

A303 Sparkford to Ilchester Dualling Scheme TR010036

6.3 Environmental Statement Appendix 7.1 Arboricultural Constraints Report

APFP Regulation 5(2)(a)
Planning Act 2008

Infrastructure Planning (Applications: Prescribed
Forms and Procedure) Regulations 2009
July 2018



Infrastructure Planning

Planning Act 2008

**The Infrastructure Planning
(Applications: Prescribed Forms
and Procedure) Regulations
2009**

**A303 Sparkford to Ilchester Dualling
Scheme**

Development Consent Order 201[X]

**6.3 Environmental Statement
Appendix 7.1 Arboricultural Constraints Report**

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Executive summary

Mott MacDonald Sweco Joint Venture has been appointed by Highways England to undertake an arboricultural survey as part of the A303 Sparkford to Ilchester Dualling scheme (hereafter referred to as 'the scheme'). The survey and associated report have been undertaken in accordance with *BS 5837:2012 Trees in relation to design, demolition, and construction – Recommendations*, which is intended to assist decision making with regard to the existing trees in the context of proposed development.

This survey is not, nor should be taken to be, a full or thorough assessment of the health and safety of trees on or adjacent to the site. Therefore, it is recommended that detailed tree inspections are undertaken on a regular basis, with the express purpose of complying with the land owner's duty of care and satisfying health and safety requirements.

There were 20 individual trees, 12 areas of woodland, 11 tree groups and 37 hedges surveyed associated with this scheme. The following tree retention categories were assigned:

- Category A, that is, trees of high quality – 2 individual trees
- Category B, that is, trees of moderate quality – 9 individual trees and 2 tree groups
- Category C, that is, trees of low quality – 5 individual trees, 12 areas of woodland, 12 tree groups and 37 hedges
- Category U, that is, trees to be removed for arboricultural reasons – 4 individual trees.

This arboricultural constraints report has concluded that the following reports are required:

- an Arboricultural Impact Assessment to identify, evaluate and possibly mitigate the extent of direct and indirect impacts on existing trees. The Arboricultural Impact Assessment is contained within Appendix 7.3 of Volume 6.3 and identifies the requirements for tree works (either felling or pruning) to facilitate construction of the scheme and temporary protective barrier to protect all trees to be retained during the construction works.
- an Arboricultural Method Statement to provide a methodology for implementation of any site layout that has the potential to result in loss or damage to a tree.

1 Introduction

1.1 Purpose of the report

- 1.1.1 This report aims to outline the tree constraints present within the red line boundary of the proposed A303 Sparkford to Ilchester Dualling scheme (hereafter referred to as 'the scheme'). This report categorises the trees on site, reviews the options for retaining these trees within the developed landscape, and provides a methodology for tree protection during construction.
- 1.1.2 This report has been produced to support the production of the Arboricultural Impact Assessment (Appendix 7.3, Volume 6.3) and Chapter 7 Landscape (Volume 6.1)

1.2 Scheme background

Existing corridor

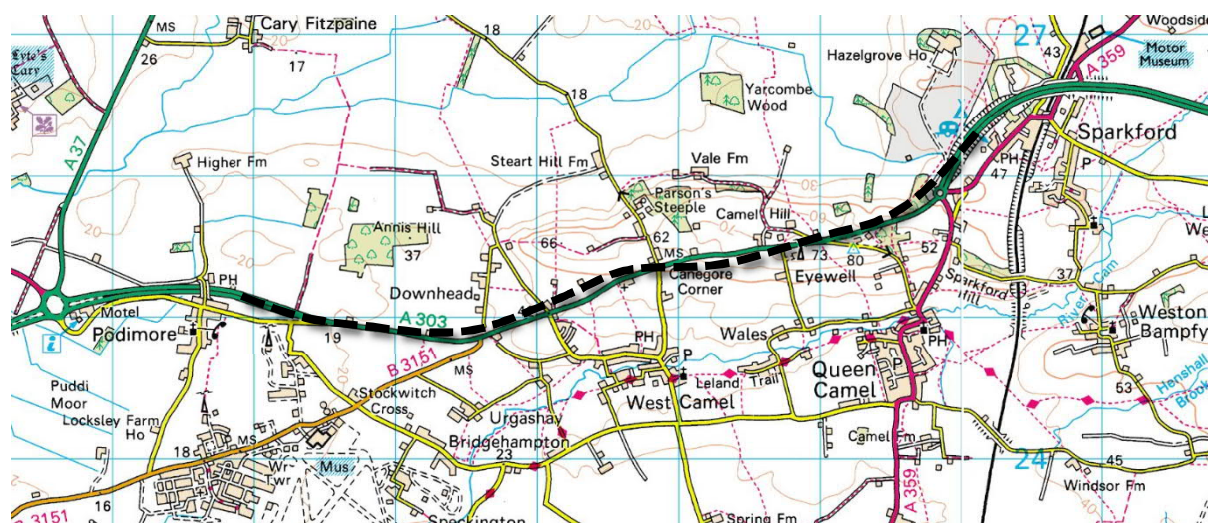
- 1.2.1 The A303 forms part of Highways England's Strategic Road Network (SRN) and a strategic link between the south west and the rest of the south, south-east and London. The route comprises multiple road standards, including dual carriageway, single carriageway and single carriageway sections with overtaking lanes. Speed limits also vary between 40 miles per hour and 70 miles per hour, depending on the character of the road and its surroundings.

Existing road

- 1.1.1 The section of the A303 that is being upgraded as part of this scheme commences at the eastern limits of the existing dual carriageway, the Podimore Bypass. Travelling east, the corridor reaches the junction with the B3151 before bearing north east and rising upwards through Canegore Corner to reach the crest of Camel Hill at Eyewell. This section of the corridor is characterised by a single lane road, with double white lines negating overtaking and subject to a 50 miles per hour speed limit. There are several priority junctions along the route giving access to the settlements of Queen Camel and West Camel to the south and Downhead to the north, as well as several farm accesses and parking laybys.
- 1.1.2 From the crest of Camel Hill, the corridor descends to meet the roundabout at the western limit of the dual carriageway Sparkford Bypass (Hazlegrove Roundabout). This section comprises 2 lanes in the westbound direction, 1 lane in the eastbound direction and is also subject to a 50 miles per hour speed limit. Hazlegrove Roundabout forms a junction between the A303 and the A359 which runs south through Queen Camel and north-east through Sparkford. The roundabout also provides access to a service station, and to a school at Hazlegrove House.
- 1.1.3 The section of the A303 that is to be upgraded is almost 3.5 miles, or approximately 5.6 kilometres long.

- 1.2.2 The extents of the scheme are illustrated in Figure 1.1 below. Figure 2.1 of Volume 6.2 shows the proposed red line boundary for the scheme

Figure 1.1: Scheme extents



Source: Mott MacDonald Sweco Joint Venture

Scheme proposals

- 1.2.3 The proposed scheme is to provide a continuous dual-carriageway linking the Podimore Bypass and the Sparkford Bypass. The scheme would involve the removal of at-grade junctions and direct accesses. The Hazlegrove Junction would be constructed to grade-separated standards and Downhead Junction and Camel Cross Junction would be constructed to compact grade-separated standards, as illustrated on Figure 2.3 General Arrangement Plans, contained in Volume 6.2.
- 1.2.4 A detailed description of the scheme is provided within Chapter 2 The Scheme of Volume 6.1.

1.3 Tree assessment methodology

- 1.3.1 The tree survey was carried out by a qualified arboriculturalist on the 17, 18, 24 and 25 January 2018 to assess the quality and value of the principal trees within or next to the scheme footprint.
- 1.3.2 The survey was undertaken in accordance with the guidelines set out in *BS 5837:2012 Trees in relation to design, demolition, and construction - Recommendations*¹. The tree data contained within the tree survey schedule (appendix A) was recorded by visual survey from ground level and no invasive tree inspection measures were employed.

¹ British Standards Institution (2012) *BS 5837:2012 Trees in relation to design, demolition, and construction. Recommendations*. BSI

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- 1.3.3 The survey process categorises the trees on site, selects those appropriate for retention, and reviews the options for incorporating these trees within the developed landscape. Where appropriate, and in accordance with BS5837:2012, trees are recorded as groups (for example G1), hedgerows (for example H1), and woodlands (for example W1).
- 1.3.4 The full tree survey schedule and categorisation of the trees in their existing context is stated in appendix A (to be read in conjunction with the key to tree survey schedule, appendix B). The root protection area (RPA) calculations are provided in appendix C.
- 1.3.5 In accordance with BS 5837:2012, the following information was recorded for each tree:
- Sequential reference number (to be recorded on the tree constraints plan)
 - Species listed by common name, with key provided to scientific name
 - Life stage recorded (see Table 1.1 below)
 - Height (metres)
 - Crown spread (metres), taken as a minimum at the four cardinal points, to derive an accurate representation of the crown (plotted on the tree constraints plans)
 - Existing height (metres) above ground level of:
 - first significant branch
 - canopy
 - Stem diameter (millimetres) in accordance with annex C of BS 5837:2012 (the stem diameters of single stemmed trees were measured at 1.5 metres above ground level and multi-stemmed trees measured in accordance with annex C)
 - The RPA calculated in accordance with section 4.6 of BS 5837:2012. The two measurements provided are a root protection radius (m) (circle centred on the base of the stem) and an overall root protection area (m²)
 - General observations, particularly of structural or physiological condition (for example the presence of any decay and physical defect), or preliminary management recommendations
 - Estimated remaining contribution, in years (<10, 10 +, 20+, 40+)
 - Retention category recorded as A, B, C, or U in accordance with BS 5837:2012 (see Table 1.2 below), to be recorded on the tree survey plan (appendix D). This gives an indication as to each tree's arboricultural, landscape and cultural value and significance, as well as its suitability for retention in the context of the proposed redevelopment of the site. The sub-categories (1 - Arboricultural values; 2 - Landscape values, and 3 - Cultural values, including conservation) are included where considered necessary to clarify why a tree has been assigned to a particular retention category. These categorisation criteria are summarised in Table 1.2 below:
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Table 1.1: Life Stage Categories

