and ground protection provided for the safeguarding of trees will be erected in accordance with item 4.6. The fencing, which must have all weather notices attached stating "Construction Exclusion Zone – No Access" will be regarded as sacrosanct and, once erected, will not be removed or altered without the prior consent of the LPA.

5.2 Location of Site Office, Compound and Parking

- 5.2.1 The position of the office, compound and parking will be agreed in writing with the LPA prior to commencement of any permitted development works. Any proposed re-location of these items through the various phases of development will be agreed prior to re-siting with the LPA.

5.3 On Site Storage of Spoil and Building Materials

- 5.3.1 Prior to and during all construction works on site, no spoil or construction materials will be stored within the RPA of any tree on, or adjacent to the site, even if the proposed development is to be within the RPA. This is to reduce to a minimum the compaction of the roots of the trees. Details of the RPA for each tree where no spoil or building materials will be stored are indicated on the attached Arboricultural Impact Assessment & Tree Protection drawing no. 7921-D-AIA. Any encroachment within this protected area will only be with the prior agreement of the LPA.
- 5.3.2 Any facilities for the storage of oils, fuels or chemicals shall be sited on impervious bases and surrounded by impervious bund walls. The volume of the bund compound shall be at least equivalent to the capacity of the tank plus 10%. If there is a multiple tankage, the compound shall be at least equivalent to the capacity of the largest tank, or the combined capacity of interconnected tanks, plus 10%. All filling points, vents, gauges and sight glasses shall be located within the bund. The drainage system of the bund shall be sealed with no discharge to any watercourse, land or underground strata. Associated pipe-work shall be located above ground and protected from accidental damage. All filling points and tank overflow pipe outlets shall be detailed to discharge downwards into the bund.
- 5.3.3 All material storage facilities and work areas must consider the effects of sloping ground on the movement of potentially harmful liquid spillages towards or into protected areas.

5.4 Programme of Works

- 5.4.1 All tree work, once approved by the LPA, will be carried out prior to any other site works. Once completed, the proposed protective fencing will be erected along the lines indicated above. All of this will be carried out prior to commencement of any development works on the site.



Outline details of the proposed programme are given in the Design and Construction and Tree Care flow chart attached (Appendix G-1).

5.5 Tree Surgery

- 5.5.1 All tree work will be agreed with the LPA and will be carried out in line with BS 3998:2010 (Recommendations for Tree Works). An arboricultural contractor approved by the Local Planning Authority will carry out the work. Any alterations to the proposed schedule of works will be agreed with the LPA to commencement of works.

5.6 Levels

- 5.6.1 Other than for any specific exception which may be referred to at item 4.0, no alterations to soil levels within the RPA of retained trees are envisaged.

5.7 Services

- 5.7.1 No new services routes are proposed within the RPA of retained trees.

5.8 Reporting and Monitoring Procedures

- 5.8.1 In accordance with item 6.3 of BS 5837:2012, the site and associated development should be monitored regularly by a competent Arboriculturalist to ensure that the arboricultural aspects of the planning permission (e.g. the installation and maintenance of protective measures and the supervision of specialist working techniques) are implemented. Furthermore, regular contact between the Site Manager and the Arboriculturalist allows them to effectively deal with and advise on any tree related problems that may occur during the development process. This system should be auditable. Should any issues arise during the arboricultural monitoring of the development the Arboriculturalist will contact the LPA and appropriate action taken only with the prior permission of Brian Heap and the LPA.

6.0 Recommendations

- 6.1 It is recommended that in view of the siting and design of the layout, the lack of impact on trees and landscape features within the immediate vicinity, together with the detailed tree protection measures listed in this report, the trees should not be considered a constraint on the proposed development.
- 6.2 Tree work should be completed as detailed in the Schedule of Trees. Where this has been identified for reasons other than to permit development, this work should be completed within the advised timescales irrespective of any development proposals.
- 6.3 The tree surgery works proposed as part of this survey are recommended to mitigate any identified problems that may be caused by trees in close proximity to the proposed development. To this end, should these recommendations be overruled, this Survey stands as the opinion of Hayden's Arboricultural Consultants Limited, and therefore any damage or injury caused by trees recommended by this practice for felling or tree surgery works, to which the proposed schedule of works has been altered or the tree has been requested to be retained by the LPA, cannot be the responsibility of this practice.



7.0 Limitations & Qualifications

Tree inspection reports are subject to the following limitations and qualifications.

General exclusions

Unless specifically mentioned, the report will only be concerned with above ground inspections. No below ground inspections will be carried out without the prior confirmation from the client that such works should be undertaken.

The validity, accuracy and findings of this report will be directly related to the accuracy of the information made available prior to and during the inspection process. No checking of independent third-party data will be undertaken. Hayden's Arboricultural Consultants Limited will not be responsible for the recommendations within this report where essential data are not made available or are inaccurate.

This report will remain valid for one year from the date of inspection but will become invalid if any building works are carried out upon the property, soil levels altered in any way close to the property, or tree work undertaken. It must also be appreciated that recommendations proposed within this report may be superseded by extreme weather, or any other unreasonably foreseeable events.

If alterations to the property or soil levels are carried out, or tree work undertaken, it is strongly recommended that a new tree inspection be carried out.

It will be appreciated, and deemed to be accepted by the client and their insurers, that the formulation of the recommendations for the management of trees will be guided by the following: -

1. The need to avoid reasonably foreseeable damage.
2. The arboricultural considerations - tree safety, good arboricultural practice (tree work) and aesthetics.

The client and their insurers are deemed to have accepted the limitation placed on the recommendations by the sources quoted in the attached report. Where sources are limited by time constraints or the client, this may lead to an incomplete quantification of the risk.

Signed:



January 2020

For and on Behalf of Hayden's Arboricultural Consultants Limited



8.0 References

British Standards Institute. (2010). *Recommendations for Tree Work BS 3998:2010* BSI, London.

British Standards Institute. (2012). *Trees in Relation to Design, Demolition and Construction – Recommendations BS5837:2012* BSI, London.

Ministry of Housing, Communities & Local Government. (2014). *Tree Preservation Orders and trees in conservation areas*. London: Ministry of Housing, Communities & Local Government.

Mattheck & Breloer, H. (1994). *Research for Amenity Trees No.4: The Body Language of Trees*, HMSO, London.

NHBC Standards (2007) *Chapter 4.2 'Building Near Trees'*. National House-Building Council.

Patch, D. Holding, B. (2006) *Arboricultural Practice Note 12 (APN12), Through the Trees to Development*. Arboricultural Advisory and Information Service (AAIS).

Lonsdale, D. (1999). *Research for Amenity Trees No 7: Principles of Tree Hazard Assessment and Management*, HMSO, London.

