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

ARBORICULTURAL IMPACT ASSESSMENT FOR HENLEY ROAD CEMETERY CAVERSHAM



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

Ref: PB/AIA-01/05.10

15th October 2018



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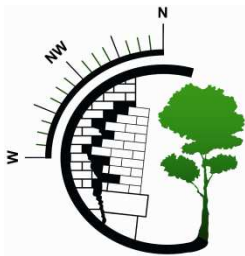
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1. Report details

1.1 Arboricultural Impact Assessment (AIA)

1.1.1 An arboricultural impact assessment (AIA) is a term used to describe a specific type of tree survey which examines the relationship between trees and adjacent features (existing & proposed) such as buildings, roads etc. The study describes how the trees and features will interact and influence each other and should consider both present and future interactions.

1.1.2 AIA studies are commonly used to determine whether a proposed development will adversely affect established trees and whether these trees will be the cause of nuisance to the proposed development.

1.2 Scope

1.2.1 This assessment is concerned with the arboricultural aspects of the site only.

1.2.2 This assessment was undertaken in accordance with British Standard 5837:2012 Trees in Relation to Design, Demolition and Construction – Recommendations (BS: 5837).

1.3 Limitations

1.3.1 The assessment contained within this document is based upon plans and other supporting information (verbal or documented) as supplied to us by Mr Dinesh Gohil of Reading Borough Council, Civic Offices, Bridge Street, Reading, RG1 2LU and the tree survey conducted by ourselves on the 8th June 2018.

1.4 Clients instructions

1.4.1 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 prepare an arboricultural impact assessment to determine the effects of the proposed works on the trees identified in our survey of 8th June 2018 and visa-versa.

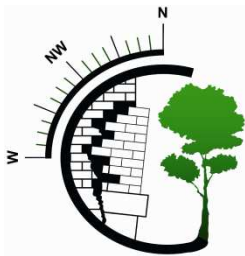
1.5 Supplied information

1.5.1 Proposed site layout plan; ref 2801 (AIA) 000 Approved Layout; British Standard (BS) 5837:2012; Tree Surveys BS 5837:2012 tree survey report ref SPH/PB/5837-01/08.06.

2. The site

2.1 Site description

2.1.1 The topography of the site has gently sloping grade changes running downhill from the north west to the south east. The site is screened from the houses on Valentines Crescent and Norman Road to the south by a 2 to 4 metre tall hedge. The site is bounded by the existing cemetery to the north and to the east where there is a row of mature Red oak trees just outside the railings and wire-mesh fence.



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2.2 Proposed development

- 2.2.1 The proposed development consists of the removal of existing railings and fencing and construction of vehicular access track and pedestrian footpaths as part of the cemetery extension.
- 2.2.2 The tree survey report ref SPH/PB/5837-01/08.06 identified sixteen individual trees and two groups that may be impacted by the scheme, the tree details have been assessed against the proposed scheme set out on site layout drawing Ref: 2801 (AIA) 000 Approved Layout.

2.3 Tree survey

- 2.3.1 The trees were surveyed by Mr Paul Billin BSc MICFor on the 8th June 2018. All tree identification numbers used within this report correspond with those contained within the tree survey schedule included at Appendix 2.

3. Introduction

3.1 AIA objectives

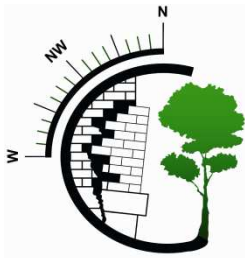
- 3.1.1 To assess the areas within this site where proposed works are to be carried out in close proximity to established trees.
- 3.1.2 To determine whether the proposed works can be carried out successfully without adversely affecting the trees both in the short and long term.
- 3.1.3 To determine whether the trees will have adverse effects on the proposed development both in the short and long term.
- 3.1.4 To suggest ways to mitigate any conflicts that may arise between the trees and the proposed development and to offer recommendations relating to the protection of the trees during redevelopment works.

3.2 Items for consideration

- 3.2.1 Trees and development located within close proximity to each other can influence each other in a number of ways. The following items are normally considered during arboricultural impact studies:
- Root disturbance caused by demolition, excavation & construction e.g. buildings and roads.
 - Location of service runs, welfare/office buildings & materials storage.
 - Changes in levels & surface types.
 - Sunlight shading of exterior amenity areas (such as gardens, playgrounds etc).
 - Physical encroachment by roots, tree stem & branches.
 - Allowance for future tree growth.
 - Health, safety and nuisance items e.g. leaves, fruit and residues.

3.3 Guidance whilst assessing trees in relation to development includes:

- *BS 5837:2012 Trees in Relation to Design, Demolition and Construction - Recommendations.* Published by the British Standards Institute.