Abbreviation	Life Stage	Description
Y	Young	Trees aged less than 1st quarter of their life expectancy
SM	Semi Mature	Trees within 2nd quarter of their life expectancy
EM	Early mature	Trees within 3rd quarter of their life expectancy
M	Mature	Trees aged within final quarter of their life expectancy
OM	Over Mature	Over-mature - declining or moribund trees of low vigour
V	Veteran	Specimens exhibiting 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

Table 1.2: Retention categories

Category	Description
Category A	Trees of high quality and value whose retention is most desirable (suggested minimum contribution 40 years)
Category B	Trees of moderate quality and value whose retention is desirable if practicable (suggested minimum contribution 20 years)
Category C	Trees of low quality and value or limited long-term potential, which could be retained if not in conflict with development proposals or young trees with a stem diameter of less than 150mm (suggested minimum contribution 10 years)
Category U	Trees requiring removal irrespective of any development proposals due to significant structural defects, irreversible decline or with a very short-term life expectancy of less than 10 years

1.4 Limitations of survey

- 1.4.1 The survey was undertaken using the design presented in the general arrangement plans (see Figure 2.3, Volume 6.2).
- 1.4.2 Due to the roadside location of the majority of the trees within the red line boundary of the scheme, it was not always possible to survey trees in detail as safe access was not always available.
- 1.4.3 This report provides comment on the general quality of the trees on site but is not, nor should be taken to be, a full or thorough assessment of the health and safety of trees on or adjacent to the site. It is recommended that a full tree survey should be undertaken on a regular basis to satisfy health and safety requirements. Previous management or surveys in relation to the health and safety of trees on this site have not been taken into account as part of this report.
- 1.4.4 Distances were recorded using a standard 30 metre tape measure, where appropriate, and stem diameter was recorded using a diameter tape. Tree height was estimated to the nearest metre.

2 Tree summary

2.1 Summary of existing tree coverage

- 2.1.1 The trees surveyed for the scheme occur predominantly as even-aged, linear groups located next to the A303.
- 2.1.2 The trees on site range from young, recently planted trees through to mature and includes semi-mature trees and hedgerows.
- 2.1.3 The predominant tree species along the survey area include Ash (*Fraxinus excelsior*), Hawthorn (*Crataegus monogyna*), Oak (*Quercus robur*), Field Maple (*Acer campestre*), Sycamore (*Acer pseudoplatanus*), and Hazel (*Corylus avellana*).
- 2.1.4 The majority of the trees surveyed are of good health and offer good landscape value, screening the existing road from the surrounding areas.
- 2.1.5 At the eastern end of the scheme the landscape consists of large open areas of grassland and woodland. A number of old individual trees, predominately oak species, are scattered throughout the open areas of grassland. These trees are approaching the latter stages of their life and several have been recorded as veteran trees within records presented by Somerset Environmental Records Centre.
- 2.1.6 The majority of hedges on site are regularly maintained by land owners or local authority using a flail, which means they are kept very low and regulated.
- 2.1.7 Where there are hedges that have not been regularly flailed, native trees made up of Field Maple (*Acer campestre*), Common Ash (*Fraxinus excelsior*), English Elm (*Ulmus minor*), and Sycamore (*Acer pseudoplatanus*) have grown up through the hedge into young and semi mature trees.
- 2.1.8 Of the trees included in the survey, Table 2.1 provides a summary of their quality and value as assessed in accordance with BS 5837:2012.

Table 2.1: Summary of BS 5837:2012 tree categories assigned to the surveyed trees

Tree category	Description	Total number surveyed
Category A	Trees or groups of high quality and value	2 individual trees.
Category B	Trees or groups of moderate quality	9 individual trees and 2 tree groups.
Category C	Trees or groups of low quality	5 individual trees, 12 areas of woodland, 12 tree groups and 37 hedgerows.
Category U	Trees or groups for removal	4 individual trees.

2.2 Site photos

- 2.2.1 The following photographs (Figures 2.1 to 2.8) were taken during the site survey to supplement the information contained within the tree constraints plans (see appendix D).

Figure 2.1: Showing W1 looking east from Podimore bridge.



Figure 2.2: Showing W2 looking east from Podimore bridge.



Figure 2.3: Showing H6 a typical example of field boundary hedges throughout the site.



Figure 2.4: Showing G1 a group of young poplars planted along the field boundary with the A303.



Figure 2.5: Showing G3 facing west, young mixed native group.



Figure 2.6: Showing G4 at the rear of the Shell petrol garage, containing young – semi mature Sycamore and Ash.



Figure 2.7: Showing an Ash within G2 affected by bacterial infection (*pseudomona syringae*).



Figure 2.8: Showing T3 – T8 a group of mature Oak trees at the east end of the site alongside the east bound A303 carriageway.



3 Recommendations

- 3.1.1 The final design for the scheme must be undertaken in accordance with the following guidance detailed in this chapter.

3.2 Risk to trees from general construction activities

- 3.2.1 Trees can be easily damaged by construction processes, with both the tree roots and the main structure of a tree susceptible to a range of impacts. Root damage can affect the anchorage and stability of the tree, as well as preventing or inhibiting the absorption of water and nutrients. Damage to the trunk and branches leaves the tree more exposed to disease and decay.

- 3.2.2 Activities that can cause damage to tree roots include:

- trenches
- alterations in soil level
- non-porous surfaces
- compaction of soil
- changes in soil hydrology
- root exposure
- soil pollution (such as oil spill, incorrect application of herbicide or other chemicals)
- fires

- 3.2.3 Activities that can cause damage to tree trunks and branches include:

- pressure from materials stored against trunks
- physical impact from plant and equipment
- incorrect pruning
- exposure of bark or leaves to chemicals
- damage to bark from mowers and trimmers

- 3.2.4 Any works associated with the scheme that could affect the existing trees as described above must be discussed and approved by a qualified arboriculturalist prior to commencement.

3.3 Risk to trees from demolition of existing buildings

- 3.3.1 Trees can also be damaged during the demolition process of existing buildings and the removal of hard surfacing and other structures. It is important that protective barriers stay in place around trees during demolition. The removal of hard standings and other structures within the RPA should be carried out in accordance with the arboricultural method statement (AMS).

3.4 Root Protection Areas

- 3.4.1 Working in close proximity to a tree is likely to cause some root damage as approximately 80% of the roots of any tree will occur within the upper 600mm of the soil. Roots will spread out for a considerable distance from a tree and may be encountered at a distance beyond the canopy spread of a tree. Where construction activities are proposed within the rooting zone of trees, the potential for significant damage exists.
- 3.4.2 Section 4.6 of BS 5837:2012 prescribes a methodology for the calculation of a RPA. The RPA represents the minimum area that should remain undisturbed around a tree or trees for the avoidance of an unacceptable degree of root disturbance (BS 5837:2012 states the RPA should be capped at 707m² or 15 metre nominal radius). The required RPA of a tree is calculated, and typically plotted as a circle (or where appropriate, as a polygon of equivalent area) to determine constraints or the location of protective fencing. In certain circumstances, the actual shape of this area may then be adjusted to take account of local topography or any existing site features that may serve as restrictions to 'normal' root development.
- 3.4.3 The final design for the scheme should avoid excavation within the RPA of all retained trees. Any deviation in the RPA from the original circular plot should take into account the morphology and disposition of the roots when influenced by past or existing site conditions and the tolerance of the tree to root disturbance.
- 3.4.4 The RPA calculations are stated within appendix C.
- 3.4.5 For each instance where avoidance of the RPA is not possible, details of an appropriate works methodology and the protection measures necessary must be addressed within the AMS (see section 3.7). This could involve the use of temporary ground protection for the erection of scaffolding within the RPA.

3.5 Tree preservation orders (TPOs) and conservation areas

- 3.5.1 The primary measures which provide statutory protection to trees are TPOs and conservation area status. Where present, these measures determine that either notification to the local planning authority for conservation area designations, or consent from the local planning authority for TPO designations, is required for any works that may affect trees or tree groups.
- 3.5.2 Somerset County Council has confirmed that this site does not contain any trees protected by TPOs and does not have conservation area status.

3.6 Trees and wildlife

- 3.6.1 The Wildlife and Countryside Act 1981 (as amended), the Countryside Rights of Way Act 2000, and the Conservation of Habitats and Species Regulations 2010 provide statutory protection for birds, bats, dormice, reptiles, and other species that could be affected by tree works. Careful consideration should be given to the design of the scheme and the timing of any associated tree works to avoid impacting protected species.

3.7 Arboricultural Impact Assessment and Arboricultural Method Statement

- 3.7.1 As part of the final design process for the scheme it will be necessary for a qualified arboriculturalist to undertake:
- An Arboricultural Impact Assessment (AIA) to identify, evaluate and possibly mitigate the extent of direct and indirect impacts on existing trees. This is contained within Appendix 7.3, Volume 6.2, and includes identifying the requirements for tree works (either felling or pruning) to facilitate construction of the scheme and temporary protective fencing (refer to appendix E) to protect all trees to be retained during the construction works.
 - An Arboricultural Method Statement (AMS) to provide a methodology for implementation of any site layout that has the potential to result in loss or damage to a tree.

4 Conclusions

- 4.1.1 The survey area contains predominantly groups of young trees, areas of young woodland and field boundary hedges.
- 4.1.2 There are areas of woodland that will need to be removed to facilitate the scheme, however these areas have all been classed as Category C of low value.
- 4.1.3 A number of Category B trees are located adjacent to the entrance to Hazlegrove School at the eastern end of the scheme. These trees are all common oak (*Quercus robur*). These trees offer both arboricultural and landscape value to the area.
- 4.1.4 All the hedges on site are comprised of native species and form boundaries along field perimeters and between fields, and between fields and roads. These have been assessed as Category C, that is, trees of low quality.
- 4.1.5 Some of the groups of trees and woodlands form boundaries and screens between properties and the main A303 carriageway. These should be retained wherever possible, if retention is not possible, they should be replaced once the construction is complete. This has been taken into consideration through the development of the Environmental Masterplan (Figure 2.8, Volume 6.2) and within Chapter 7 Landscape of Volume 6.1.
- 4.1.6 The largest area of woodland to be removed to facilitate the scheme will be W8. This woodland area is made up of approximately 500 trees. The trees have been rated as Category C1 that is, of low arboricultural quality, however, they should be replaced if removed.