British Standards Institute. (1999). *Code of Practice for Site Investigations BS 5930:1999* HMSO, London.



9.0 Appendices

Appendix	A	Species List & Tree Problems
Appendix	B	Schedule of Trees
Appendix	C	Schedule of Works - Irrespective of Development
Appendix	D	Schedule of Works to Allow Development
Appendix	E	Explanatory Notes
Appendix	F	Tree Preservation Order Enquiry/Response
Appendix	G	Advisory Information & Sample Specifications
	1.	BS 5837:2012 Figure 1 - Flow Chart – Design and Construction & Tree Care
	2.	European Protected Species and Woodland Operations Checklist (v.4)
	3.	BS 5837:2012 Figure 2 - Default specification for protective barrier
	4.	BS 5837:2012 Figure 3 - Examples of above-ground stabilising systems
	5	Figure 4 Detail of protective barrier where construction encroaches within BS5837:2012 Root Protection Area
	6.	MultiTrack Ground Guards Specification
Appendix	H	Drawing no. 7921-D-AIA



Appendix A - Species List & Tree Problems

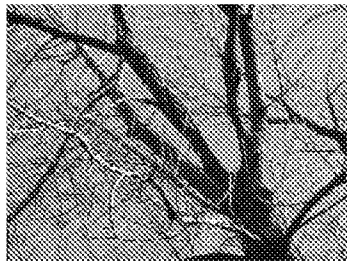
Species List:

Alder	<i>Alnus sp</i>
Field Maple	<i>Acer campestre</i>
Hawthorn	<i>Crataegus monogyna</i>
Hornbeam	<i>Carpinus betulus</i>
Lombardy Poplar	<i>Populus nigra 'Italica'</i>
Monterey Pine	<i>Pinus radiata</i>
Norway Maple	<i>Acer platanoides</i>
Oak	<i>Quercus sp</i>
Silver Birch	<i>Betula pendula</i>



Tree Problems:

This gives a brief description of the problems identified in the attached Tree Survey.

Name: Deadwood	
Symptoms/damage type and cause:	This relates to dead branches in the crown of the tree. In the majority of cases, this is caused by the natural ageing process of the tree or shading due to its close proximity to neighbouring trees. However, in some situations, it may be related to fungal, bacterial or viral infection.
Consequence:	Depending upon the location and mass of dead wood removal of the affected tissue may be necessary to prevent harm to persons or property as the wood will become unstable as it decays and in some circumstances is likely to fall from the tree with little or no warning.
Control:	Detailed monitoring should be undertaken on those trees showing signs of excessive deadwood production to identify the underlying cause.
Species affected:	Most tree species.
Images:	 

Name: <i>Hedera helix</i> (Ivy)	
Symptoms/damage type and cause:	Ivy may grow to varying degrees on all areas of a tree from the base to the upper crown. It is possible that in doing so it will out-compete the host tree for available light thereby suppressing the host.
Consequence:	This is generally only harmful to the tree on already unhealthy specimens which may be constricted by large ivy stems around the trunk or may have their top growth suppressed by a mass of flowering shoots in the crown. Ivy can also mask potentially dangerous faults on a tree.
Control:	Ivy should only be removed if absolutely necessary because it provides abundant cover to wildlife and then by severing twice close to the ground and removing a length of stem thereby causing the gradual dying away of the aerial parts of the plant providing extended benefit to wildlife whilst relieving the pressure on the tree.
Species affected:	Most trees can be affected.
Images:	 



Appendix B

Schedule of Trees

SCHEDULE OF TREES (AIA) Rustington Golf Centre, Golfers Lane, Angmering, West Sussex

Surveyed By: Liz Beckett Date: 16/01/2020

Managed By: Liz Beckett

TreeNo	Species	DBH Min Dist	Height Crown Base Lowest Branch	Visual Age	Crown Spread Water Demand Ground Cover	Problems / Comments	B5 Cat	Work Required (TS)	Priority (TS)	Work Required (AIA)	Priority (AIA)
On site		RPA (m²)	Aspect	SULE							
G001	4x Monterey Pine	50	20	Moderate	N8, E7, S7, W5	Crossing branches. Small diameter deadwood. Physiological condition good.	B2	No work required.	4		
		0.6	2.1-4m	EM	Moderate						
Yes		1.1		20+ years	Grass;Gravel;Concr ete						
G002	5x Hornbeam, 22x Monterey Pine, 2x Oak and 8x Poplar	50	20	Moderate	N6, E8, S6, W5	Group comprising of 22 x Monterey Pine, 8 x Poplar, 2 x Oak, 5 x Hornbeam with sub dominant Birch, Hawthorn and juvenile Lombardy Poplar. Some small diameter dead, standing trees.	B2	No work required.	4	Crown lift to 12m above ground level on western aspect, as shown on drawing no. 7921-D-AIA.	0
		0.6	2.1-4m	EM	High						
Yes		1.1		20+ years	Grass						
G003	15x Lombardy Poplar	200	20	Low	N1, E1, S1, W1	15x Lombardy Poplar planted in 2 rows at 2.5 and 5m from the fence. Furthest from the fence there are Hawthorn and 2x Norway Maple with squirrel damage.	C2	No work required.	4		
		2.4	0-2m	SM	High						
Yes		18.1		10+ years	Grass						
G004	23x Birch, Hornbeam, Oak and Poplar	220	8.5	Low	N2, E2, S2, W2	Group of 23x mixed species planted in 3 rows. First row of 10 is 2.5m from fence, 2nd row of 6 is 5m from fence and 3rd row of 7 is 8m from fence.	C2	No work required.	4		
		2.64	2.1-4m	SM	High						
Yes		21.9		10+ years	Grass						
G005	16x Birch, Hornbeam, Oak and Poplar	250	9	Low	N2.5, E2.5, S2.5, W2.5	Group of 16x trees comprising of Birch, Hornbeam, Oak and Poplar. Planted in two rows, 2.5 and 5m from fence. Ground churned by vehicles.	C2	No work required.	4		
		3	0-2m	SM	High						
Yes		28.3		10+ years	Grass						
G006	42x Birch, Field Maple, Hawthorn, Hornbeam and Poplar	220	12	Low	N2, E2, S2.5, W2	Group comprising of 42x trees including Birch, Field Maple, Hawthorn, Hornbeam and Poplar. Many of the trees have been damaged at the base by vehicles. Most lean to the north east. Planted in rows approximately 2.5, 5 and 7m from fence.	C2	No work required.	4		
		2.64	0-2m	SM	High						
Yes		21.9		10+ years	Grass						
G007	9x Monterey Pine	200	17	Moderate	N5, E5, S5, W5	Group comprising predominantly of Monterey Pine x 9 but with Alder, Hawthorn, Oak and Poplar.	C2	No work required.	4	Crown lift to 12m above ground level on eastern aspect, as shown on drawing no. 7921-D-AIA.	0
		2.4	0-2m	2	EM	High					
Yes		18.1		10+ years	Grass						

