



Tree Surveys

BS5837 – Pre Planning – Mortgage – Risk Management & Prediction – Expert Witness

BS 5837:2012 TREE SURVEY FOR HENLEY ROAD CEMETERY CAVERSHAM



**Prepared on behalf of:
Reading Borough Council
Civic Offices
Bridge Street
Reading
RG1 2LU**

Ref: SPH/PB/5837-01/08.06

8th June 2018



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CONTENTS

- Summary**
- 1. Introduction**
- 2. Scope**
- 3. Site visit and the collection of data**
- 4. Constraints**
- 5. Tree protective measures**
- 6. Survey key**
- 7. Queries**

APPENDICES

- 1. Tree survey schedule**
- 2. Tree locations**
- 3. Root protection area drawing**
- 4. Shade constraints**
- 5. Figure 2, section 6, BS 5837:2012 (by permission)**
- 6. Tree protection fence sign**

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Summary

We inspected all of the trees that could be affected by the proposed development at Henley Road Cemetery, All Hallows Road, Caversham, RG4 5LP. The tree details are contained in the tree survey schedule included at Appendix 1.

A total of sixteen individual trees and two groups of trees were assessed in accordance with the cascade chart for tree quality (Table 1: Section 4) of British Standard (BS) 5837:2012. They are categorised as follows.

- Four trees and Group 18 are in Category 'B' - "Trees of moderate quality"
- Eight trees are in Category 'C' - "Trees of low quality"
- Four trees and Group 17 are in Category 'U' - "Trees unsuitable for retention"

Mitigation will be required to demonstrate how the retained trees' root protection areas (RPAs) will be protected during any development, including access to the proposed development area. The RPAs are shown on the drawing included at Appendix 3.

1. Introduction

1.1 Instructions

- 1.1.1 We are instructed by Mr Dinesh Gohil of Reading Borough Council, Civic Offices, Bridge Street, Reading, RG1 2LU to visit Henley Road Cemetery, All Hallows Road, Caversham, RG4 5LP and survey the trees implicated in a forthcoming planning application.
- 1.1.2 The trees were surveyed in accordance with 'British Standard (BS) 5837:2012' a guide for 'Trees In Relation To Design, Demolition and Construction - Recommendations' (Section 4).

1.2 Validation

- 1.2.1 This report fulfils the recommended national listed criteria for tree survey information as set out in BS 5837:2012 and includes the following:
 - A tree survey, undertaken by a qualified arboriculturist, and tree survey schedule, included at Appendix 1.
 - A drawing at 1:600 scale with a north point, indicating the tree locations and colour coded, ref SPH/PB/5837-01/08.06 included at Appendix 2.
 - The root protection area and tree protection barrier location drawing, ref SPH/PB/RPA-01/08.06 included at Appendix 3.
 - A shade constraints drawing, ref SPH/PB/SC-01/08.06 included at Appendix 4.
 - Default tree protection from BS 5837:2012 – Appendix 5.
 - It does not include an arboricultural method statement for the proposed work at the cemetery.

1.3 Legal status of the trees

A check of the legal status of trees, Tree Preservation Orders (TPO's) or Conservation Area status was not undertaken therefore, before any works are undertaken on the trees we recommend that you contact the Tree Team at Reading Borough Council to determine if consent is required for works to the trees at this site.



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2. Scope of this report

- 2.1 The purpose of this report is to quantify the trees most likely to be impacted upon by the proposed extension to the cemetery and to highlight how potential damage to trees may be avoided.
- 2.2 This tree survey provides the basic data on the trees implicated in a forthcoming planning application. It does not set out to put arguments for or against a development. It does set out how to decide upon the retention of the trees, means of protecting the retained trees during development and on means of incorporating the trees into the developed landscape, along with appropriate management and protective measures.
- 2.3 The primary purpose of this report is for the client and council to review the information provided and use it for the purpose of considering a planning application or engaging in further discussions towards the same end. The information is provided on the basis that it will be available to people other than arboriculturists i.e. those without specialist knowledge of the subject.

3. Site visit and the collection of data

3.1 Site visit

- 3.1.1 The trees were surveyed by Paul Billin BSc, MICFor on Friday 8th June 2018. The trees were inspected from ground level and without any form of detailed investigations; binoculars were used to aid the inspection process. The measurements we undertook on site were made with the aid of a rounded down diameter tape and TruPulse™ laser hypsometer. The trees were not tagged as they are easily identified with the aid of the tree location plan at Appendix 2.