Appendix A: Tree survey schedule

Table A.1: Tree Survey Schedule

Tag no.	Tree type	Life stage	Height (m)	Crown spread (m)				1 st branch (m)	Crown height (m)				No. of stems	Stem diameter (m)	RPA		Conditions				BS 5837 category		Useful remaining contribution (years)	Comments
				N	E	S	W		N	E	S	W			RPA radius (m)	RPA (m ²)	Crown	Stem	Basal area	General physical	Category	Sub-category		
W1	Mixed woodland	Young	8-10	2	2	2	2	1.5	2	2	2	2	10+	250av	3av	28av	Fair	Fair	Fair	Fair	C	1	20>	Small area of young woodland containing Ash, Field maple, Sycamore.
W2	Mixed woodland	Young	8-10	2	2	2	2	2.0	2	2	2	2	10+	250av	3av	28av	Fair	Fair	Fair	Fair	C	1	20>	Small area of young woodland containing Ash, Field maple, Sycamore.
W3	Mixed woodland	Young	6-8	2	2	1.5	2	1	1.5	1.5	1.5	1.5	10+	100av	1.2av	5av	Fair	Fair	Fair	Fair	C	1	20>	Small area of recently planted woodland containing Field Maple, Hazel, Common cherry.
W4	Mixed woodland	Young	8-10	1.5	2	2	2	2	2	2	2	2	1	125av	1.5av	7av	Fair	Fair	Fair	Fair	C	1	20>	Small area of recently planted woodland containing Field Maple, Hazel, Common cherry.
W5	Mixed woodland	Semi – Mature	12-14	3	3	3	3	4	4	4	4	4	1	300av	3.6av	41av	Fair	Fair	Fair	Fair	C	1	20>	Area of low density native woodland including Ash, Hawthorn, Oak, willow, and Field Maple.
W6	Mixed woodland	Semi – Mature	12-14	3	3	3	3	3	3	3	3	3	1	300av	3.6av	41av	Fair	Fair	Fair	Fair	C	1	20>	Area of low density native woodland including Ash, Hawthorn, Oak, willow, and Field Maple.
W7	Mixed woodland	Semi – Mature	12-14	3	3	3	3	3	3	3	3	3	1	300av	3.6av	41av	Fair	Fair	Fair	Fair	C	1	20>	Area of low density native woodland including Ash, Hawthorn, Oak, willow, and Field Maple.
W8	Mixed woodland	Semi – Mature	12-14	3	3	3	3	3	3	3	3	3	1	300av	3.6av	41av	Fair	Fair	Fair	Fair	C	1	20>	The largest area of woodland on site, made up of approximately 500 trees including Ash, Hawthorn, Oak, willow, and Field Maple.
W9	Mixed woodland	Young	6-8	1	1	1	1	1	1	1	1	1	1	150av	1.8av	10av	Fair	Fair	Fair	Fair	C	1	20>	Small copse of very dense woodland made up of Hawthorn, Blackthorn, Ash, and Willow.
W10	Mixed woodland	Young	6-8	1	1	1	1	1	1	1	1	1	1	150av	1.8av	10av	Fair	Fair	Fair	Fair	C	1	20>	Area of woodland alongside the carriageway. Very dense with a thick understorey of bramble and undergrowth. Trees include, Cherry, Ash, Sycamore, Field maple and Hazel.
W11	Mixed woodland	Young	6-8	1	1	1	1	1	1	1	1	1	1	150av	1.8av	10av	Fair	Fair	Fair	Fair	C	1	20>	Area of recently planted landscape trees at the junction of the A303 and the Sparkford roundabout. Trees include, Cherry, Ash, Sycamore, Field maple Hazel and Pine.
W12	Mixed woodland	Semi – Mature	12-14	3	3	3	3	3	3	3	3	3	1	300av	3.6av	41av	Fair	Fair	Fair	Fair	C	1	20>	An area of semi mature native woodland. Not surveyed in detail as redline boundary

Tag no.	Tree type	Life stage	Height (m)	Crown spread (m)				Crown height (m)				No. of stems	Stem diameter (m)	RPA			Conditions				BS 5837 category		Useful remaining contribution (years)	Comments
				N	E	S	W	1 st branch (m)	N	E	S			W	RPA radius (m)	RPA (m ²)	Crown	Stem	Basal area	General physical	Category	Sub-category		
																								amended after the site survey.
G1	Poplar	Young	8	2	2	2	2	2	2	2	2	2	20	150av	1.8av	10av	Fair	Fair	Fair	Fair	C	1	20>	A group of approximately 20 young Poplars planted parallel to the A303 within the adjacent field boundary.
G2	Ash	Young	8-10	3	3	3	3	3	2	2	2	2	10+	250	3av	28av	Fair	Fair	Fair	Fair	C	1	20>	Area sparsely populated area of Ash trees along the grass verge.
G3	Mixed native	Young	5-6	1	1	1	1	1	0	0	0	0	10+	250	3av	28av	Fair	Fair	Fair	Fair	C	1	20>	An area of coppiced Hazel planted next to the entrance / exit to Hazlegrove school. Area also includes some self-set Ash trees.
G4	Mixed Species	Young	6-8	1	1	1	1	0	0	0	0	0	1	100av	1.2av	5av	Fair	Fair	Fair	Fair	C	1	20>	Small group of young trees and shrubs including Ash, Sycamore and Cherry.
G5	Lawson Cypress	Semi Mature	14	1	1	1	1	0	0	0	0	0	1	200av	1.8av	10av	Fair	Fair	Fair	Fair	C	1	20>	A group of closely planted Lawson Cypress providing screening from the road.
G6	Ash / Sycamore	Semi Mature	10-12	2	2	2	2	2	2	2	2	2	1	150av	1.8av	10av	Fair	Fair	Fair	Fair	C	1	20>	A group of semi mature Ash and Sycamore planted along a linear boundary
G7	Ash / Sycamore	Semi Mature	12-14	2	2	2	2	2	2	2	2	2	1	200av	1.8av	10av	Fair	Fair	Fair	Fair	B	1	20>	A group of semi mature Ash and Sycamore, these are sporadic and thinly planted within a field / MOD area.
G8	Mixed Species	Semi Mature	10-12	2	2	2	2	2	2	2	2	2	1	200av	1.8av	10av	Fair	Fair	Fair	Fair	B	1	20>	A group of trees and hedgerow including Hawthorn, Ash and Sycamore, bordering the current A303 and providing screening to the adjacent property.
G9	Mixed Species	Young	4	1	1	1	1	0	0	0	0	0	1	100av	1.2av	5av	Fair	Fair	Fair	Fair	C	1	20>	A mixed group of highway planting including Hawthorn, Hazel and Ash.
G10	Mixed Species	Young	4	1	1	1	1	0	0	0	0	0	1	100av	1.2av	5av	Fair	Fair	Fair	Fair	C	1	20>	A group of mixed trees
G11	Mixed Species	Semi Mature	10-12	2	2	2	2	2	2	2	2	2	1	200av	1.8av	10av	Fair	Fair	Fair	Fair	C	1	20>	A group of trees and hedgerow including Hawthorn, Ash and Sycamore, growing along and providing a field boundary.
G12	Mixed Species	Semi Mature	10-12	2	2	2	2	2	2	2	2	2	1	200av	1.8av	10av	Fair	Fair	Fair	Fair	C	1	20>	A group of trees and hedgerow including Hawthorn, Ash and Sycamore, growing along and providing a field boundary.

Tag no.	Tree type	Life stage	Height (m)	Crown spread (m)				Crown height (m)				No. of stems	Stem diameter (m)	RPA			Conditions				BS 5837 category		Useful remaining contribution (years)	Comments
				N	E	S	W	1 st branch (m)	N	E	S			W	RPA radius (m)	RPA (m ²)	Crown	Stem	Basal area	General physical	Category	Sub-category		
G13	Mixed Species	Semi Mature	10-12	2	2	2	2	2	2	2	2	2	1	200av	1.8av	10av	Fair	Fair	Fair	Fair	C	1	20>	A group of trees and hedgerow including Hawthorn, Ash and Sycamore, growing along and providing a field boundary.
G14	Mixed Species	Semi Mature	10-12	2	2	2	2	2	2	2	2	2	1	200av	1.8av	10av	Fair	Fair	Fair	Fair	C	1	20>	A group of semi mature trees including Apple, Ash and Oak.
H1	Native hedge	Young	2	1	1	1	1	1	0	0	0	0	10+	80av	1av	3av	Fair	Fair	Fair	Fair	C	1	20>	Sparsely planted hedgerow made up of mainly Hawthorn, Ash, and Field Maple.
H2	Native hedge	Young	1.5	1	1	1	1	1	0	0	0	0	10+	80av	1av	3av	Fair	Fair	Fair	Fair	C	1	20>	Native hedge, creating a field boundary. Occasional young native trees growing from the hedge including Hawthorn, Ash, and Field maple.
H3	Native hedge	Young	1.5	2	2	2	2	2	0	0	0	0	10+	80av	1av	3av	Fair	Fair	Fair	Fair	C	1	20>	Native hedge, non-continuous with regular gaps, made up of Hawthorn, Ash, and Field maple.
H4	Native hedge	Young	4-5	1	1	1	1	1	0	0	0	0	10+	100av	1av	3av	Fair	Fair	Fair	Fair	C	1	20>	Native hedge of mixed species including Hawthorn, Ash, Field maple and Elm of which many are standing dead trees.
H5	Native hedge	Young / semi-mature	7-8	2	2	2	2	2	0.5	0.5	0.5	0.5	10+	100-150av	1.8av	10av	Fair	Fair	Fair	Fair	C	1	20>	Well established native hedgerow, some semi-mature Ash & Sycamore growing within it.
H6	Native hedge	Young	2	1	1	1	1	1	0	0	0	0	10+	80av	1av	3av	Fair	Fair	Fair	Fair	C	1	20>	Native hedge mainly Hawthorn with some young Ash and Field maple growing from it.
H7	Native hedge	Young	2	1	1	1	1	1	0	0	0	0	10+	80av	1av	3av	Fair	Fair	Fair	Fair	C	1	20>	Native hedge mainly Hawthorn with some young Ash and Field maple growing from it.
H8	Native hedge	Young	2	1	1	1	1	1	0	0	0	0	10+	80av	1av	3av	Fair	Fair	Fair	Fair	C	1	20>	Native hedge mainly Hawthorn with some young Ash and Field maple growing from it.
H9	Native hedge	Young	2	1	1	1	1	1	0	0	0	0	10+	80av	1av	3av	Fair	Fair	Fair	Fair	C	1	20>	Native hedge mainly Hawthorn with some young Ash and Field maple growing from it.
H10	Native hedge	Young	2	1	1	1	1	1	0	0	0	0	10+	80av	1av	3av	Fair	Fair	Fair	Fair	C	1	20>	Native hedge mainly Hawthorn with some young Ash and Field maple growing from it.
H11	Native hedge	Young	2	1	1	1	1	1	0	0	0	0	10+	80av	1av	3av	Fair	Fair	Fair	Fair	C	1	20>	Native hedge regularly maintained using a flail