TreeNo	Species	DBH Min Dist	Height Crown Base Lowest Branch	Visual Age SULE	Crown Spread Water Demand Ground Cover	Problems / Comments	BS Cat	Work Required (TS)	Priority (TS)	Work Required (AIA)	Priority (AIA)
On site		RPA (m²)	Aspect	Aspect							
G008	20x Alder, Birch and Poplar.	200	15	Moderate	N2.5, E2.5, S2.5, W2.5	Group of 20 trees comprising of Alder, Birch and Poplar. Situated in rows approximately 2.5 and 5m from fence.	C2	No work required.	4		
		2.4	0-2m	EM	High						
Yes		18.1		10+ years	Grass						
T001	Lombardy Poplar	555	20.5	Moderate	N1.5, E2.5, S2.5, W2.5	Bifurcates at ground level with included bark between stems ascending to approx 1.6m above ground level. Stem diameter measured above 1.5m due to compression at fork. No natural bracing. Substation beneath crown. Given proximity to substation its suitability for retention needs to be considered.	C2	No work required.	4		
		6.66	0-2m	EM	High						
Yes		139.3		<10 years	Grass;Gravel						
T002	Lombardy Poplar	440	21	Moderate	N2, E3, S1.5, W1	2m to fence. Twin leader. Good physiological condition.	C2	No work required.	4		
		5.28	0-2m	EM	High						
Yes		87.6		10+ years	Grass						
T003	Lombardy Poplar	410	21	Moderate	N1.5, E1.5, S1.5, W1.5	2.5m from fence support.	C2	No work required.	4		
		4.92	0-2m	EM	High						
Yes		76		10+ years	Grass						
T004	Monterey Pine	700	16	Moderate	N6.5, E7.5, S3, W3	3m to fence. Branches resting on fence top.	C2	No work required.	4		
		8.4	0-2m	EM	Moderate						
Yes		221.7		10+ years	Grass						
T005	Norway Maple	220	8.5	Low	N2.5, E2.5, S2.5, W2.5	Stem wound at base on northern aspect.	C2	No work required.	4		
		2.64	0-2m	EM	Moderate						
Yes		21.9		10+ years	Grass						
T006	Monterey Pine	530	17	Moderate	N2, E2.5, S2, W2.5	Branches touching fence.	B2	No work required.	4		
		6.36	0-2m	EM	Moderate						
Yes		127.1		20+ years	Grass						

TreeNo	Species	DBH Min Dist	Height Crown Base	Visual Lowest Branch	Visual Age	Crown Spread Water Demand	Problems / Comments	BS Cat	Work Required (TS)	Priority (TS)	Work Required (AIA)	Priority (AIA)
On site		RPA (m²)	Aspect	Aspect	SULE	Ground Cover						
T007	Monterey Pine	680	17		Moderate	N6, E4.5, S3, W5	Storm damaged branches. Hanging broken branches. Truncated branches.	C2	Remove hanging branches.	2		
		8.16	0-2m		EM	Moderate						
Yes		209.2			10+ years	Grass						
T008	Lombardy Poplar	390	21		Moderate	N1.5, E1.5, S1.5, W1.5	1.5m to fence post.	C2	No work required.	4		
		4.68	0-2m		EM	High						
Yes		68.8			10+ years	Grass						
T009	Monterey Pine	770	19		Moderate	N4, E8.5, S6, W2	Asymmetric crown. Deadwood.	C2	No work required.	4		
		9.24	2.1-4m		M	Moderate						
Yes		268.2			10+ years	Grass						
T010	Monterey Pine	580	19		Moderate	N4, E9.5, S3.5, W2	Swept stem with bias to north. Bifurcates at approx 2m above ground level. Included bark. No natural bracing. Asymmetric crown.	C2	No work required.	4		
		6.96	4.1-6m		EM	Moderate						
Yes		152.2			10+ years	Grass						
T011	Monterey Pine	450	19		Moderate	N4.5, E3, S1.5, W1.5	Sub-dominant. Poor taper.	C2	No work required.	4		
		5.4	4.1-6m		EM	Moderate						
Yes		91.6			10+ years	Grass						
T012	Monterey Pine	450	17		Moderate	N1, E2, S2.5, W1.5	Swept stem to north. Sub-dominant. Poor taper.	C2	No work required.	4		
		5.4	4.1-6m		EM	Moderate						
Yes		91.6			10+ years	Grass						
T013	Monterey Pine	490	17		Moderate	N2, E2.5, S5, W6	Swept stem to north.	C2	No work required.	4		
		5.88	4.5		EM	Moderate						
Yes		108.6			10+ years	Grass						
T014	Monterey Pine	570	17		Moderate	N7.5, E3, S3, W7	Swept stem to east.	C2	No work required.	4		
		6.84	6.1-10m		EM	Moderate						
Yes		147			10+ years	Grass						

TreeNo	Species	DBH Min Dist	Height Crown Base	Visual Lowest Branch	Visual Age	Crown Spread Water Demand	Problems / Comments	BS Cat	Work Required (TS)	Priority (TS)	Work Required (AIA)	Priority (AIA)
On site		RPA (m²)	Aspect	Aspect	SULE	Ground Cover						
T015	Monterey Pine	520	17		Moderate	N3, E3, S3, W5	Swept stem to east. Bark wound on north east aspect at approximately 60cm above ground level. Vehicle tracking at base.	C2	No work required.	4		
		6.24	2.1-4m		EM	Moderate						
Yes		122.3			10+ years	Grass						
T016	Monterey Pine	620	17		Moderate	N7, E6, S4.5, W4	Swept stem to east. Hanging broken and truncated branches. Deadwood. 10m to fence.	C2	No work required.	4		
		7.44	2.1-4m		EM	Moderate						
Yes		173.9			10+ years	Grass						
T017	Monterey Pine	570	17		Moderate	N3, E5, S7, W3	Deadwood.	C2	No work required.	4		
		6.84	4.1-6m		EM	Moderate						
Yes		147			10+ years	Grass						
T018	Monterey Pine	610	17		Moderate	N2, E3.5, S7, W3	Mower damaged roots	C2	No work required.	4		
		7.32	4.1-6m		EM	Moderate						
Yes		168.3			10+ years	Grass						
T019	Monterey Pine	475	17		Moderate	N7, E3, S3, W5	Swept stem to east. Bifurcates at approximately 1.2m above ground level. 7.5m to fence.	C2	No work required.	4		
		5.7	2.1-4m		EM	Moderate						
Yes		102.1			10+ years	Grass						
T020	Monterey Pine	520	17		Moderate	N2.5, E2.5, S2.5, W2	Asymmetric crown.	C2	No work required.	4		
		6.24	4.1-6m		EM	Moderate						
Yes		122.3			10+ years	Grass						
T021	Monterey Pine	690	17		Moderate	N6.5, E7, S5, W3	Doglegged branches. 5m to fence.	B2	No work required.	4	Undertake linear root pruning, as shown on drawing no. 7921-D-AIA.	0
		8.28	0-2m		EM	Moderate						
Yes		215.4			20+ years	Grass						
T022	Monterey Pine	510	17		Moderate	N2.5, E5, S4, W4	Branches touching fence. 2.5m from fence.	C2	No work required.	4		
		6.12	0-2m		EM	Moderate						
Yes		117.7			10+ years	Grass						