3.2 The trees

- 3.2.1 We surveyed sixteen individual trees with stem diameters of 75 millimetres and above and two small groups of trees. The tree details have been entered into a survey schedule included at Appendix 1.
- 3.2.2 For ease of identification the trees are shown on the tree location drawing, at Appendix 2, and have been allocated numbers. These numbers are cross-referenced within the BS 5837 survey schedule.
- 3.2.3 In making our assessment, consideration has been given to:
 - The health, vitality and condition of the trees.
 - Any structural defects and safe life expectancy.
 - The size and form of the trees.
 - The rare, unusual or component part of a formal feature.
 - Groups or individual trees that provide definite screening or softening effect.
 - Trees forming distinct landscape features.



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4. Constraints

4.1 Ecological constraints

- 4.1.1 The Conservation of Habitats and Species Regulations 2017 (as amended) and the Wildlife and Countryside Act 1981, as amended by the Countryside and Rights of Way Act 2000 and provides statutory protection to birds, bats, and other tree dwelling species. They could impose significant constraints on the use and timing of any tree matters considered in this report.

4.2 Root protection areas (RPAs)

- 4.2.1 Using BS 5837:2012 the RPAs have been calculated for the trees by reference to section 4.6.1 (a) and/or (b). The RPA is frequently described as a circle with a radius of prescribed distance within which no unspecified activity should occur and a high level of care is needed during any activities that are authorised within them, if trees are to be successfully retained.
- 4.2.2 Specified intrusions into the RPAs can take place only where the ground is adequately protected in accordance with the requirements of section 6 (6.2.3.3) of the BS or as may be agreed with the Local Planning Authority (LPA). We have plotted the RPAs as dodecagons taking account of the site constraints on the root protection area (RPA) drawing, included at Appendix 3.
- 4.2.3 The shape and position of the RPA may only be modified by an arboriculturist to meet the pre-existing site conditions or other factors that indicate that rooting has occurred asymmetrically. In all cases, we have considered the adjacent constraints including such things as the existing site access and topography and we do not consider offsetting is necessary.

4.3 Shade constraints

- 4.3.1 Large trees that cast dense shade may result in pressure to prune or remove them. Whilst either shade or sunlight might be desirable depending on the potential use; the project design should avoid unreasonable obstruction of light to recreational areas. The shade constraints posed by the trees are plotted onto the shade constraints drawing, included at Appendix 4.

5. Tree protective measures

- 5.1 To protect retained trees from construction activities, notwithstanding the need for an Arboricultural Method Statement (AMS) in specific instances, the retained trees must be protected by suitable protection barriers and ground protection, the accompanying root protection area drawing shows the RPAs and specific tree protection locations required prior to and during the construction activities.
- 5.2 The tree protection barrier is designed to provide construction exclusion zones around the RPAs of all trees to be retained.



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- 5.3 The tree protection fencing should be fit for the purpose of excluding construction activity and appropriate to the degree and proximity of work taking place around the retained trees. The default specification for protective barriers is that specified in BS 5837:2012 Figure 2, section 6. A copy of Figure 2 is reproduced at Appendix 5. All weather signs must be attached by cable ties to each Heras panel as set out in Appendix 6.

6. Tree Survey Key

No:	Tree number on survey drawing
Species:	Common/English and or Latin name
Height:	Height in metres above ground level
Number of stems:	Single stem, or number of stems if more than one
Canopy spread:	In metres taken at the four cardinal points (N.E.S.W.)
Diameter:	In millimetres measured in accordance with BS 5837 2012
Height & direction of 1st branch:	In metres and by cardinal compass points. This can be found on the detailed tree assessment
Age class:	Young Semi-mature Early-mature Mature Over-mature
Root protection area:	In square metres and the nominal radius of a circle required to achieve this in metres
Health - Physiological Condition (Phy Con):	Dead Decline Poor Fair Good
Structural Condition: Crown, Stem, Basal Area:	Good Fair Poor Ivy
Survey Comment:	i.e. Further investigation, aerial inspection, decay detection, wildlife study
Estimated Remaining Contribution (ERC) in years:	i.e. less than 10, 10 to 20, 20 to 40, 40+



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6. Tree Survey Key continued

Category Grading:	Code U	Trees unsuitable for retention	RED
	Code A	High quality category	GREEN
	Code B	Moderate category	BLUE
	Code C	Low category	GREY

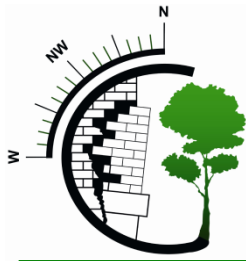
7. Queries

Any queries regarding this tree survey should be addressed, in the first instance, to Tree Surveys:

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Unit H, Bridge Farm
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Telephone: 0118 9762 902
Email: surveyor@tree-surveys.com