Tag no.	Tree type	Life stage	Height (m)	Crown spread (m)				Crown height (m)				No. of stems	Stem diameter (m)	RPA		Conditions				BS 5837 category		Useful remaining contribution (years)	Comments	
				N	E	S	W	1 st branch (m)	N	E	S			W	RPA radius (m)	RPA (m ²)	Crown	Stem	Basal area	General physical	Category			Sub-category
																								top and sides. mainly Hawthorn with some young Ash and Field maple growing from it.
H12	Native hedge	Young	2	1	1	1	1	1	0	0	0	0	10+	80av	1av	3av	Fair	Fair	Fair	Fair	C	1	20>	Native hedge regularly maintained using a flail top and sides. mainly Hawthorn with some young Ash and Field maple growing from it.
H13	Native hedge	Young	2	1	1	1	1	1	0	0	0	0	10+	80av	1av	3av	Fair	Fair	Fair	Fair	C	1	20>	Native hedge mainly Hawthorn with some young Ash and Field maple growing from it.
H14	Native hedge	Young	2	1	1	1	1	1	0	0	0	0	10+	80av	1av	3av	Fair	Fair	Fair	Fair	C	1	20>	Area of sporadic native hedge mainly made up of hawthorn.
H15	Native hedge	Young	2	1	1	1	1	1	0	0	0	0	10+	80av	1av	3av	Fair	Fair	Fair	Fair	C	1	20>	Native hedge mainly Hawthorn regularly maintained to a low height with the occasional tree left to grow taller.
H16	Native hedge	Young	2	1	1	1	1	1	0	0	0	0	10+	80av	1av	3av	Fair	Fair	Fair	Fair	C	1	20+	Native hedge mainly Hawthorn regularly maintained to a low height.
H17	Native hedge	Young	2	1	1	1	1	1	0	0	0	0	10+	80av	1av	3av	Fair	Fair	Fair	Fair	C	1	20+	Native hedge mainly Hawthorn regularly maintained to a low height.
H18	Native hedge	Young	2	1	1	1	1	1	0	0	0	0	10+	80av	1av	3av	Fair	Fair	Fair	Fair	C	1	20+	Native hedge mainly Hawthorn with some young Ash and Field maple growing from it.
H19	Native hedge	Young	8	3	3	3	3	3	0	0	0	0	10+	150av	1.8av	10av	Fair	Fair	Fair	Fair	C	1	20+	Well established native hedgerow, some semi-mature Ash & Sycamore growing within it.
H20	Native hedge	Young	8	3	3	3	3	3	0	0	0	0	10+	150av	1.8av	10av	Fair	Fair	Fair	Fair	C	1	20+	Well established native hedge row with some semi-mature Ash and Sycamore growing within it.
H21	Native hedge	Young	2	1	1	1	1	1	0	0	0	0	10+	80av	1av	3av	Fair	Fair	Fair	Fair	C	1	20+	Native hedge mainly Hawthorn with some young Ash and Field maple growing from it.
H22	Native hedge	Young	2	1	1	1	1	1	0	0	0	0	10+	80av	1av	3av	Fair	Fair	Fair	Fair	C	1	20+	Native hedge mainly Hawthorn with some young Ash and Field maple growing from it.
H23	Native hedge	Young	2	1	1	1	1	1	0	0	0	0	10+	80av	1av	3av	Fair	Fair	Fair	Fair	C	1	20+	Native hedge mainly Hawthorn with some young Ash and Field maple growing from it.

Tag no.	Tree type	Life stage	Height (m)	Crown spread (m)				Crown height (m)				No. of stems	Stem diameter (m)	RPA		Conditions				BS 5837 category		Useful remaining contribution (years)	Comments	
				N	E	S	W	1 st branch (m)	N	E	S			W	RPA radius (m)	RPA (m ²)	Crown	Stem	Basal area	General physical	Category			Sub-category
H24	Native hedge	Young	8	3	3	3	3	3	0	0	0	0	10+	150av	1.8av	10av	Fair	Fair	Fair	Fair	C	1	20+	Well established native hedgerow, some semi-mature Ash & Sycamore growing within it.
H25	Native hedge	Young	8	3	3	3	3	3	0	0	0	0	10+	150av	1.8av	10av	Fair	Fair	Fair	Fair	C	1	20+	Well established native hedgerow, some semi-mature Ash & Sycamore growing within it.
H26	Native hedge	Young / semi-mature	6-10	3	3	3	3	3	1	1	1	1	10+	150av	1.8av	10av	Fair	Fair	Fair	Fair	C	1	20+	Well established native hedge row with some semi-mature Ash and Sycamore growing within it. This hedge is not regularly maintained so is denser and more natural than most hedging surveyed on site.
H27	Native hedge	Young	6	2	2	2	2	2	1	1	1	1	10+	150av	1.8av	10av	Fair	Fair	Fair	Fair	C	1	20+	Well established native hedge row with some semi-mature Ash and Sycamore growing within it. Also contains a lot of dead Elm trees.
H28	Native hedge	Young	8	3	3	3	3	3	0	0	0	0	10+	150av	1.8av	10av	Fair	Fair	Fair	Fair	C	1	20+	Well established native hedge row, some semi-mature Ash & Sycamore growing within it.
H29	Native hedge	Young / semi-mature	6-10	3	3	3	3	3	1	1	1	1	10+	150av	1.8av	10av	Fair	Fair	Fair	Fair	C	1	20+	Well established native hedge row with some semi-mature Ash and Sycamore growing within it. This hedge is not regularly maintained so is denser and more natural than most hedging surveyed on site.
H30	Native hedge	Young / semi-mature	8	3	3	3	3	3	0	0	0	0	10+	150av	1.8av	10av	Fair	Fair	Fair	Fair	C	1	20+	Well established native hedgerow, some semi-mature Ash & Sycamore growing within it.
H31	Native hedge	Young	6-7	2	2	2	2	2	1	1	1	1	10+	100-150av	1.8av	10av	Fair	Fair	Fair	Fair	C	1	20+	Area of hedge made up of planted native trees including Hazel, Hawthorn, Silver Birch, Field maple and Blackthorn.
H32	Native hedge	Young	2	1	1	1	1	1	0	0	0	0	10+	80av	1av	3av	Fair	Fair	Fair	Fair	C	1	20+	Native hedge mainly Hawthorn with some young Ash and Field maple growing from it.
H33	Native hedge	Young	2	1	1	1	1	1	0	0	0	0	10+	80av	1av	3av	Fair	Fair	Fair	Fair	C	1	20+	Native hedge mainly Hawthorn with some young Ash and Field maple growing from it.
H34	Native hedge	Young	2	1	1	1	1	1	0	0	0	0	10+	80av	1av	3av	Fair	Fair	Fair	Fair	C	1	20+	Native hedge mainly Hawthorn, some young Ash growing from it.