Appendix C

Schedule of Works - Irrespective of Development

SCHEDULE OF WORK

Rustington Golf Centre, Golfers Lane, Angmering, West Sussex

Surveyed By: Liz Beckett

Surveyed: 16/01/2020

Managed By: Liz Beckett

Tree No.	Species	Work required	Priority
T007	Monterey Pine	Remove hanging branches.	2

Appendix D

Schedule of Works to Allow Development

SCHEDULE OF WORKS (AIA)

Rustington Golf Centre, Golfers Lane, Angmering, West Sussex

Surveyed By: Liz Beckett

Surveyed: 16/01/2020

Managed By: Liz Beckett

Tree No.	Species	Work required	Priority
G002	5x Hornbeam, 22x Monterey Pine, 2x Oak and 8x Poplar	Crown lift to 12m above ground level on western aspect, as shown on drawing no. 7921-D-AIA.	0
G007	9x Monterey Pine	Crown lift to 12m above ground level on eastern aspect, as shown on drawing no. 7921-D-AIA.	0
T021	Monterey Pine	Undertake linear root pruning, as shown on drawing no. 7921-D-AIA.	0

Appendix E

Explanatory Notes

Explanatory Notes



Categories

Below is an explanation of the categories used in the attached Tree Survey.

No Identifies the tree on the drawing.

Species Common names are given to aid understanding for the wider audience.

BS 5837 Main Category Using this assessment (BS 5837:2012, Table 1), trees can be divided into one of the following simplified categories, and are differentiated by cross-hatching and by colour on the attached drawing:

Category A - Those of high quality with an estimated remaining life expectancy of at least 40 years;

Category B - Those of moderate quality with an estimated remaining life expectancy of at least 20 years;

Category C - Those of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm;

Category U - Those trees in such condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.

BS 5837 Sub Category Table 1 of BS 5837:2012 also requires a sub category to be applied to the A, B, C, and U assessments. This allows for a further understanding of the determining classification as follows:

Sub Category 1 - Mainly arboricultural qualities;

Sub Category 2 - Mainly landscape qualities;

Sub Category 3 - Mainly cultural values, including conservation .

Please note that a specimen or landscape feature may fulfil the requirements of more than one Sub Category.

DBH (mm) Diameter of main stem in millimetres at 1.5 metres from ground level. Where the tree is a multi-stem, the diameter is calculated in accordance with item 4.6.1 of BS 5837:2012.

Age Recorded as one of seven categories:

Y Young. Recently planted or establishing tree that could be transplanted without specialist equipment, i.e. less than 150 mm DBH.

S/M Semi-mature. An established tree, but one which has not reached its prospective ultimate height.

E/M Early-mature. A tree that is reaching its ultimate potential height, whose growth rate is slowing down but if healthy, will still increase in stem diameter and crown spread.

M Mature. A mature specimen with limited potential for any significant increase in size, even if healthy.

O/M Over-mature. A senescent or moribund specimen with a limited safe useful life expectancy. Possibly also containing sufficient structural defects with attendant safety and/or duty of care implications.



D Dead.

Height	Recorded in metres, measured from the base of the tree.						
Crown Base	Recorded in metres, the distance from ground and aspect of the lowest branch material.						
Lowest Branch	Recorded in metres, the distance from ground and aspect of the emergence point of the lowest significant branch.						
Life Expectancy	Relates to the prospective life expectancy of the tree and is given as 4 categories: 1 = 40 years+; 2 = 20 years+; 3 = 10 years+; 4 = less than 10 years.						
Crown Spread	Indicates the radius of the crown from the base of the tree in each of the northern, eastern, southern and western aspects.						
Minimum Distance	This is a distance equal to 12 times the diameter of the tree measured at 1.5 metres above ground level for single stemmed trees and 12 times the average diameter of the tree measured at 1.5 metres above ground level tree for multi stemmed specimens. (BS 5837:2012, section 4.6).						
RPA	This is the Root Protection Area, measured in square metres and defined in BS5837:2012 as "a layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority". The RPA is shown on the drawing.. Ideally this is an area around the tree that must be kept clear of construction, level changes of construction operations. Some methods of construction can be carried out within the RPA of a retained tree but only if approved by the Local Planning Authority's tree officer.						
Water Demand	This gives the water demand of the species of tree when mature, as given in the NHBC Standards Chapter 4.2 "Building Near Trees".						
Visual Amenity	Concerns the planning and landscape contribution to the development site made by the tree, hedge or tree group, in terms of its amenity value and prominence on the skyline along with functional criteria such as the screening value, shelter provision and wildlife significance. The usual definitions are as follows: <table><tr><td>Low</td><td>An inconsequential landscape feature.</td></tr><tr><td>Moderate</td><td>Of some note within the immediate vicinity, but not significant in the wider context.</td></tr><tr><td>High</td><td>Item of high visual importance.</td></tr></table>	Low	An inconsequential landscape feature.	Moderate	Of some note within the immediate vicinity, but not significant in the wider context.	High	Item of high visual importance.
Low	An inconsequential landscape feature.						
Moderate	Of some note within the immediate vicinity, but not significant in the wider context.						
High	Item of high visual importance.						
Problems/ Comments	May include general comments about growth characteristic, how it is affected by other trees and any previous surgery work; also, specific problems such as deadwood, pests, diseases, broken limbs, etc.						
Work Required (TS)	Identifies the necessary tree work to mitigate anticipated problems and deal with existing problems identified in the "Problems/comments" category.						



**Work Required
(AIA)**

Identifies the tree work specifically necessary to allow a proposed development to proceed.

Priority

This gives a priority rating to each tree allowing the client to prioritise necessary tree works identified within the Tree Survey.

- 1** Urgent – works required immediately;
- 2** Works required within 6 months;
- 3** Works required within 1 year;
- 4** Re-inspect in 12 months,
- 0** Remedial works as part of implementation of planning consent.