Paul Billin, BSc, MICFor
Chartered Arboriculturist

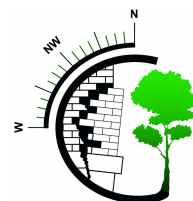


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APPENDIX 1

BS5837:2012 Tree Survey



Client: Reading Borough Council
 Project: Henley Road Cemetery Extension v2
 Survey Date: 08/06/2018
 Surveyor: Paul Billin

Tree Surveys

Unit H Bridge Farm
 Reading Road
 Arborfield
 Berkshire
 RG2 9HT
 Phone: 0118 976 2902

Tree and Tag No Species	Hght (m)	Stems		Crown		Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations			Cat ERC
		No	Ø (mm)	Spread (m)	Clear (m)					Survey Comment			
1													
Red Oak <i>Quercus rubra</i>	22.5	1	1110	N	7	3	M	A: 557.5 R: 13.32	Fair	C: Good S: Fair B: Fair	No action :: Unspecified		A.2
				E	8	3							>40 yrs
				S	6	3							
				W	6	3							
2													
Red Oak <i>Quercus rubra</i>	23	1	1070	N	4	5	M	A: 518 R: 12.84	Fair	C: Fair S: Fair B: Fair	No action :: Unspecified		A.2
				E	6	3							>40 yrs
				S	6	4							
				W	8	2							
3													
Red Oak <i>Quercus rubra</i>	23	1	970	N	4	4	M	A: 425.7 R: 11.64	Fair	C: Fair S: Fair B: Fair	No action :: Unspecified		B.2
				E	6	4							>40 yrs
				S	5	4							
				W	6	2							
4													
Red Oak <i>Quercus rubra</i>	23	1	980	N	6	4	M	A: 434.5 R: 11.76	Good	C: Good S: Good B: Good	No action :: Unspecified		A.2
				E	6	3							>40 yrs
				S	6	2							
				W	6	2							
Age Classifications:	N	Newly planted	EM	Early Mature	Condition:			C	Crown	Stems:	Ø	Diameter	
	Y	Young	M	Mature				S	Stem		(Eq)	Equivalent stem diameter using BS5837:2012 definition	
	SM	Semi-mature	OM	Over Mature				B	Basal area				

Tree and Tag No Species	Hght (m)	Stems		Crown		Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations			Cat ERC
		No	Ø (mm)	Spread (m)	Clear (m)					Survey Comment			
5													
Red Oak <i>Quercus rubra</i>	22.5	1	1000	N	6	5	M	A: 452.4 R: 12	Fair	C: Fair S: Fair B: Fair	No action :: Unspecified ----- Abundant epicormic growth	B ----- >40 yrs	
6													
Red Oak <i>Quercus rubra</i>	23	1	990	N	9	3	M	A: 443.4 R: 11.88	Good	C: Fair S: Good B: Good	No action :: Unspecified ----- fair form and structure	B.2 ----- >40 yrs	
7													
Red Oak <i>Quercus rubra</i>	23	1	930	N	4	3	M	A: 391.3 R: 11.16	Fair	C: Good S: Good B: Fair	No action :: Unspecified ----- Dieback evident, minor deadwood	B.2 ----- >40 yrs	
8													
Red Oak <i>Quercus rubra</i>	25	1	1290	N	5	8	M	A: 707 R: 15	Fair	C: Fair S: Fair B: Fair	No action :: Unspecified ----- Co dominant stems union 3m, with three stems.	A.2 ----- >40 yrs	
9											Estimated Measurements		
Field Maple <i>Acer campestre</i>	7	2	244 (Eq)	N	3	2	SM	A: 27 R: 2.93	Fair	C: Fair S: Fair B: Fair	No action :: Unspecified -----	C ----- 20 to 40 yrs	
10													
Sycamore <i>Acer pseudoplatanus</i>	17	2	552 (Eq)	N	4	2	SM	A: 137.6 R: 6.61	Fair	C: Fair S: Poor B: Fair	No action :: Unspecified ----- Co dominant stems tight union	C ----- 10 to 20 yrs	
Age Classifications:	N Y SM	Newly planted Young Semi-mature	EM M OM	Early Mature Mature Over Mature	Condition:		C S B	Crown Stem Basal area	Stems:	Ø (Eq)	Diameter Equivalent stem diameter using BS5837:2012 definition		