Tag no.	Tree type	Life stage	Height (m)	Crown spread (m)				Crown height (m)				No. of stems	Stem diameter (m)	RPA		Conditions				BS 5837 category		Useful remaining contribution (years)	Comments	
				N	E	S	W	1 st branch (m)	N	E	S			W	RPA radius (m)	RPA (m ²)	Crown	Stem	Basal area	General physical	Category			Sub-category
H35	Native hedge	Young	2	1	1	1	1	1	0	0	0	0	10+	80av	1av	3av	Fair	Fair	Fair	Fair	C	1	20+	Native hedge mainly Hawthorn with some young Ash and Field maple growing from it. Not regularly maintained like others in the area.
H36	Native hedge	Young	2	1	1	1	1	1	0	0	0	0	10+	80av	1av	3av	Fair	Fair	Fair	Fair	C	1	20+	Field boundary native hedge, hawthorn with some young Ash, Sycamore and Field maple growing from it.
H37	Native hedge	Young	1.5	2	2	2	2	2	0	0	0	0	10+	80av	1av	3av	Fair	Fair	Fair	Fair	C	1	20>	Native hedge, non-continuous with regular gaps, made up of Hawthorn, Ash, and Field maple.
1	Ash	Semi-mature	6-8	2	2	2	2	2	3	3	3	3	1	370	4.4	62	Poor	Poor	Poor	Poor	U	n/a	<10	Ash tree heavily infected by <i>pseudomonas syringae</i> causing bacterial canker of Ash, tree in terminal decline.
2	Sycamore	Young	6-8	2	2	2	2	2	3	3	3	3	2	260 / 280	4.6	66	Poor	Poor	Poor	Poor	U	n/a	<10	Sycamore tree heavily infected by <i>pseudomonas syringae</i> , tree in terminal decline.
3	Oak	Mature	12	6	4	4	4	2	2	2	2	2	1	900	10.8	366	Good	Good	Good	Good	B	1	40+	Large mature Oak tree, planted in a group of 6.
4	Oak	Mature	18	12	8	8	8	1	1	1	1	1	1	1400	16.8	887	Good	Good	Good	Good	B	1	40+	Large mature Oak tree, planted in a group of 6.
5	Oak	Mature	12	5	5	5	5	2	2	2	2	2	1	900	10.8	366	Good	Good	Good	Good	B	1	40+	Large mature Oak tree, planted in a group of 6.
6	Oak	Mature	18	5	5	5	5	2	2	2	2	2	1	1100	13.2	547	Good	Good	Good	Good	B	1	40+	Large mature Oak tree, planted in a group of 6.
7	Oak	Mature	8	0	0	0	0	0	0	0	0	0	1	900	10.8	366	Poor	Poor	Poor	Poor	U	n/a	n/a	Dead, standing monolith. All branches removed.
8	Oak	Mature	16	3	3	3	3	2	2	2	2	2	1	900	10.8	366	Good	Good	Good	Good	B	1	40+	Large mature Oak tree, planted in a group of 6.
9	Oak	Dead	10	6	6	6	6	3	3	3	3	3	1	600	7.2	163	Dead	Dead	Dead	Dead	U	n/a	<10	Large dead oak tree, high ecological value.
10	Oak	Mature	15	7	7	6	7	3	3	3	3	3	1	400	4.8	72	Fair	Fair	Fair	Fair	B	1	20+	
11	Oak	Young	5-10	2	2	2	2	2	2	2	2	2	1	250	3.0	28	Fair	Fair	Fair	Fair	C	1	20+	
12	Oak	Over mature	15	5	6	6	6	3	3	3	3	3	1	1000	12.0	452	Good	Good	Good	Good	A	1	40+	Recorded as veteran within SERC data.
13	Oak	Over mature	15	7	7	6	7	3	3	3	3	3	1	1000	12.0	452	Good	Good	Good	Good	A	1	40+	Recorded as veteran within SERC data.
14	Oak	Over mature	15	6	5	6	6	3	3	3	3	3	1	1000	12.0	452	Good	Good	Good	Good	C	1	40+	
15	Oak	Over mature	15	6	5	6	5	3	3	3	3	3	1	1000	12.0	452	Good	Good	Good	Good	B	1	40+	Recorded as veteran within SERC data.
16	Oak	Over mature	15	5	6	6	6	3	3	3	3	3	1	1000	12.0	452	Good	Good	Good	Good	B	1	40+	Recorded as veteran within SERC data.

Tag no.	Tree type	Life stage	Height (m)	Crown spread (m)				1 st branch (m)	Crown height (m)				No. of stems	Stem diameter (m)	RPA		Conditions				BS 5837 category		Useful remaining contribution (years)	Comments
				N	E	S	W		N	E	S	W			RPA radius (m)	RPA (m ²)	Crown	Stem	Basal area	General physical	Category	Sub-category		
17	Oak	Young	5-10	3	3	3	3	2	3	3	3	3	1	350	4.2	55	Good	Good	Good	Good	C	1	20+	
18	Oak	Mature	15	7	7	7	7	3	3	3	3	3	1	800	9.6	290	Good	Good	Good	Good	B	1	40+	
19	Sweet Chestnut	Semi Mature	8	5	5	5	5	5	0	0	0	0	1	600	7.2	163	Good	Good	Good	Good	C	1	40+	Sweet Chestnut situated on the current roundabout.
20	Sweet Chestnut	Semi Mature	8	5	5	5	5	5	0	0	0	0	1	600	7.2	163	Good	Good	Good	Good	C	1	40+	Sweet Chestnut situated on the current roundabout.

Appendix B: Key to tree survey schedule

Tree reference	Species	Stem diameter (mm)	RPA circle radius (m)	RPA (m ²)
H12	Native hedge	80av	1av	3av
H13	Native hedge	80av	1av	3av
H14	Native hedge	80av	1av	3av
H15	Native hedge	80av	1av	3av
H16	Native hedge	80av	1av	3av
H17	Native hedge	80av	1av	3av
H18	Native hedge	80av	1av	3av
H19	Native hedge	150av	1.8av	10av
H20	Native hedge	150av	1.8av	10av
H21	Native hedge	80av	1av	3av
H22	Native hedge	80av	1av	3av
H23	Native hedge	80av	1av	3av
H24	Native hedge	150av	1.8av	10av
H25	Native hedge	150av	1.8av	10av
H26	Native hedge	150av	1.8av	10av
H27	Native hedge	150av	1.8av	10av
H28	Native hedge	150av	1.8av	10av
H29	Native hedge	150av	1.8av	10av
H30	Native hedge	150av	1.8av	10av
H31	Native hedge	100-150	1.2-1.8av	5-10av
H32	Native hedge	150av	1.8av	10av
H33	Native hedge	80av	1av	3av
H34	Native hedge	80av	1av	3av
H35	Native hedge	80av	1av	3av
H36	Native hedge	80av	1av	3av
H37	Native hedge	80av	1av	3av
1	Ash	370	4.4	62
2	Ash	260 / 280	4.6	66
3	Oak	900	10.8	366
4	Oak	1400	16.8	887
5	Oak	900	10.8	366
6	Oak	1100	13.2	547
7	Oak	900	10.8	366
8	Oak	900	10.8	366
9	Oak	600	7.2	163
10	Oak	400	4.8	72
11	Oak	250	3.0	28
12	Oak	1000	12.0	452
13	Oak	1000	12.0	452

Appendix C: Root protection areas

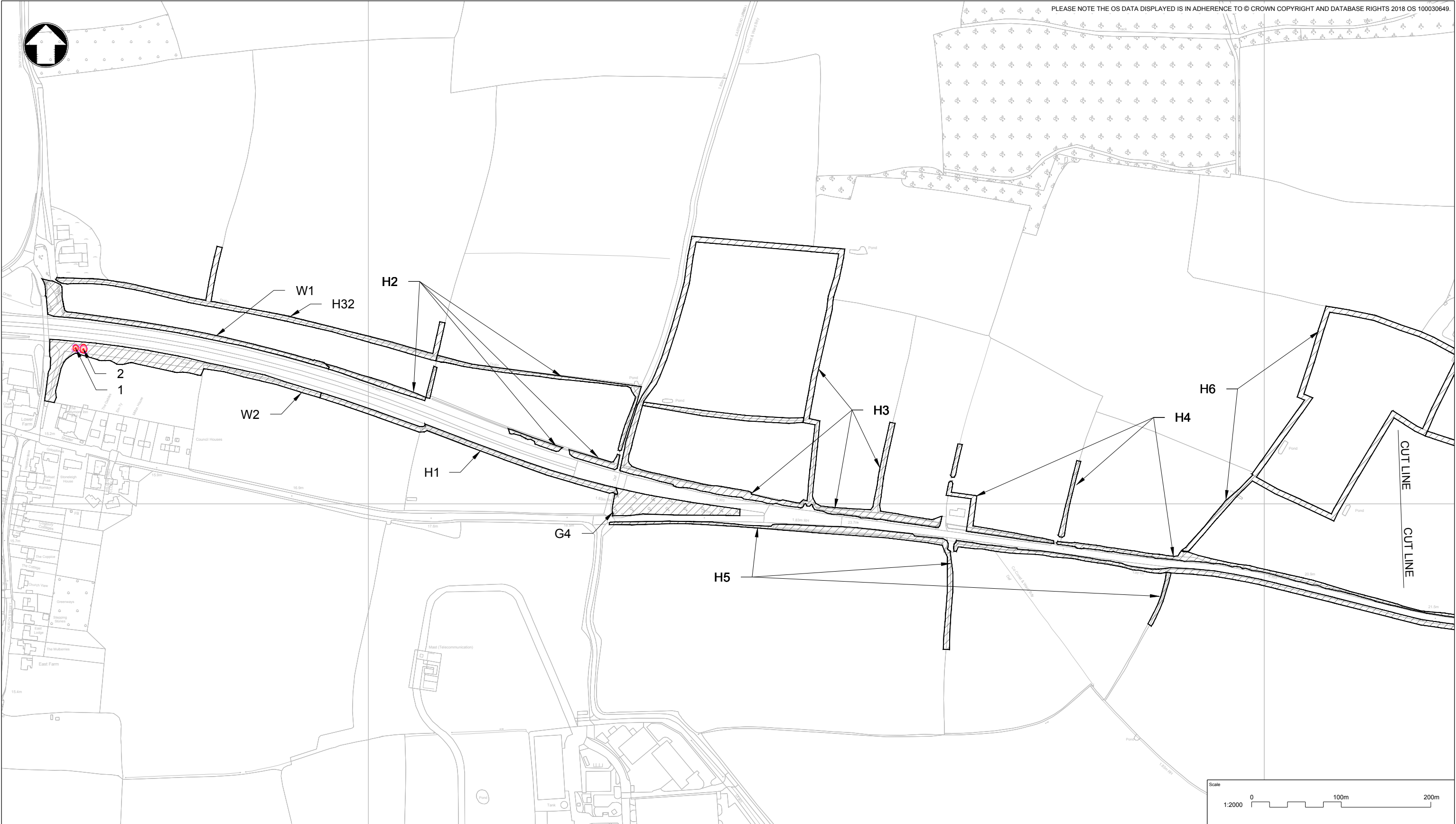
Table C.1: Root Protection Areas

Tree reference	Species	Stem diameter (mm)	RPA circle radius (m)	RPA (m ²)
W1	Mixed woodland	250av	3av	28av
W2	Mixed woodland	250av	3av	28av
W3	Mixed woodland	100av	1.2av	5av
W4	Mixed woodland	125av	1.5av	7av
W5	Mixed woodland	300av	3.6av	41av
W6	Mixed woodland	300av	3.6av	41av
W7	Mixed woodland	300av	3.6av	41av
W8	Mixed woodland	300av	3.6av	41av
W9	Mixed woodland	150av	1.8av	10av
W10	Mixed woodland	150av	1.8av	10av
W11	Mixed woodland	150av	1.8av	10av
W12	Mixed woodland	300av	3.6av	41av
G1	Poplar	150av	1.8av	10av
G2	Ash	250av	3av	28av
G3	Mixed native	250av	3av	28av
G4	Mixed Species	100av	1.2av	5av
G5	Lawson Cypress	200av	1.8av	10av
G6	Ash / Sycamore	150av	1.8av	10av
G7	Ash / Sycamore	200av	1.8av	10av
G8	Mixed Species	200av	1.8av	10av
G9	Mixed Species	100av	1.2av	5av
G10	Mixed Species	100av	1.2av	5av
G11	Mixed Species	200av	1.8av	10av
G12	Mixed Species	200av	1.8av	10av
G13	Mixed Species	200av	1.8av	10av
G14	Mixed Species	200av	1.8av	10av
H1	Native hedge	80av	1av	3av
H2	Native hedge	80av	1av	3av
H3	Native hedge	80av	1av	3av
H4	Native hedge	100av	1.2av	5av
H5	Native hedge	100-150	1.2-1.8av	5-10av
H6	Native hedge	80av	1av	3av
H7	Native hedge	80av	1av	3av
H8	Native hedge	80av	1av	3av
H9	Native hedge	80av	1av	3av
H10	Native hedge	80av	1av	3av
H11	Native hedge	80av	1av	3av