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3.3 continued...

- *Tree Preservation Orders: A Guide to the Law and Good Practice*. Published by the Department of the Environment, Transport and the Regions.
- *NJUG 10 - Guidelines for the planning, installation and maintenance of Utility Services in relation to trees*. Published by the National Joint Utilities Group (NJUG).

4. Analysis

4.1 Assessment methodology

4.1.1 The assessment is based on the guidance given in BS 5837:2012 *Trees in Relation to Design, Demolition and Construction – Recommendations*.

4.2 Key issues

4.2.1 The key issues associated with the proposed items identified above in relation to trees are:

- Will there be direct impacts from tree losses on the landscape, both in terms of impacts on visual receptors and impacts on the landscape character of the area?
- Will the proposed cemetery extension require grade and ground level alterations that may have significant implications for root systems of retained trees?
- The tree constraints and tree protection measures.
- Services in close proximity to the retained trees
- Leaf/fruit or sap fall and shade constraints leading to pressure to prune or fell.
- Damage to mature trees with low canopy heights growing in close proximity to machinery and contractors plant operating areas.

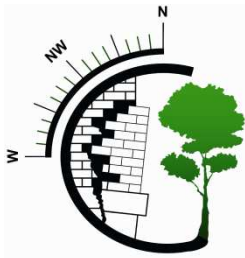
4.2.2 These key issues and associated impacts are considered below along with possible tree protection measures and mitigation as necessary.

5. Impact on existing trees

5.1 Tree loss, tree damage and pruning works

5.1.1 The proposed layout will require the removal of seven trees (T), they are T9, T10, T11, T12, T13, T14 and T15; they are all category 'C', "Trees of low quality". There will be the indirect tree loss, as a result of poor health and condition, of one group of trees; T17; this is a category 'U' group.

5.1.2 Details of the trees to be lost are set out on the mitigation plan drawing SPH/PB/MIT-01/05.10, included at Appendix 1 and in the tree survey schedule included at Appendix 2.



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5.2 Impacts on root protection areas (RPAs)

- 5.2.1 The Proposed Extension Layout has been designed so that there will be no impact on the RPAs of retained trees T1-T8, T16 and G18. There will be no major impacts on tree root protection areas as a result of this scheme provided that the tree protection barrier is installed and maintained as per the mitigation plan SPH/PB/MIT-01/05.10.

5.3 Grade changes

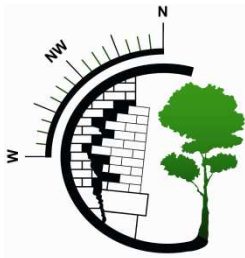
- 5.3.1 No grade changes are proposed to facilitate the removal of existing railings and fencing and construction of vehicular access track and pedestrian footpath and therefore there will be no impact on the retained tree RPA providing adequate tree protection measures are adopted.
- 5.3.2 Should grade changes be required within the RPA of retained trees, the contractor must prepare a method statement setting out how the work will be undertaken and the machinery used in order to minimise disturbance and reduce compaction to the RPA of retained trees. The method statement must be submitted to and approved by the Arboricultural Consultant (AC) prior to any alterations or changes and the work must be supervised by the AC.

5.4 Tree protection measures

- 5.4.1 To protect retained trees from the removal of the existing metal railings and fencing along the northern and eastern boundaries and 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.
- 5.4.2 The accompanying mitigation plan drawing SPH/PB/MIT-01/05.10 shows the specific tree protection locations required prior to and during the construction of the vehicular access track and pedestrian footpaths.
- 5.4.3 The tree protection barrier as specified and detailed in BS 5837:2012 (section 6.2, Fig 2), and included in Appendix 5 of the tree survey report ref SPH/PB/5837-01/08.06, is designed to provide construction exclusion zones around the RPAs of all trees to be retained.
- 5.4.4 We do not anticipate any long term negative impacts upon the retained trees provided that the required tree protection measures are implemented.

5.5 Services in close proximity to retained trees

- 5.5.1 We have no details of the location of new underground services, nor of any significant alterations to the existing services.
- 5.5.2 If there is a need to replace/renew or install underground services close to retained trees the proposal must be considered by the AC prior to any amendments or work commencing on site and allowed sufficient time to respond.



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6. Visual impact on the landscape and tree character

6.1 The trees that will be lost are all category 'C' trees, six between 6.5 to 8.5 metres (m) in height, and one of 17.0 metres:

- T9 Field maple; height 7.0m
- T10 Sycamore: height 17.0m
- T11 Common oak; height 8.5m
- T12 Common oak; height 6.5m
- T13 Common oak; height 8.5m
- T14 Goat willow; height 8.5m
- T15 Wild cherry; height 6.5m

6.2 The loss of seven small, semi-mature trees will lead to a minor negative impact on the wider landscape character and a minor loss of amenity locally. There will be a minor negative impact on the sylvan character of the site when viewed directly from the south.