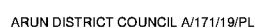


Access Facilitation Pruning	One-off tree pruning operation, the nature and effects of which are without significant adverse impact on tree physiology or amenity value, which is directly necessary to provide access for operations on site.
Arboricultural Method Statement	Methodology for the implementation 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.
Arboriculturist	Person who has, through relevant education, training and experience, gained expertise in the field of trees in relation to construction.
Competent Person	Person who has training and experience relevant to the matter being addressed and an understanding of the requirements of the particular task being approached. <i>NOTE - a competent person is expected to be able to advise on the best means by which the recommendations of this British Standard may be implemented.</i>
Construction	Site-based operations with the potential to affect existing trees.
Construction Exclusion Zone	Area based on the root protection area from which access is prohibited for the duration of a project.
Root Protection Area (RPA)	Layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority.
Service	Any above or below ground structure or apparatus required for utility provision. NOTE - examples include drainage, gas supplies, ground source heat pumps, CCTV and satellite communications.
Stem	Principal above ground structural component(s) of a tree that supports its branches.
Structure	Manufactured object, such as a building, carriageway, path, wall, service run, and built or excavated earthwork.
Tree Protection Plan	Scale drawing, informed by descriptive text where necessary, based upon the finalized proposals, showing trees for retention and illustrating the tree and landscape protection measures.
Veteran Tree	Tree that, by recognized criteria, shows features of biological, cultural or aesthetic value that are characteristic of, but not exclusive to, individuals surviving beyond the typical age range for the species concerned. NOTE - these characteristics might typically include a large girth, signs of crown retrenchment and hollowing of the stem.



Appendix F

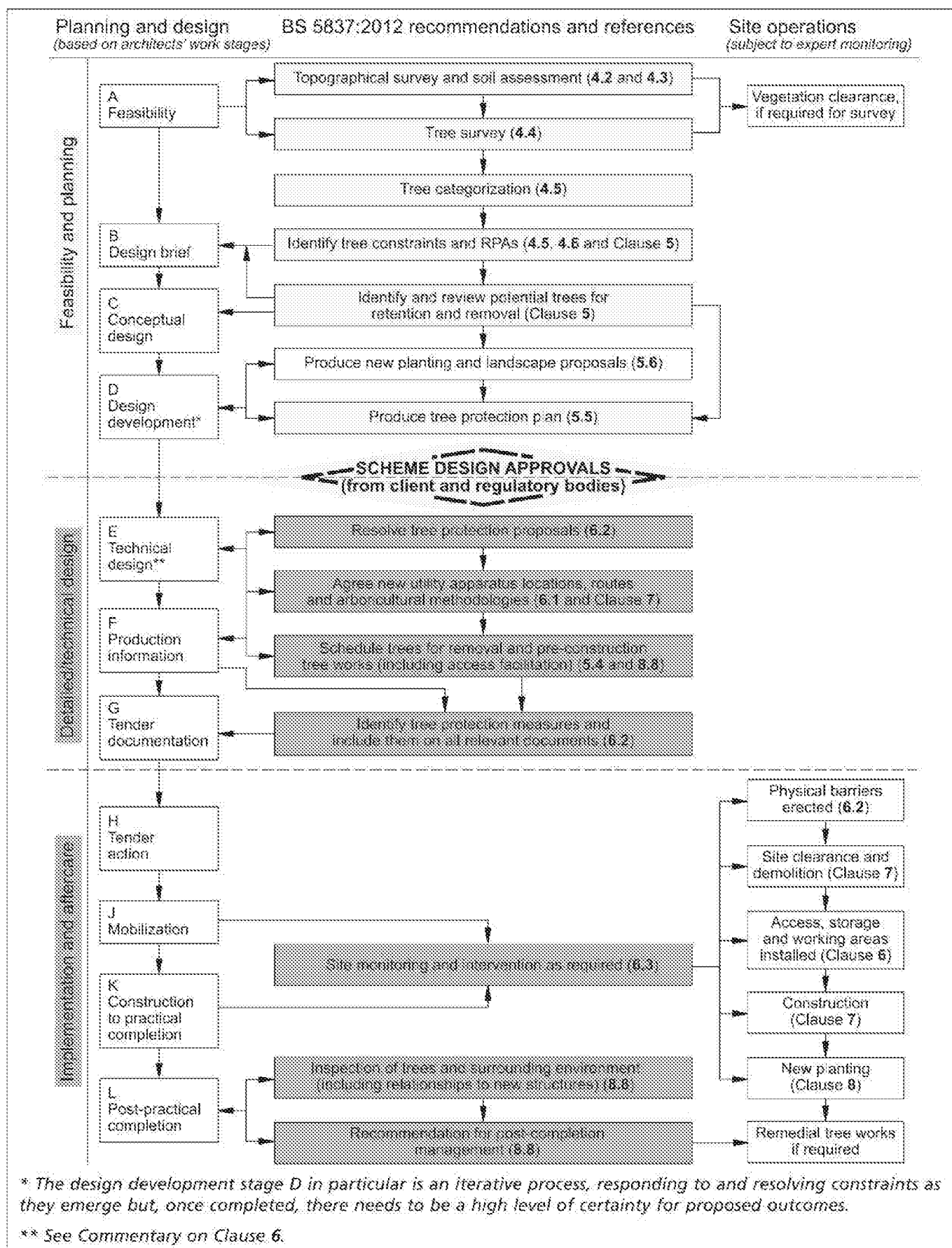
Tree Preservation Order Enquiry/Response



Appendix G

Advisory Information & Sample Specifications

1. BS 5837:2012 Figure 1 - Flow Chart – Design and Construction & Tree Care



European Protected Species and woodland operations. (V4)

Complete all sections of the Checklist

Checklist

1 Are you within, or close to, the known mapped range of any of the protected species OTHER THAN BATS which are potentially everywhere? Tick any that apply. See distribution maps in the Good Practice Guidance for each species –

YES
NO

☐ Dormice
☐ Otters
☐ Great crested newts
☐ Sand lizards
☐ Smooth snakes

2 Does your wood contain any of the following habitats? Tick any that apply.

YES
NO

☐ Old trees with holes and crevices which might be used by bats
☐ Species rich scrub/coppice, early growth stage plantations and forest interfaces
☐ Rivers on which otters might be found
☐ Ponds which might be occupied by great crested newts
☐ Open areas on healthy soils

3 Have any of the protected species been recorded in this wood or on adjoining sites? Tick any that apply. Indicate which sources of information you have checked:

YES
NO

☐ National Biodiversity Network (www.bbn.org.uk)
☐ Local Biological Records Centre
☐ Local Wildlife Trust
☐ Other
 Specify Other:

4 Have your inspections or any expert surveys found any of the following signs or evidence? Tick any that apply.

YES
NO

☐ Signs (e.g. otter spraint, nuts gnawed by dormice, leaves folded by newts)
☐ Sightings (or echo-location)
☐ Potential breeding or roosting sites (e.g. veteran trees, old trees with crevices, riverside hollow trees, ponds, timber stacks, large fallen deadwood)
☐ Confirmed breeding or roosting sites (i.e. evidence of sites actually being used)
 Details:

CHECK POINT

If you have answered NO to ALL of the above then only bats need to be considered in your operations.