Tree reference	Species	Stem diameter (mm)	RPA circle radius (m)	RPA (m ²)
H12	Native hedge	80av	1av	3av
H13	Native hedge	80av	1av	3av
H14	Native hedge	80av	1av	3av
H15	Native hedge	80av	1av	3av
H16	Native hedge	80av	1av	3av
H17	Native hedge	80av	1av	3av
H18	Native hedge	80av	1av	3av
H19	Native hedge	150av	1.8av	10av
H20	Native hedge	150av	1.8av	10av
H21	Native hedge	80av	1av	3av
H22	Native hedge	80av	1av	3av
H23	Native hedge	80av	1av	3av
H24	Native hedge	150av	1.8av	10av
H25	Native hedge	150av	1.8av	10av
H26	Native hedge	150av	1.8av	10av
H27	Native hedge	150av	1.8av	10av
H28	Native hedge	150av	1.8av	10av
H29	Native hedge	150av	1.8av	10av
H30	Native hedge	150av	1.8av	10av
H31	Native hedge	100-150	1.2-1.8av	5-10av
H32	Native hedge	150av	1.8av	10av
H33	Native hedge	80av	1av	3av
H34	Native hedge	80av	1av	3av
H35	Native hedge	80av	1av	3av
H36	Native hedge	80av	1av	3av
H37	Native hedge	80av	1av	3av
1	Ash	370	4.4	62
2	Ash	260 / 280	4.6	66
3	Oak	900	10.8	366
4	Oak	1400	16.8	887
5	Oak	900	10.8	366
6	Oak	1100	13.2	547
7	Oak	900	10.8	366
8	Oak	900	10.8	366
9	Oak	600	7.2	163
10	Oak	400	4.8	72
11	Oak	250	3.0	28
12	Oak	1000	12.0	452
13	Oak	1000	12.0	452

Tree reference	Species	Stem diameter (mm)	RPA circle radius (m)	RPA (m ²)
14	Oak	1000	12.0	452
15	Oak	1000	12.0	452
16	Oak	1000	12.0	452
17	Oak	350	4.2	55
18	Oak	800	9.6	290
19	Sweet Chestnut	600	7.2	163
20	Sweet Chestnut	600	7.2	163

Appendix D: Drawings



KEY:

16 TREE REFERENCE

APPROXIMATE EXTENT OF CANOPY

TREE ROOT PROTECTION AREA (RPA)

INDIVIDUAL TREES

- GRADE A TREES
- GRADE B TREES
- GRADE C TREES
- GRADE U TREES TO BE REMOVED FOR REASONS OF SOUND ARBORICULTURAL MANAGEMENT

TREE GROUPS

- GRADE A TREES
- GRADE B TREES
- GRADE C TREES

NOTE:

- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
- DO NOT SCALE ANY ITEMS OR INFORMATION FROM THIS DRAWING.
- TO BE READ IN CONJUNCTION WITH A303 SPARKFORD TO ILCHESTER ARBORICULTURAL CONSTRAINTS REPORT REF. HE551507-MMSJV-ELS-000-RP-LL-0011.

Scale

1:2000

0 100m 200m

Project Title

A303 SPARKFORD TO ILCHESTER DUALLING

Drawing Title

TREE CONSTRAINTS PLAN
SHEET 1 OF 4

Drawing Status

Published - DEFINITION

Suitability

A3

Scale	AS SHOWN	Designed	JC	Drawn	DL	Checked	SB	Approved	NE		
Original Size	A1	Date	03/03/18	Date	23/07/18	Date	23/07/18	Date	23/07/18		
Drawing Number	HE551507 - MMSJV - ELS -								Project Ref. No.	389107	
HE PIN	000								Revision	C01	
C01	23/07/18	DCO SUBMISSION	DL	SB	NE						
REV.	DATE	AMENDMENT DETAILS			ORIG	CHK'D	APP'D	Location	Type	Role	Number

Scale

1:2000

0 100m 200m

Project Title

A303 SPARKFORD TO ILCHESTER DUALLING

Drawing Title

TREE CONSTRAINTS PLAN
SHEET 1 OF 4

Drawing Status

Published - DEFINITION

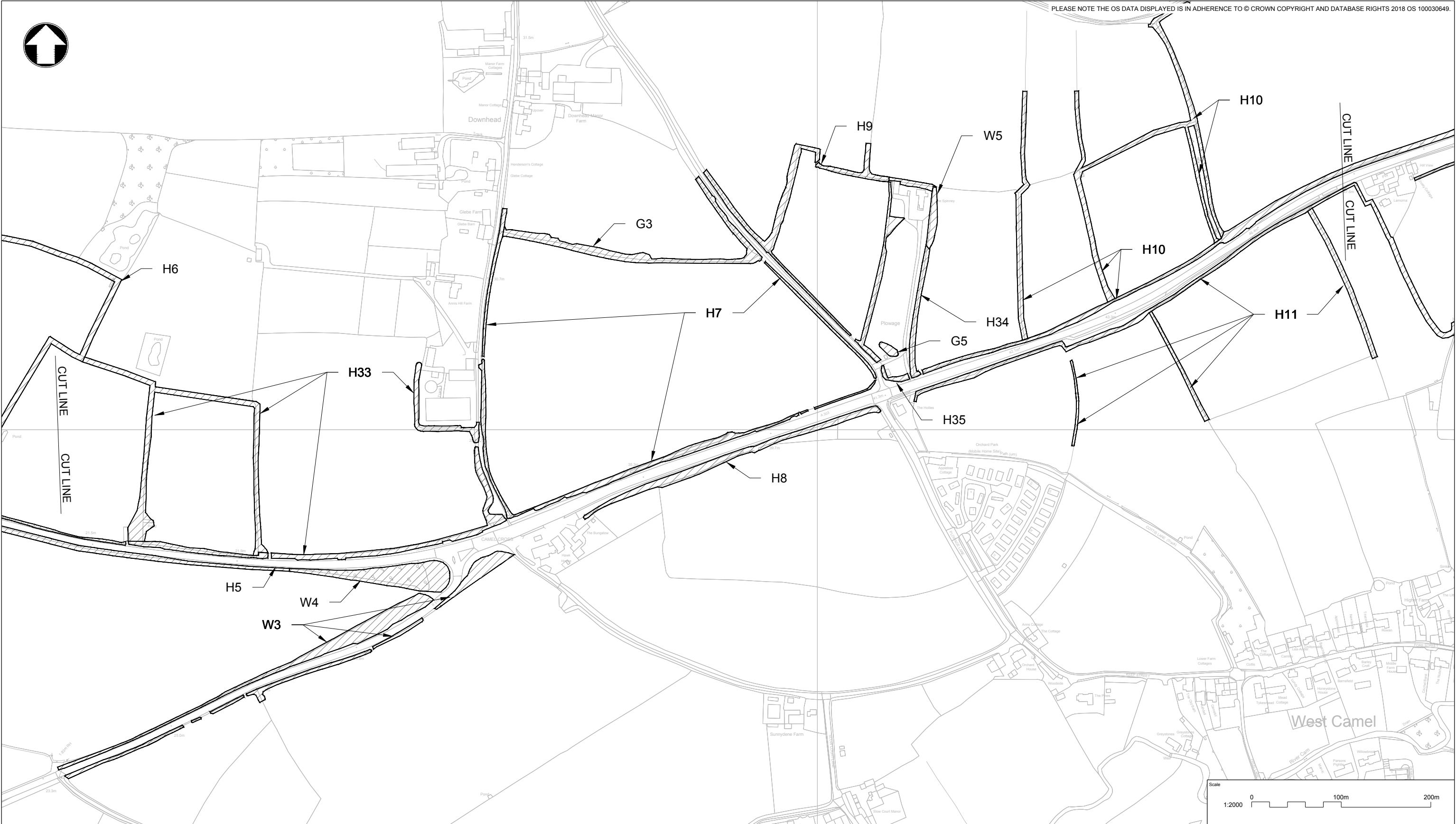
Suitability

A3

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Drawing Number	HE551507 - MMSJV - ELS -								Project Ref. No.	389107	
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REV.	DATE	AMENDMENT DETAILS			ORIG	CHK'D	APP'D	Location	Type	Role	Number

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KEY:

16 TREE REFERENCE

APPROXIMATE EXTENT OF CANOPY

TREE ROOT PROTECTION AREA (RPA)

INDIVIDUAL TREES

- GRADE A TREES
- GRADE B TREES
- GRADE C TREES
- GRADE U TREES TO BE REMOVED FOR REASONS OF SOUND ARBORICULTURAL MANAGEMENT

TREE GROUPS

- GRADE A TREES
- GRADE B TREES
- GRADE C TREES

NOTE:

- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
- DO NOT SCALE ANY ITEMS OR INFORMATION FROM THIS DRAWING.
- TO BE READ IN CONJUNCTION WITH A303 SPARKFORD TO ILCHESTER ARBORICULTURAL CONSTRAINTS REPORT REF. HE551507-MMSJV-ELS-000-RP-LL-0011.