Tree and Tag No Species	Hght (m)	Stems		Crown		Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations			Cat ERC
		No	Ø (mm)	Spread (m)	Clear (m)					Survey Comment			
11													
Common Oak <i>Quercus robur</i>	8.5	2	355 (Eq)	N	3	0	SM	A: 56.9 R: 4.25	Fair	C: Poor S: Poor B: Poor	No action :: Unspecified ----- Poor form and structure		C 10 to 20 yrs
12													
Common Oak <i>Quercus robur</i>	6.5	2	341 (Eq)	N	3	2	SM	A: 52.5 R: 4.08	Fair	C: Fair S: Poor B: Fair	No action :: Unspecified ----- Fair form and structure		C 20 to 40 yrs
13													
Common Oak <i>Quercus robur</i>	6	1	270	N	4	1	SM	A: 33 R: 3.24	Fair	C: Fair S: Fair B: Fair	No action :: Unspecified ----- Climbers in canopy		C 20 to 40 yrs
14													
Goat Willow <i>Salix caprea</i>	8.5	1	460	N	4	0	SM	A: 95.7 R: 5.51	Fair	C: Poor S: Poor B: Fair	No action :: Unspecified ----- Diam @ 1m. Co dominant stems tight union 1.1m, high probability of failure		C 10 to 20 yrs
15													
Wild Cherry <i>Prunus avium</i>	6.5	2	244 (Eq)	N	3	2	SM	A: 27 R: 2.93	Fair	C: Fair S: Poor B: Fair	No action :: Unspecified ----- Unremarkable		C 10 to 20 yrs
16													
Sycamore <i>Acer pseudoplatanus</i>	10	2	276 (Eq)	N	4	2	SM	A: 34.4 R: 3.3	Fair	C: Fair S: Poor B: Poor	No action :: Unspecified ----- Poor form and structure		C 10 to 20 yrs
Age Classifications:	N Y SM	Newly planted Young Semi-mature	EM M OM	Early Mature Mature Over Mature			Condition:	C S B	Crown Stem Basal area	Stems:	Ø (Eq)	Diameter Equivalent stem diameter using BS5837:2012 definition	

Report selection criteria.

Projects.

Henley Road Cemetery Extension v2

Date Range.

Any Date

Work types.

----> Fell :: Fell to ground level
----> No action :: Unspecified

Latest Survey.

All surveys for the selected trees.
---> Last survey for each selected tree.

Work Completed.

---> Work Completed
---> Work Not Completed

Number of trees in selected Project(s) **18**

Number of trees in Report selection **18**

Age Classifications:

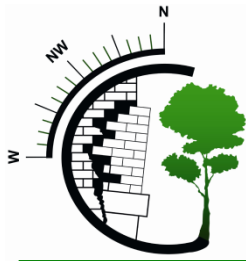
N	Newly planted	EM	Early Mature
Y	Young	M	Mature
SM	Semi-mature	OM	Over Mature

Condition:

C	Crown
S	Stem
B	Basal area

Stems:

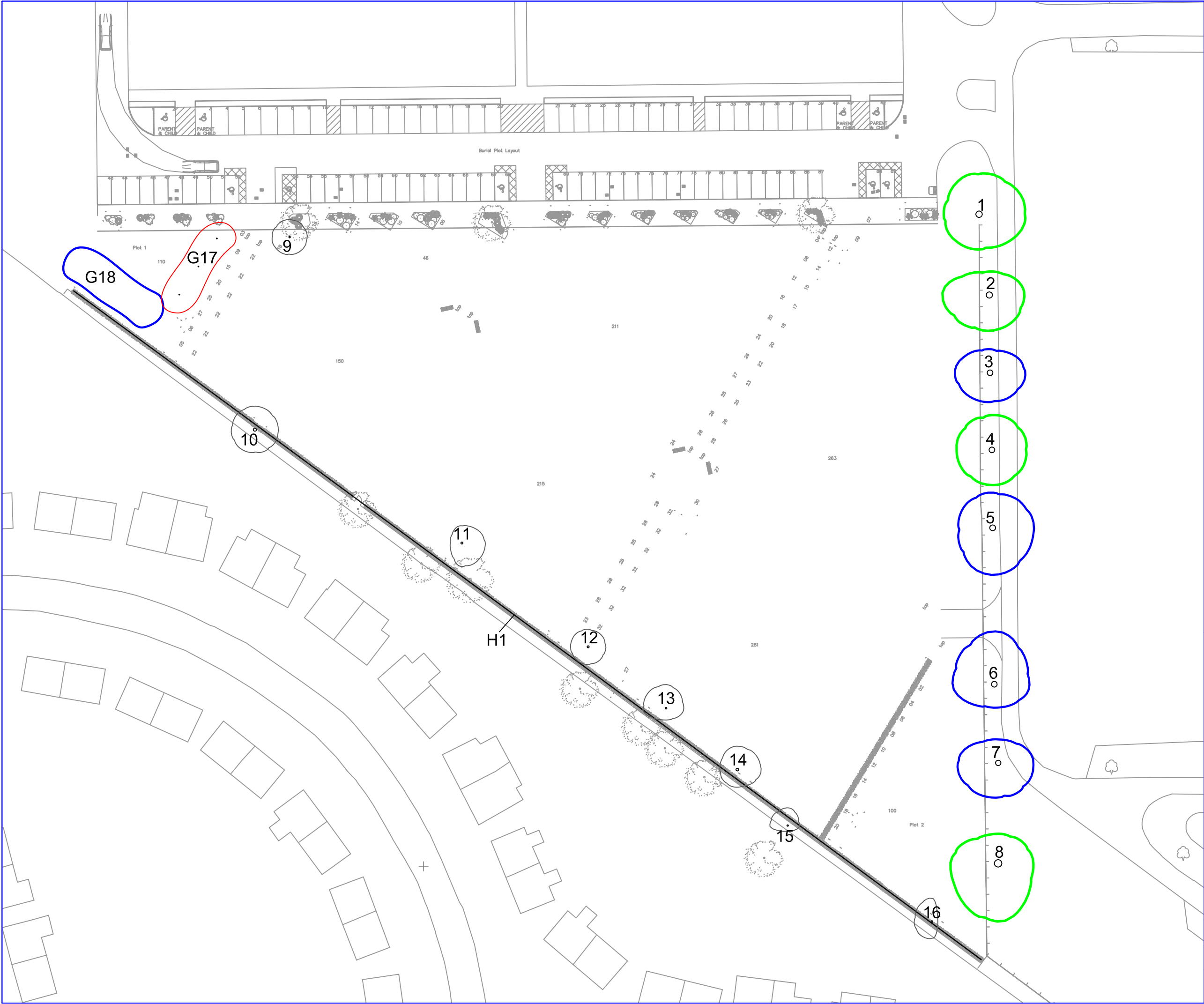
Ø	Diameter
(Eq)	Equivalent stem diameter using BS5837:2012 definition



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APPENDIX 2

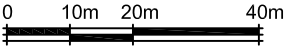


NOTES

- All dimensions must be checked on site and not scaled from this drawing.
- The original of this drawing was produced in colour, a monochrome copy should not be relied upon.
- Read drawings in conjunction with arboricultural report.
- Based on survey provided by client.



- Key:
- Tree Category A 1,2 or 3
- trees of high quality
 - Tree Category B 1,2 or 3
- trees of moderate quality
 - Tree Category C 1,2 or 3
- trees of low quality
 - Tree Category U
- trees that cannot realistically be retained
 - Tree number
- refer to report for information
 - Existing site features