If you have answered YES to any of the above then the species concerned must be considered as well as bats.

Details

Name of Wood:

Grid Reference:

--	--	--	--	--	--	--	--

Area: (ha)

--	--	--	--	--	--	--	--

Date of Assessment:

--	--	--	--	--	--	--	--

Name of Assessor:

Notes

5 Do the operations comply with Good Practice for bats and any other species found (or likely to be found in your wood) or can the operations be modified to do so? Details: Use reverse of form to expand as required.

YES
NO

A licence is not required but continue to sections 6 and 7 below
You will need to obtain a licence BEFORE carrying out the work (see EPS Licence Application Forms and Notes)

6 Whether or not a licence is required...
Has the information been communicated to operators (including the location of breeding sites and sensitive areas)? Tick any that apply.

YES
NO

☐ Included in documentation (e.g. contract, letter of instruction, site assessment or other management plan)
☐ Shown to operators and/or their supervisor
☐ Marked with paint or hazard tape
☐ Shown on the site plan
 Other means:

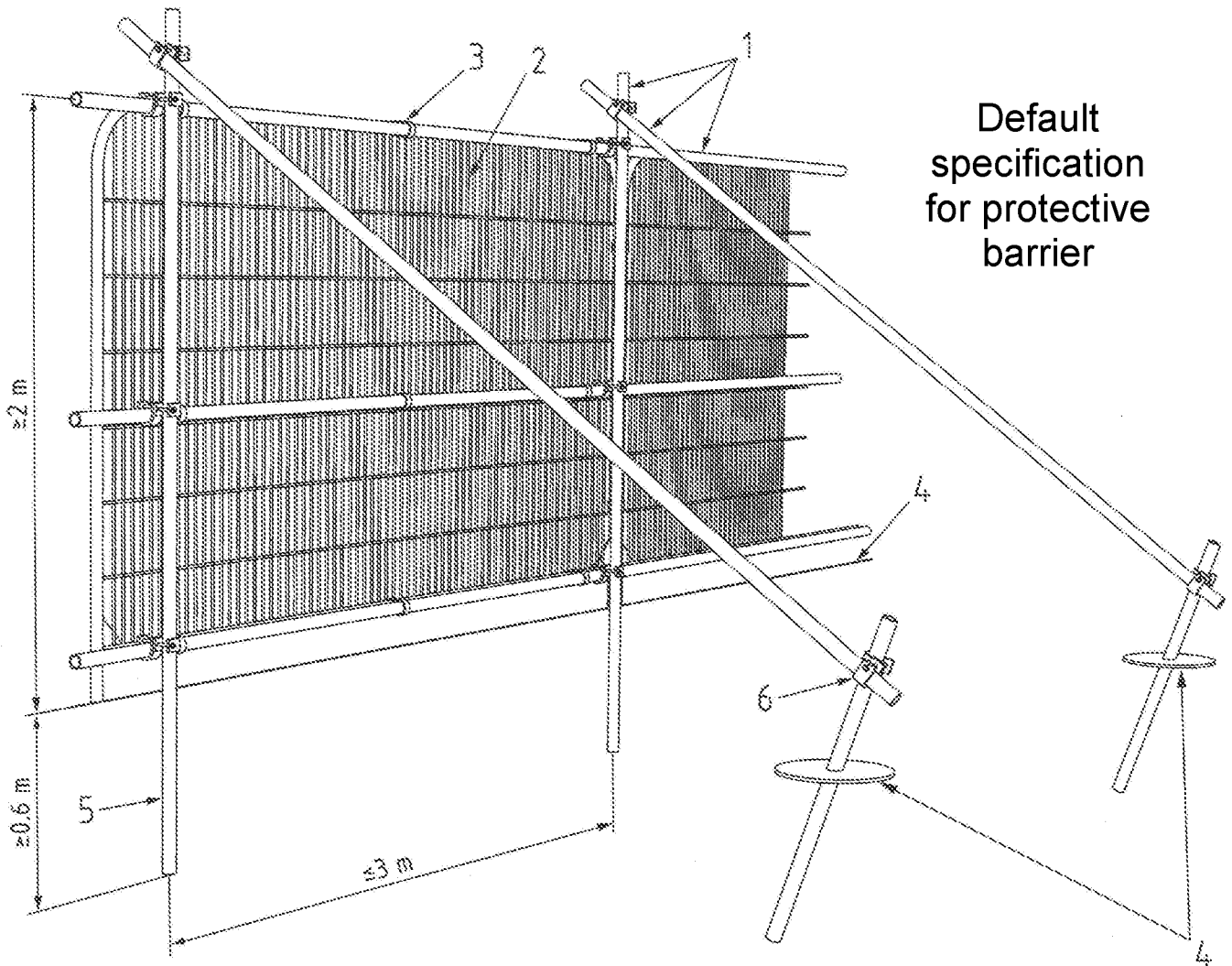
You may commit an offence if you do not tell your operators about the protected species in your wood.

7 Have arrangements for supervision been made to ensure Good Practice guidance is complied with during the operations? Details:

YES
NO

You may commit an offence if you do not take steps to ensure that your operators comply with the Good Practice guidance.