Project Title

A303 SPARKFORD TO ILCHESTER DUALLING

Drawing Title

TREE CONSTRAINTS PLAN
SHEET 2 OF 4

Drawing Status

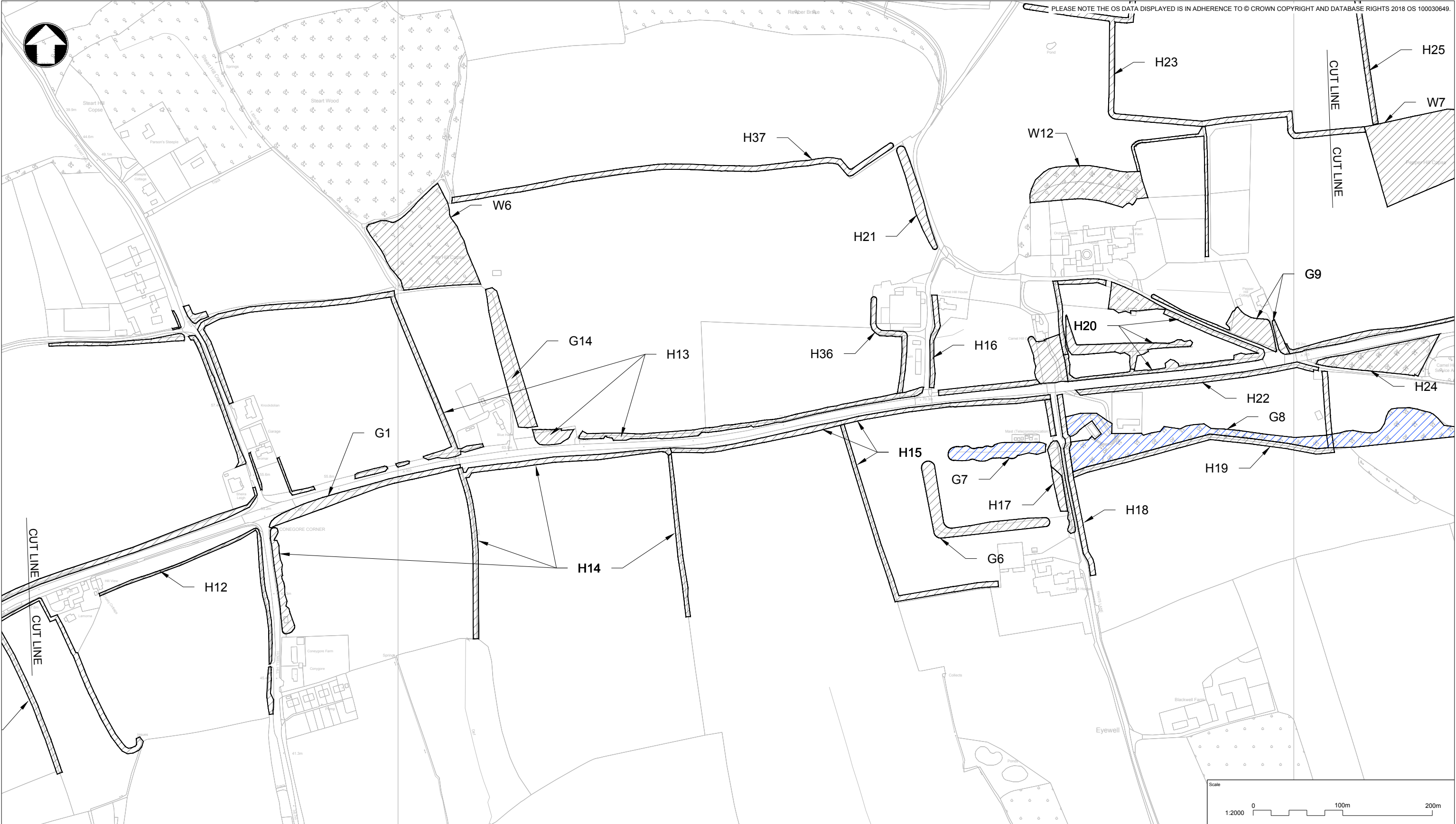
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Suitability

A3

Scale	AS SHOWN	Designed	JC	Drawn	DL	Checked	SB	Approved	NE
Original Size	A1	Date	03/03/18	Date	23/07/18	Date	23/07/18	Date	23/07/18
Drawing Number	HE551507 - MMSJV			- ELS -			Project Ref. No. 389107		
REV.	DATE	AMENDMENT DETAILS			ORIG	CHK'D	APP'D	Revision C01	

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SHEET 1

SHEET 2

SHEET 3

SHEET 4

Project Title

A303 SPARKFORD TO ILCHESTER DUALLING

Drawing Title

TREE CONSTRAINTS PLAN
SHEET 3 OF 4

Drawing Status

Published - DEFINITION

Suitability

A3

Scale

AS SHOWN

Designed

JC

Drawn

DL

Checked

SB

Approved

NE

Original Size

A1

Date

03/03/18

Date

23/07/18

Date

23/07/18

Date

23/07/18

Drawing Number

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Originator

HE551507 - MMSJV

Volume

- ELS -

Project Ref. No.

389107

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- DR - LL -

0121

Revision

C01

REV.

DATE

AMENDMENT DETAILS

ORIG

CHK'D

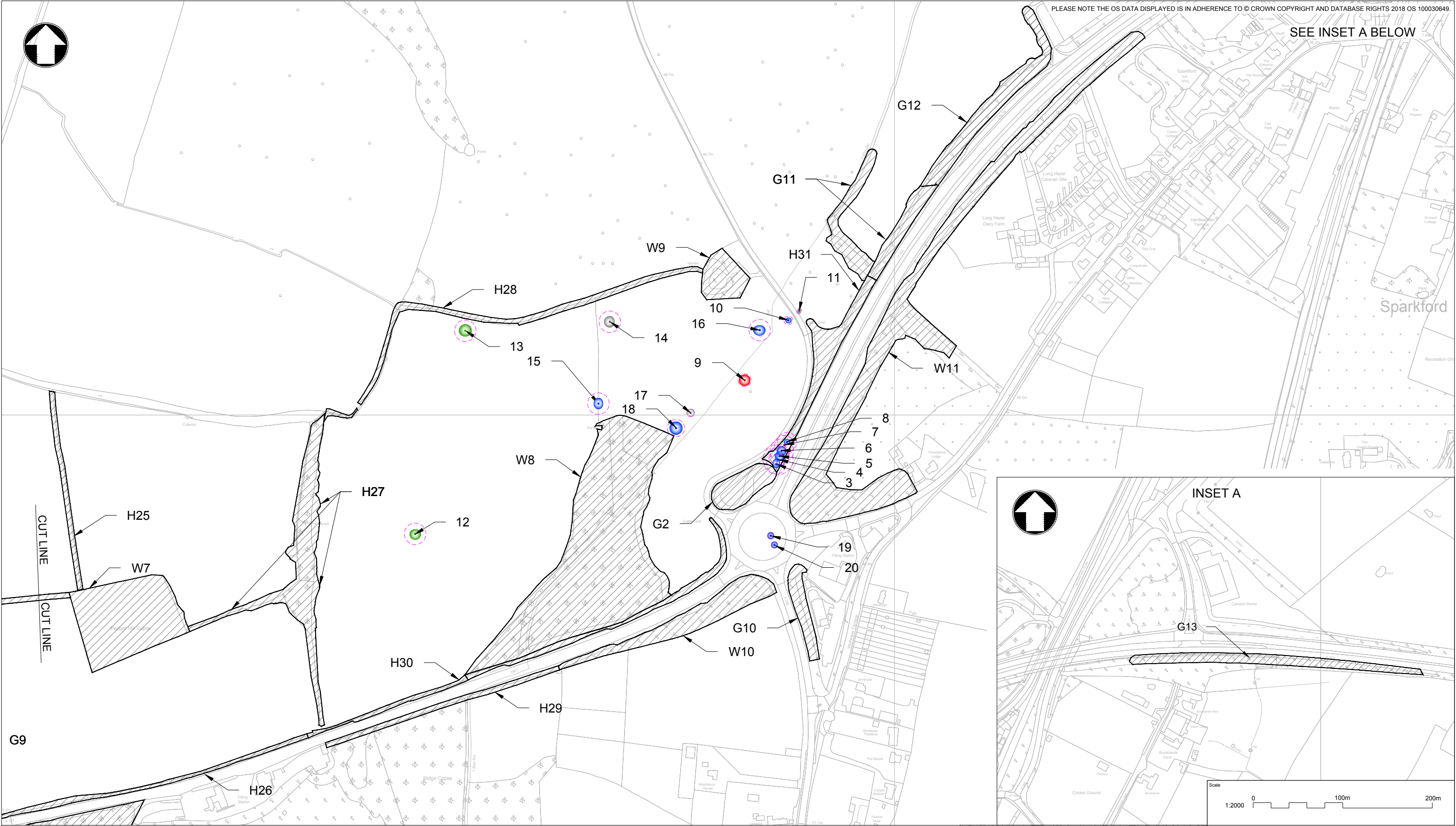
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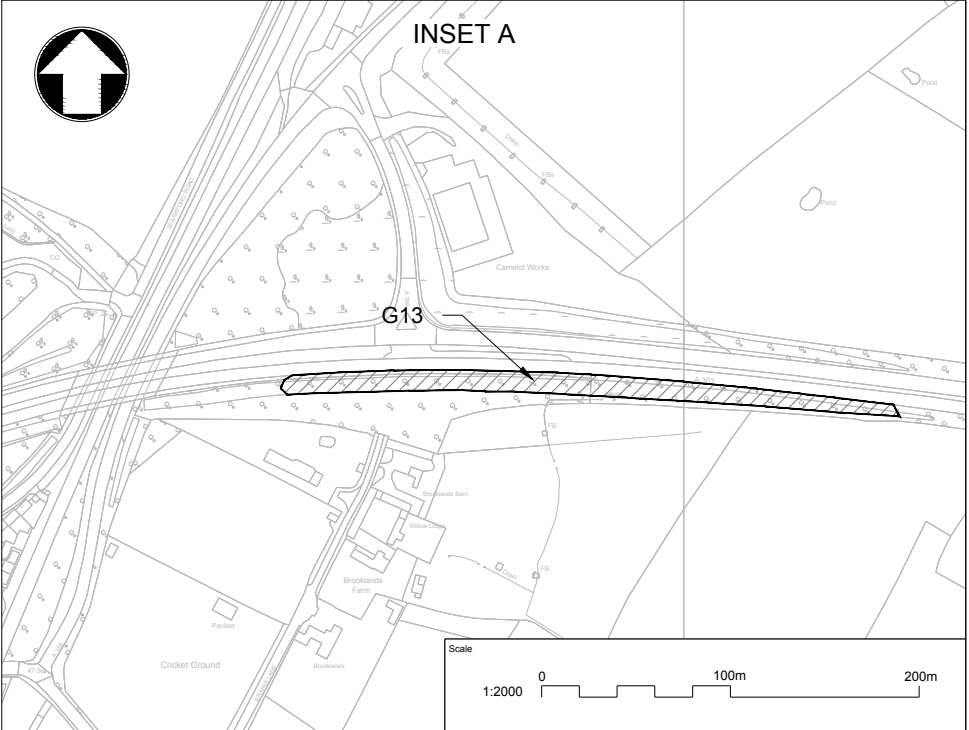
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Number