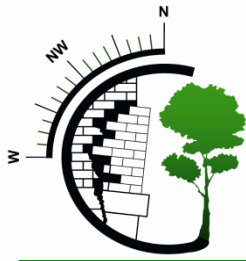


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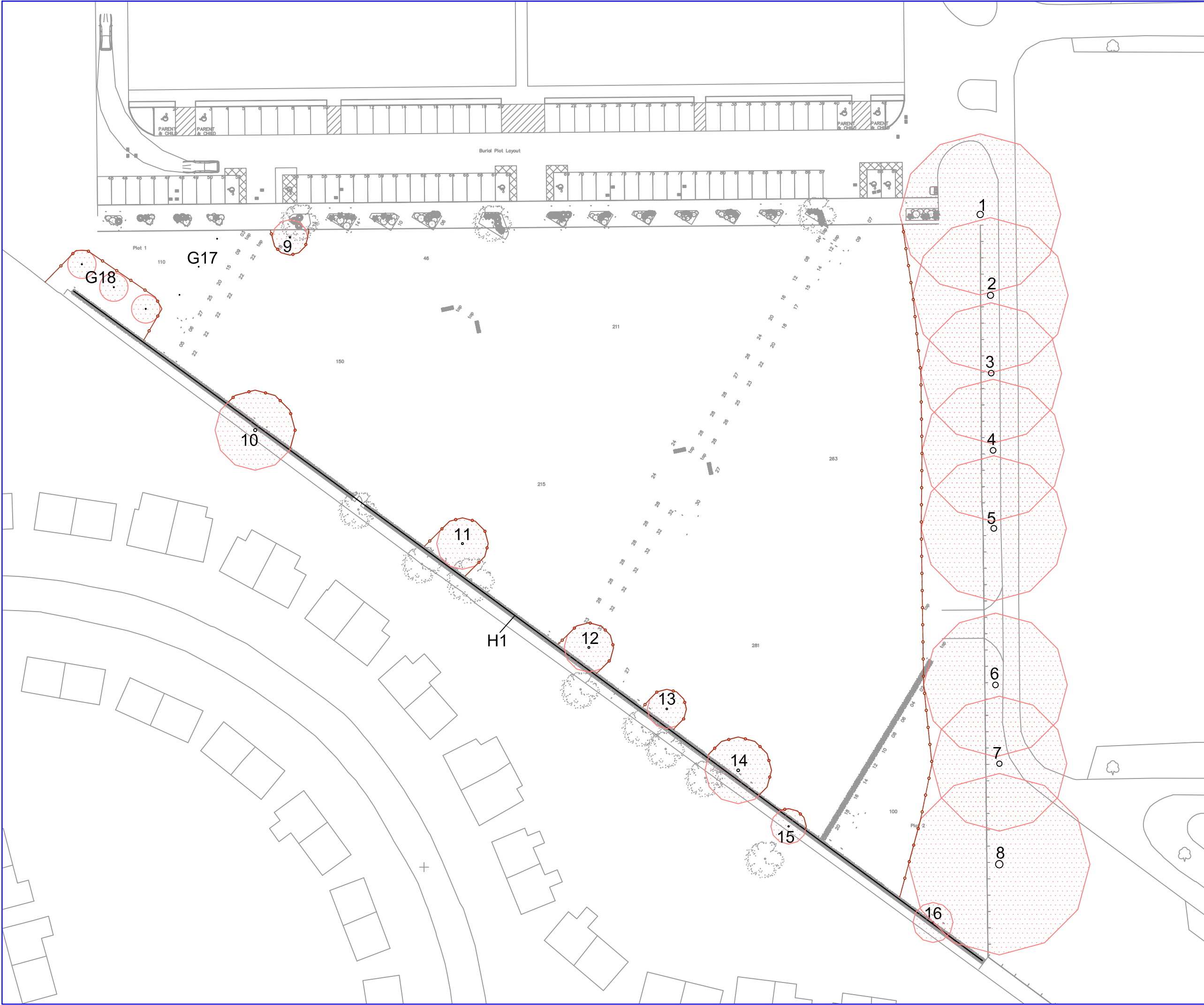
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Date	June 2018	Drawn: MJE Checked: PB
Drg. No.	SPH/PB/5837-01/08.06	Rev.



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APPENDIX 3

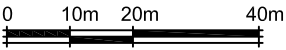


NOTES

- All dimensions must be checked on site and not scaled from this drawing.
- The original of this drawing was produced in colour, a monochrome copy should not be relied upon.
- Read drawings in conjunction with arboricultural report.
- Based on survey provided by client.



- Key:
- Tree Category A 1,2 or 3
- trees of high quality
 - Tree Category B 1,2 or 3
- trees of moderate quality
 - Tree Category C 1,2 or 3
- trees of low quality
 - Tree Category U
- trees that cannot realistically be retained
 - Tree number
- refer to report for information
 - Existing site features
 - Root protection area (RPA)
 - Indicative Tree Protection Barrier (TPB)
- refer to report for information