3. BS 5837:2012 Figure 2: Default specification for protective barrier

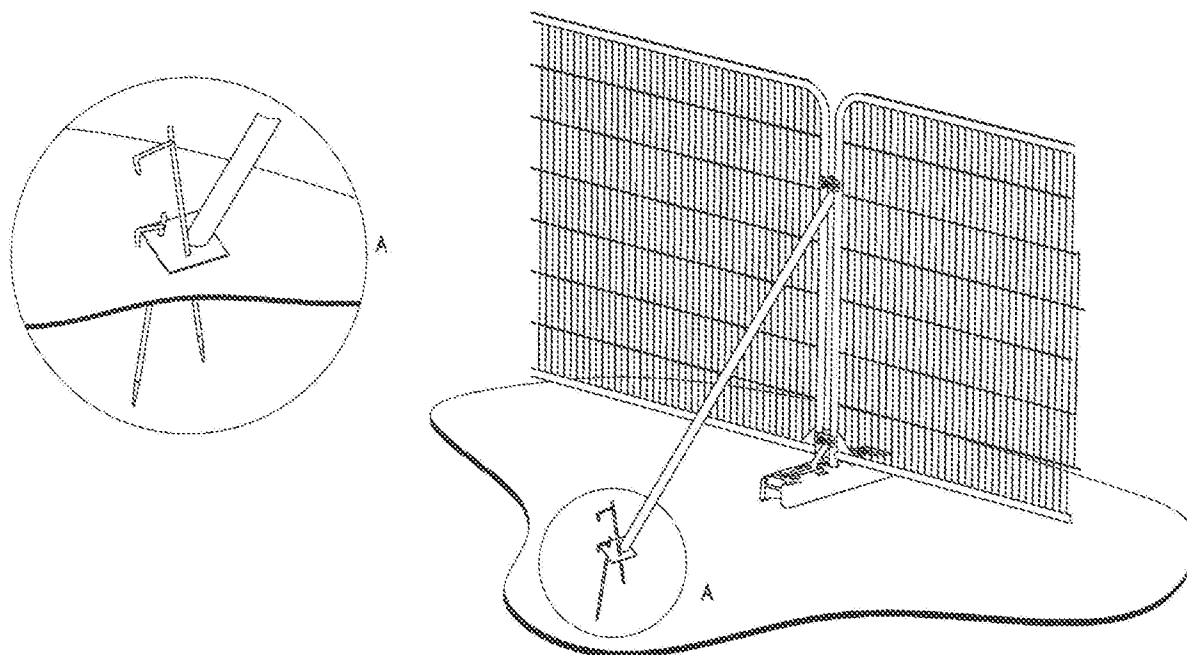


Default
specification
for protective
barrier

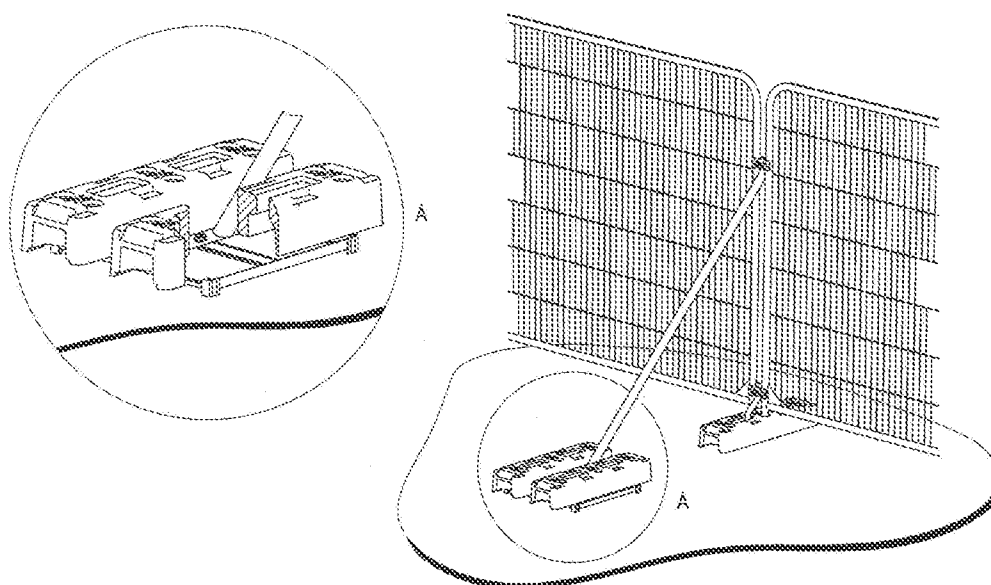
Key

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

4. BS 5837:2012 Figure 3: Examples of above-ground stabilizing systems

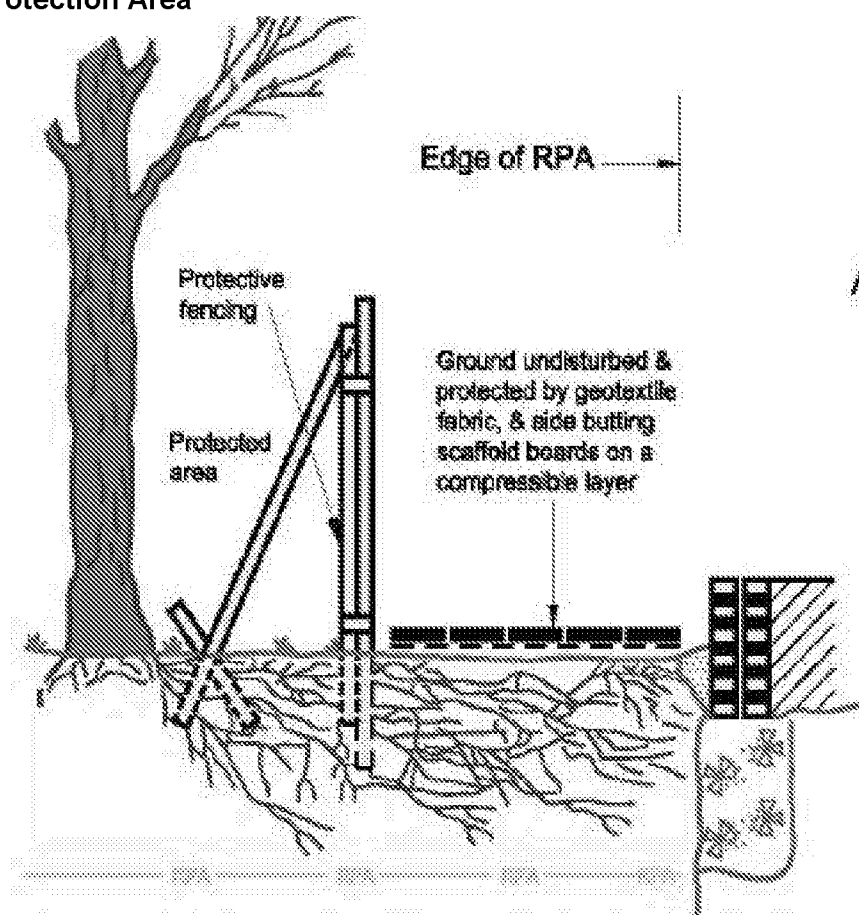


a) Stabilizer strut with base plate secured with ground pins



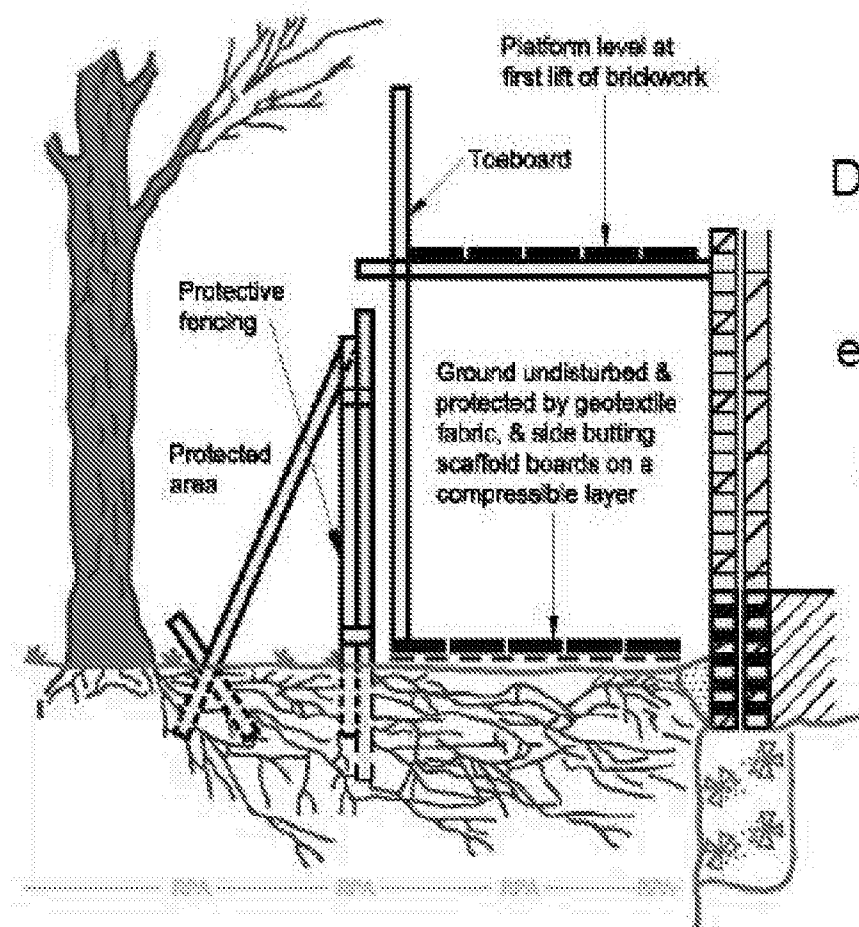
b) Stabilizer strut mounted on block tray

5. Figure 4 Detail of protective barrier where construction encroaches within BS5837:2012 Root Protection Area



Appendix No 2.1

Figure 4 –



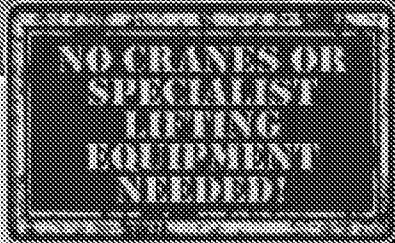
Detail of protective barrier where construction encroaches within BS 5837:2012 Root Protection Area (RPA)

6. MultiTrack Ground Guards Specification



MultiTrack

THE UNBREAKABLE ORIGINAL



RAPID INSTALLATION

Lay approximately
50 mats per hour *

TOUGH

Virtually indestructible HDPE
polymer supports all vehicle types.

EASY TO HANDLE

Lightweight 39kg mats easily
handleable with two workers.

MULTI-TREAD

Roadway, Walkway and Smooth tread
options cater for various vehicular and
pedestrian needs.

ENVIRONMENTALLY FRIENDLY

Made from 100% recycled
plastic and fully recyclable.

GUARANTEED UNBREAKABLE

Lifetime guarantee against breakage by
vehicles up to 120 tonnes (M&Cs apply).

***FAST, EASY, ECONOMICAL**
*Install approximately 50 mats
per hour with a team of
3 plus forklift driver.*

Ground-Guards®

MultiTrack

THE UNBREAKABLE ORIGINAL



Watch this short video to see MultiTrack in action.

Material: Special blend of HDPE recycled plastic, fully recyclable.

Overall Size: 2435 x 1215 x 13mm (plus tread)

Surface Area: 2.95m²

Weight: 39kg

Tread Options: Roadway, Walkway and Smooth, or a combination