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KEY:

- 16 TREE REFERENCE
- APPROXIMATE EXTENT OF CANOPY
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TREE CONSTRAINTS PLAN
SHEET 4 OF 4

Drawing Status

Published - DEFINITION

Suitability

A3

Scale	AS SHOWN	Designed	JC	Drawn	DL	Checked	SB	Approved	NE
Original Size	A1	Date	03/03/18	Date	23/07/18	Date	23/07/18	Date	23/07/18
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Appendix E: Tree protection measures

Permission to reproduce extracts from British Standard BS 5837:2012 *Trees in relation to design, demolition, and construction - Recommendations* is granted by BSI. British Standards can be obtained in PDF or hard copy formats from the BSI online shop: www.bsigroup.com/Shop or by contacting BSI Customer Services for hardcopies only: Tel: +44 (0)20 8996 9001, Email: cservices@bsigroup.com.

Figure E.1: Extract from BS5837:2012 Default specification for protection barrier

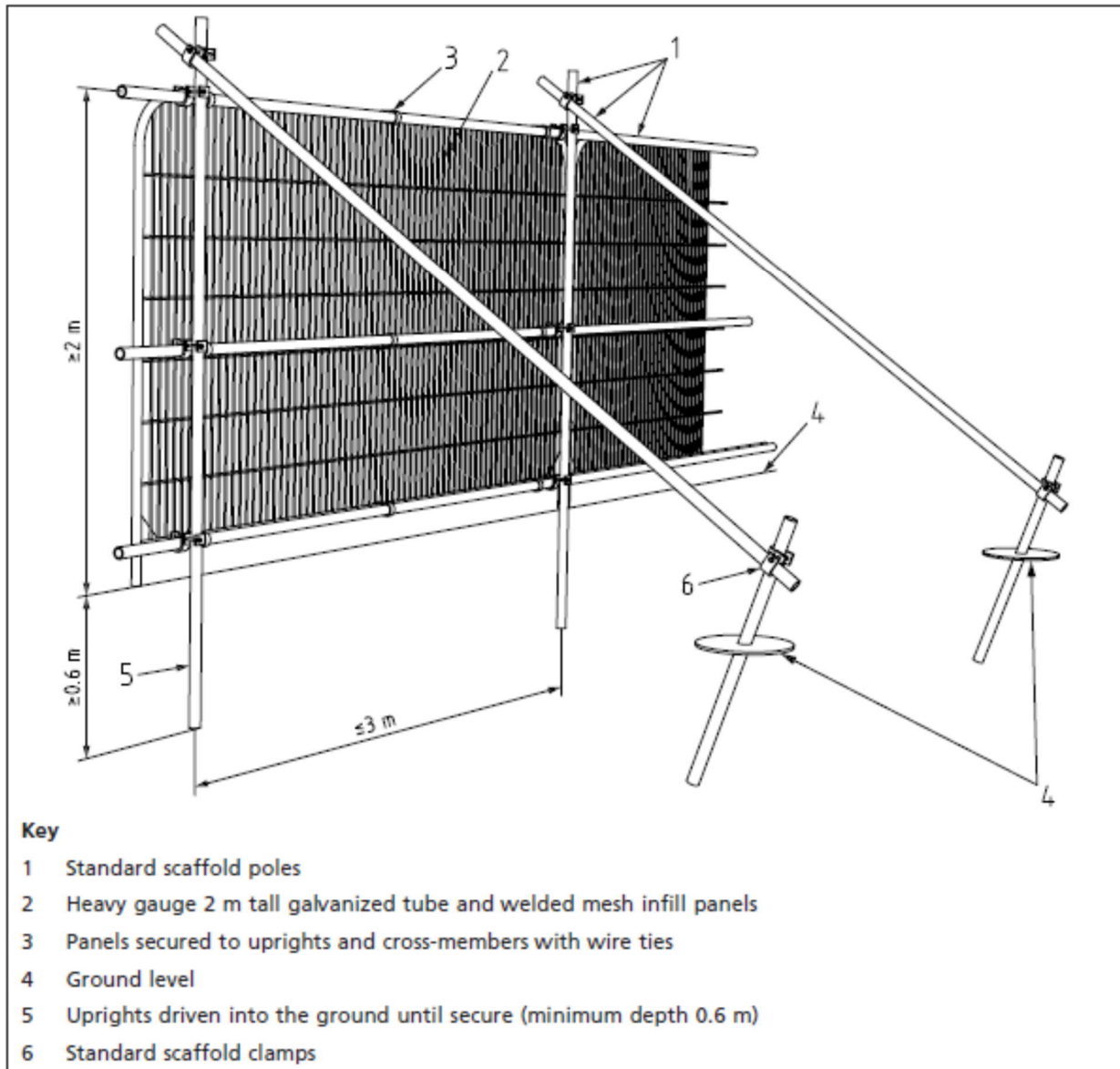


Figure E.2: Extract from BS5837:2012 Examples of Ground Stabilising systems

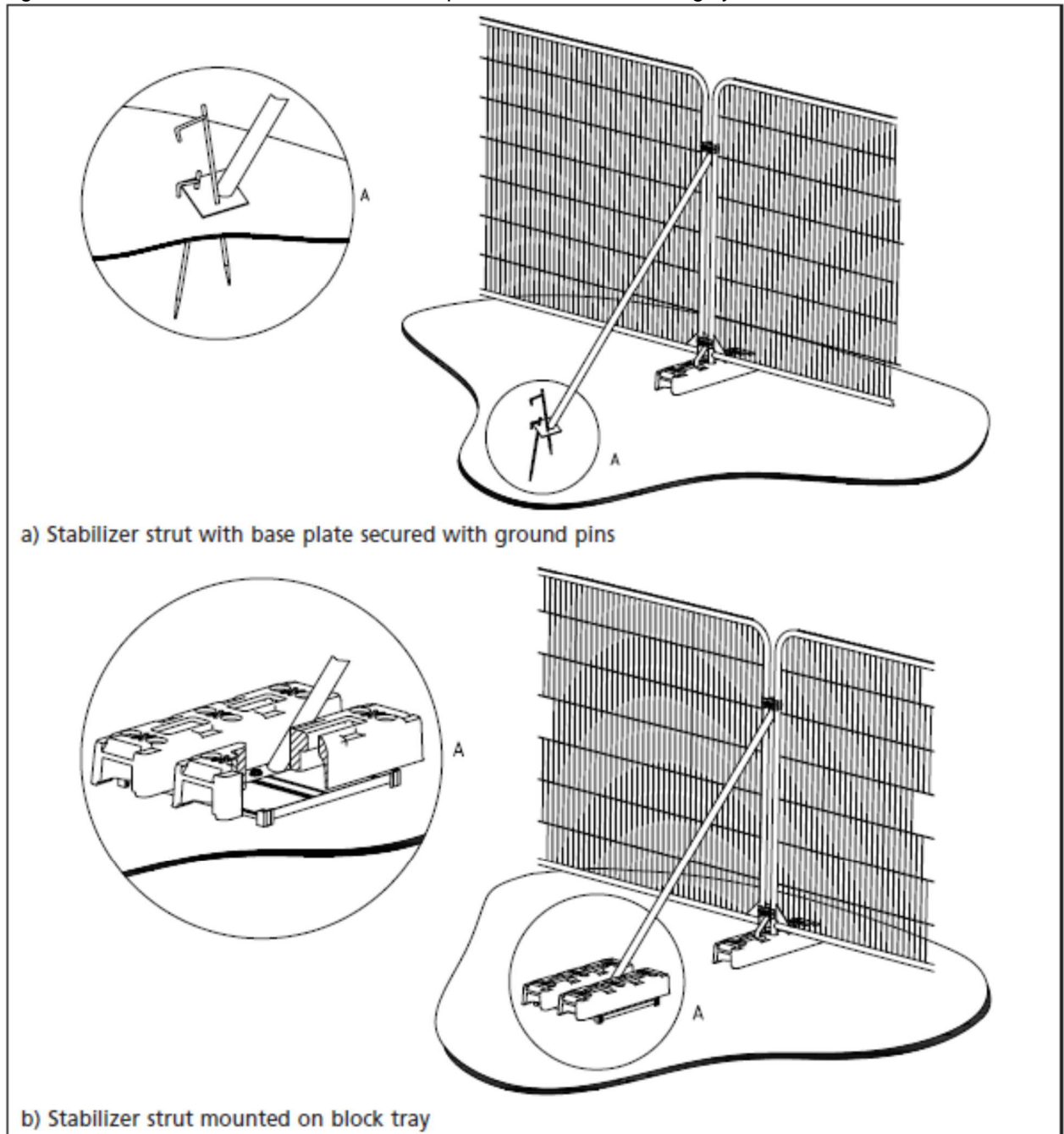


Figure E.3: Extract from BS5837:2012 Ground Protection during Demolition and Construction

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.