6.3 There are no landscape reasons to mitigate the loss of trees on this site. The areas to the north and east of the site have a good range of mature trees providing landscape continuity. The wider landscape will remain largely unchanged, as the trees are mainly located along the southern boundary of the site and there are no properties that would have their visual amenity adversely affected.

6.4 It is however proposed to plant ten additional trees along the northern boundary of this site. These are shown on the mitigation plan, drawing SPH/PB/MIT-01/05.10, but the landscaping details are not part of this AIA.

7. Direct or indirect impacts of trees

7.1 The retained trees, the Red oak trees (T1 to T8), the sycamore T16 and the group of Field maple G18 will not be affected by the development work providing the protection measures set out and included on the mitigation plan drawing SPH/PB/MIT-01/05.10 are followed.

7.2 There is no requirement for crown pruning for construction works, nor will the tree crowns be affected by the development.

8. Leaf, fruit or sap fall and shade

8.1 The retained Red oak trees (T1 to T8) will provide shade over parts of the site in early to mid-morning. Shade is considered beneficial especially in hot weather and we do not anticipate any adverse impacts as a result of these retained trees.

8.2 Leaf fall is anticipated from the retained oak trees, but this can be managed by leaf collection as currently practiced and therefore no adverse impact is anticipated as a result of the proposal.

8.3 There are no trees near the proposal which are prone to the production of honeydew exudate, or fruit fall.



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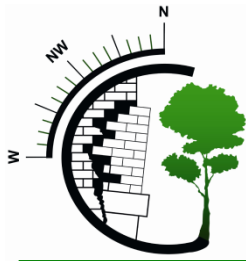
9. Conclusions

- 9.1 The proposed scheme results in a direct loss of seven category `C` trees. The loss of six small, semi-mature trees between 6.5 to 8.5 metres in height, and one poor sycamore of 17 metres, will have very little impact on the landscape amenity, either internally or externally.
- 9.2 Providing the protection measures set out above and included on the mitigation plan drawing SPH/PB/MIT-01/05.10 are followed there will be no significant impacts on the retained trees.

10. Recommendations

We recommend that tree protection measures as set out on the mitigation plan drawing SPH/PB/MIT-01/05.10 are implemented and should be conditioned as part of any planning consent. The proposed construction work will not then impact on the RPAs of the retained trees and therefore site supervision by an AC is considered unnecessary and would be disproportionate to the risk associated with the work.

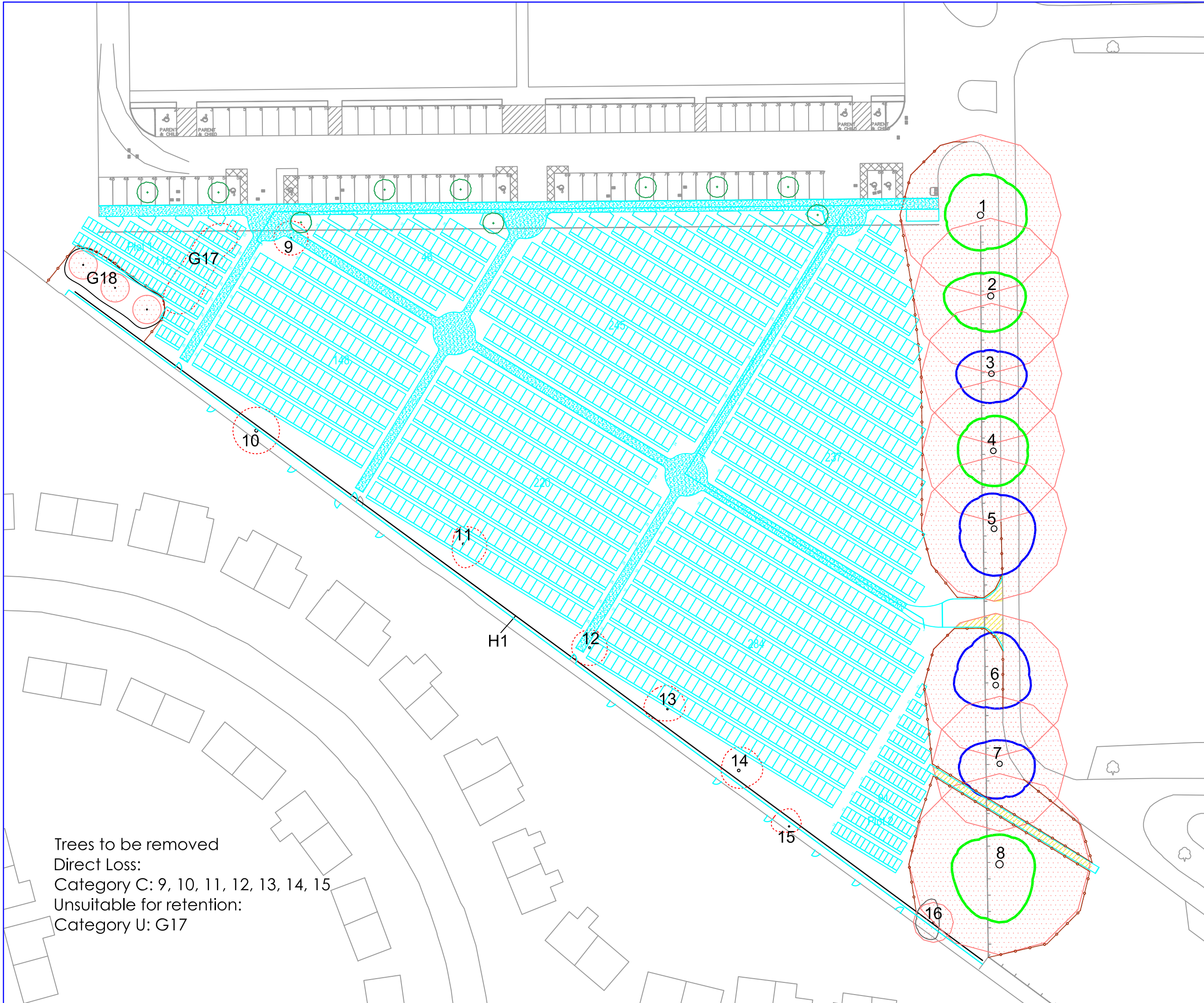
Paul Billin BSc MICFor
Arboricultural Consultant
Tree Surveys