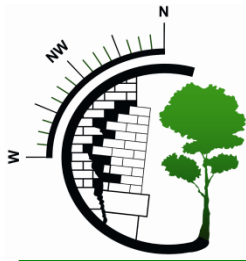


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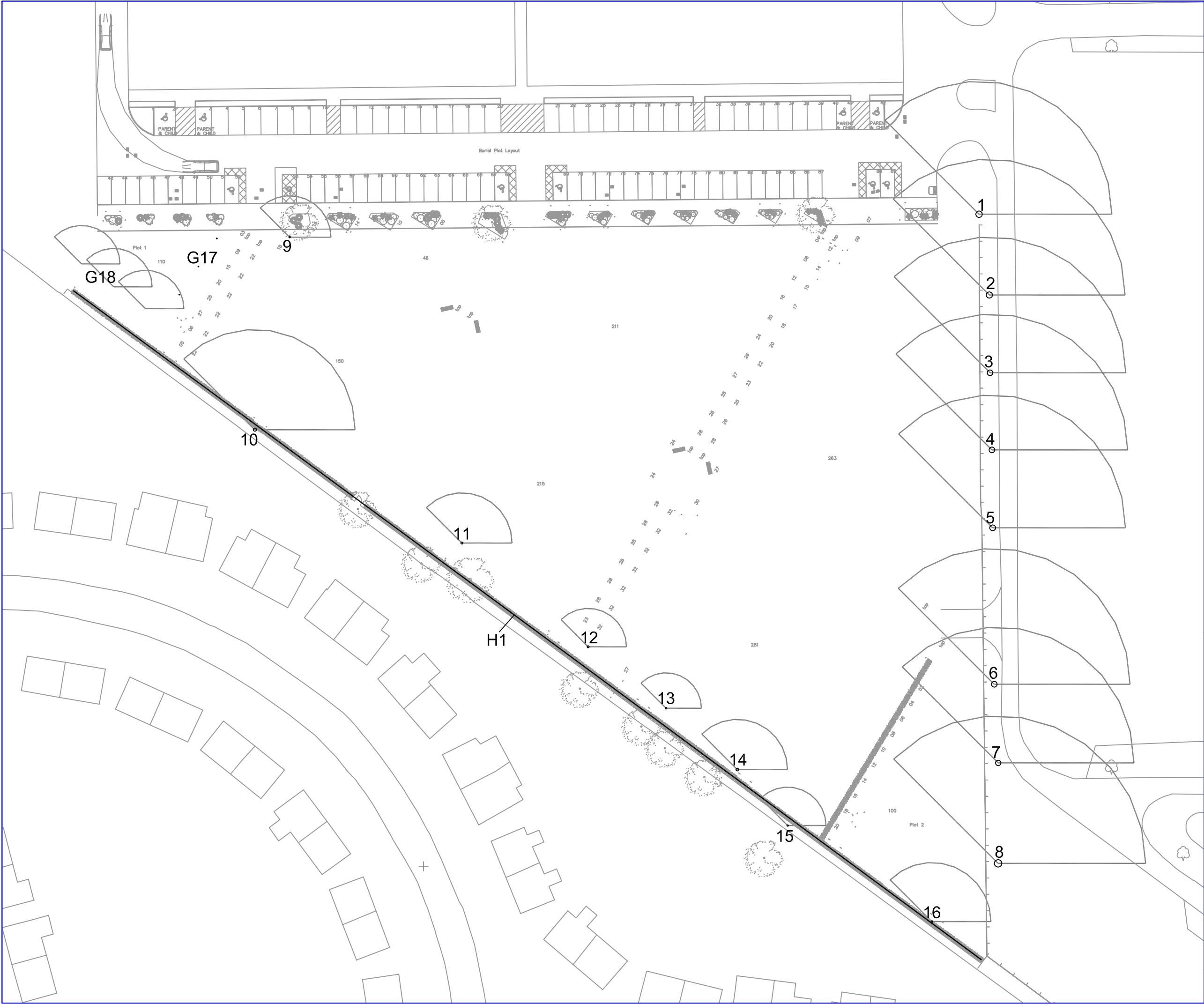
Client	Reading Borough Council		
Job Title	Henley Road Cemetery Extension		
Drawing Title	ROOT PROTECTION AREA PLAN		
Scale	1:600 @ A3		
Date	June 2018	Drawn: MJE	Checked: PB
Drg. No.	SPH/PB/RPA-01/08,06	Rev.	



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APPENDIX 4

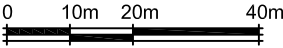


NOTES

- All dimensions must be checked on site and not scaled from this drawing.
- The original of this drawing was produced in colour, a monochrome copy should not be relied upon.
- Read drawings in conjunction with arboricultural report.
- Based on survey provided by client.



- Key:
- Tree Category A 1,2 or 3
- trees of high quality
 - Tree Category B 1,2 or 3
- trees of moderate quality
 - Tree Category C 1,2 or 3
- trees of low quality
 - Tree Category U
- trees that cannot realistically be retained
 - Tree number
- refer to report for information
 - Existing site features
 - Area of shade

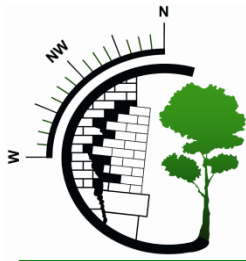


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Client	Reading Borough Council		
Job Title	Henley Road Cemetery Extension		
Drawing Title	SHADE CONSTRAINTS PLAN		
Scale	1:600 @ A3		
Date	June 2018	Drawn: MJE	Checked: PB
Drg. No.	SPH/PB/SC-01/08.06	Rev.	