Connectors: 10 joining points. A choice of standard clip joiners, low profile joiners or bolted joiners, plus anchor pins.

Packed In: Stillage of 25 mats

Stillage Pack: **Weight:** 1105kg
Dimensions: 2550 x 1260 x 900mm

Fire Rating: UL94 HB

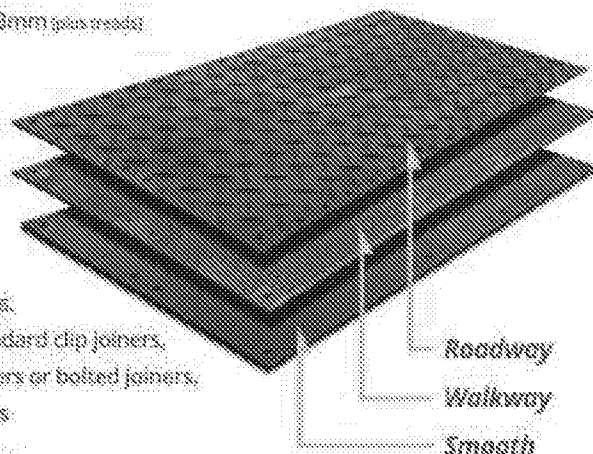
Slip Testing: BS7976 part 2

Deflection: Tested on varying CBR ground conditions using a 300mm diameter steel platen with 6 tonnes load to simulate the pressure of an HGV wheel

Ground CBR 11.35%: Deflection 17.68mm

Ground CBR 8.58%: Deflection 20.41mm

Ground CBR 4%: Deflection 22.00mm



Guarantee

MultiTrack temporary roadway mats are guaranteed for life against breakage up to 120 Tonnes UDL, (uniformly distributed loads).

It is the user's responsibility to assess the load-bearing capacity of the ground, and to only operate vehicles within the weight that the ground is capable of safely supporting. Ground Guards Ltd accepts no liability whatsoever for any damage, loss or injury arising from the ground conditions on which these products are used.

MultiTrack mats are not suitable for use for bridging purposes. Damage caused by mechanical equipment (e.g. ruts by digger buckets or sharp protrusions beneath the mats) is not covered by this guarantee.



Appendix H

Drawing no. 7921-D-AIA

Arboricultural Impact Assessments ●
Arboricultural Method Statements ●
Tree Constraints Plans ●
Arboricultural Feasibility Studies ●
Shade Analysis ●
Picus Tomography ●
Arboricultural Consultancy for Local Planning Authority ●
Quantified Tree Risk Assessment ●
Health & Safety Audits for Tree Stocks ●
Tree Stock Survey and Management ●
Mortgage and Insurance Reports ●
Subsidence Reports ●
Woodland Management Plans ●
Project Management ●
Ecological Surveys ●



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