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APPENDIX 1

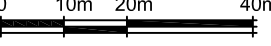


NOTES

- 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.
- Proposal based on 2801 (AIA) 000 Approved Layout.dwg

Key:

-  Trees retained
- refer to report for information
-  Tree number
- refer to report for information
-  Group number
- refer to report for information
-  Existing site features
-  Root protection area (RPA)
-  Proposed area of works
-  Tree protection barrier (TPB)
- refer to report for information
-  Tree for removal
-  New tree planting
-  Ground protection (minimum area)
- refer to arboricultural method statement



Rev A. Layout updated

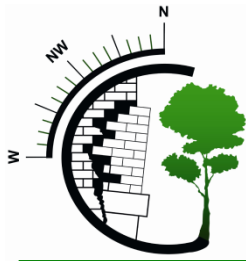
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Fax: 0118 9761168
e-mail: info@tree-surveys.com

Client	Reading Borough Council		
Job Title	Reading Cemetery & Crematorium Extension		
Drawing Title	MITIGATION PLAN		
Scale	1:600 @ A3		
Date	October 2018	Drawn: MJE	Checked: PB
Drg. No.	SPH/PB/MIT-01/05,10	Rev A	

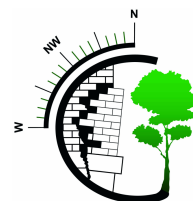


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APPENDIX 2

BS5837:2012 Tree Survey



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

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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		C
				E	4	0							10 to 20 yrs
				S	4	0					Poor form and structure		
				W	2	2							
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		C
				E	3	1							20 to 40 yrs
				S	3	1					Fair form and structure		
				W	3	2							
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		C
				E	3	1							20 to 40 yrs
				S	2	3					Climbers in canopy		
				W	4	1							
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		C
				E	4	0							10 to 20 yrs
				S	3	4					Diam @ 1m. Co dominant stems tight union 1.1m, high probability of failure		
				W	3	0							
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		C
				E	2	1							10 to 20 yrs
				S	1	4					Unremarkable		
				W	3	1							
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		C
				E	1	2							10 to 20 yrs
				S	3	2					Poor form and structure		
				W	3	2							
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		
17											Estimated Measurements	
A Group	4.5	1	75	N	2	1	SM	A: 2.5	Fair	C: Fair	Fell :: Fell to ground level	U
- -				E	2	1		R: 0.89		S: Poor		n/a
				S	2	1				B: Poor	Three small field maples, poor form and structure	
				W	2	1						
18											Estimated Measurements	
A Group	5.5	1	150	N	3	1.5	M	A: 10.2	Fair	C: Fair	No action :: Unspecified	B.2
- -				E	3	1.5		R: 1.8		S: Good		>40 yrs
				S	3	1.5				B: Good	3 semi mature filed maple adjacent to green waste area	
				W	3	1.5						

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