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APPENDIX 5



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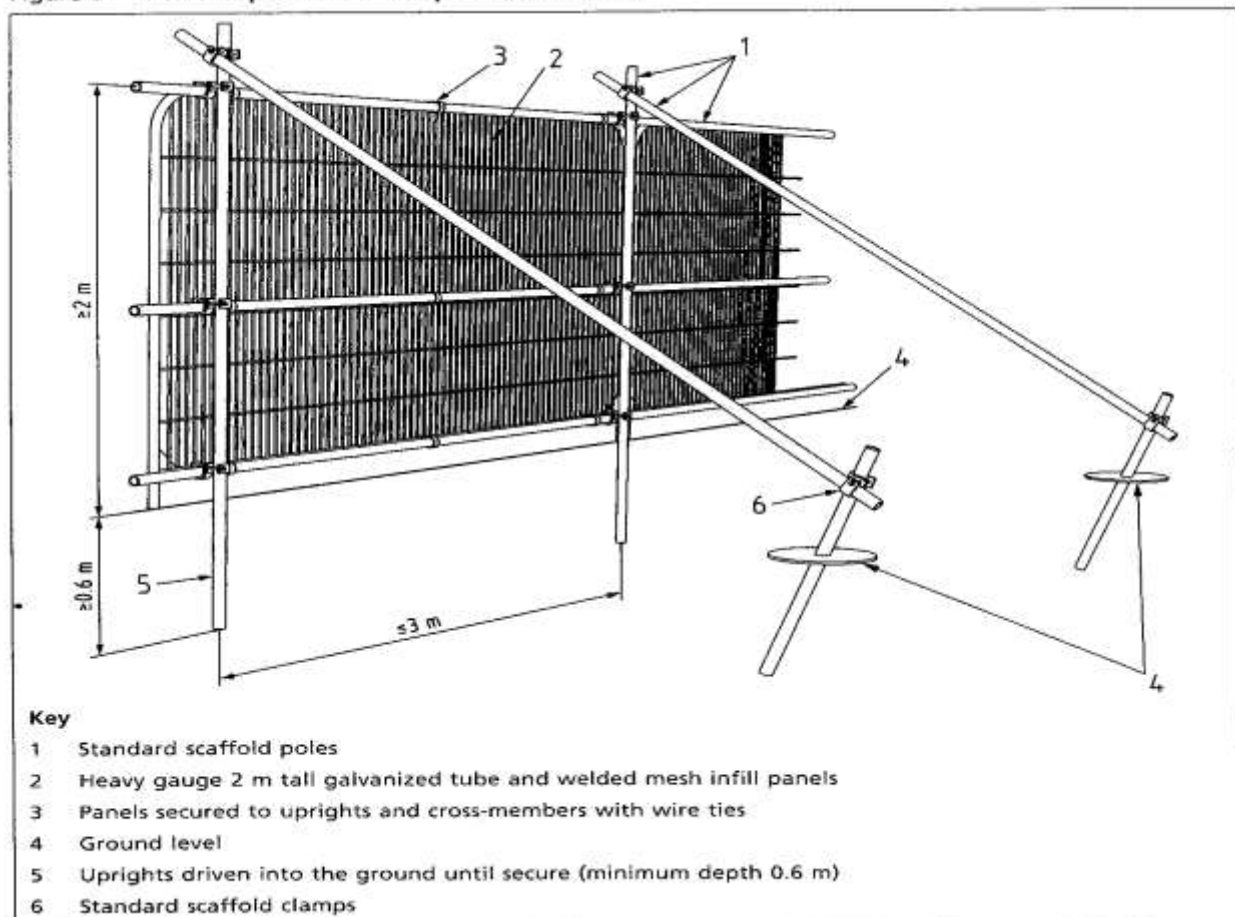
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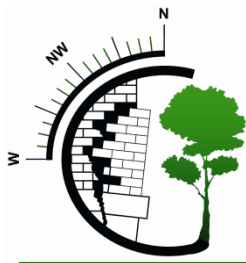
BS 5837 FIGURE 2 TREE PROTECTION

Root Protection Areas (RPAs), enclosed by Default Temporary Protective Fencing, as detailed below and to be agreed with the Local Planning Authority (LPA), shall:

1. Be protected throughout the development process, as specified and detailed in BS 5837:2012 Section 6.2, Fig 2
2. Be erected prior to any construction, demolition or excavation works and remain in place for the duration of the project.
3. Preclude any delivery of site accommodation and or materials and or plant machinery.
4. Preclude all construction related activity, with the sole exception of specified arboricultural works and any other works carried out under supervision that has been agreed by all parties, and:
5. Preclude the storage of all development related materials and substances including fuel, oils, additives, cement and or any other deleterious substances.
6. Any incursions into RPAs must be by prior arrangement, following consultation with the LPA.

Figure 2 Default specification for protective barrier





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APPENDIX 6

TREE PROTECTION ZONE
KEEP OUT!

NO DIGGING OR TRENCHING
NO STORAGE OF PLANT OR MATERIALS
NO VEHICLE ACCESS
NO FIRE LIGHTING
NO CHEMICAL HANDLING
AVOID PLANT CONTACT WITH TREE CANOPY
REPORT ANY DAMAGE
TO TREES OR FENCING IMMEDIATELY