



ArbTS - Arboricultural Technician Services

(Tree Consultancy Services)

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Arboricultural Report

Including:

Tree Survey Data

&

Tree Constraints Plan (TCP)

To the British Standard 5837:2012
*(Trees in relation to design, demolition
and construction. Recommendations)*

Date – 17th October 2018

Site – Land Adjacent to A48, Pyle, Bridgend

Project Reference – ArbTS_556.1_Pyle

Table of Contents

1.0	Introduction	3
2.0	The Tree Survey	3
3.0	The Trees	4
4.0	Tree Constraints Plan Information	4
5.0	Tree Protection Information	5
6.0	Conclusion	5
7.0	Qualifications & Further Information	6
8.0	Bibliography & Web Information	7
9.0	Appendix	
	1A	Tree Survey Data
	1B	Detailed Tree Survey Data Summary
	2	Tree Constraints Plan
	3	Tree Survey Key
	4	An Introduction to Tree Protection
	5	Tree Photographs

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1.0 Introduction

- 1.1 The purpose of this report is to give an overview assessment as to the quality and constraints of the trees and hedgerows at Land Adjacent to A48, Pyle, Bridgend. The findings of this survey will be used to inform future design proposals, to preserve and minimise damage to the important trees and hedgerows on or adjacent to this site.
- 1.2 This report identifies the quality of the trees on or adjacent to this site as categorised by the *British Standard 5837:2012, Trees in relation to design, demolition and construction - Recommendations*. The survey and findings as reported here represent an unbiased third party opinion offering professional advice as to the value of the trees on this site. A Tree Constraints Plan (TCP) has been drawn, as found in Appendix 2, to illustrate the constraints identified trees pose to the design of future development.
- 1.3 Arboricultural constraints within the surveyed site relate primarily to the preservation of trees recommended for retention. Identified trees must be protected during the construction phase through the employment of a combination of protective barriers, ground protection zones and tree safe construction methods, designed by a suitably qualified Arboriculturist.
- 1.4 The trees' root systems and the associated soil structure is often over looked during the construction process, and can be damaged or altered by compaction, causing major damage to the health of the tree. Generally, the entire root system of the tree is within the top 600mm of soil where it can be easily damaged. A calculated area of ground around the tree should be protected for the duration of the onsite construction phase. In this report it is referred to as the Root Protection Area (RPA).
- 1.5 No Arboricultural Impact Assessment, Tree Protection Plan or Tree Protection Method Statement are included within this report. No assessment has been made regarding the suitability of the proposed development design within this report.

2.0 The Tree Survey

- 2.1 The tree survey was conducted by Stephen Lucocq *BSc (Hons), Tech Cert (ArborA), M.Arbor.A* on 15th October 2018.
- 2.2 All observations were made from the ground with the aid of an acoustic sounding hammer. No invasive decay detective instruments were used.
- 2.3 The survey was carried out in accordance to *British Standard 5837:2012, Trees in relation to design, demolition and construction - Recommendations*. This standard gives a systematic, consistent and transparent evaluation method to tree surveying.
- 2.4 The survey was conducted with the aid of an OS master map plan. Trees and hedgerows were plotted at +/- 2 metres accuracy.
- 2.5 **Preliminary management recommendations:** The survey has identified preliminary management recommendation for the trees on or adjacent to this site. Details

regarding these identified operations are given in this report (See Appendix 1 - Tree Survey Data). Where work priority is stated to be H – High due to safety reasons, these operations should be carried out as soon as practically possible. Where work priority is stated to be M/H – medium/high or higher, these operations should be undertaken before commencement of any works on site.

- 2.6 **Limitations of the tree survey:** This survey was carried out to provide an overview assessment of the quality and constraints of the trees on or adjacent to this site. No responsibility can be taken for resultant damage or injury occurred by a failing tree. The survey only gives a snap shot of what is visible and is not obscured on the day of the survey. The survey identifies trees of varying quality and their above ground/below ground constraints. This survey does not constitute a full detailed tree condition/tree risk assessment of the site and this report is only valid for 12 months from the date of the tree survey.

3.0 The Trees

- 3.1 The full tree survey data can be found in Appendix 1A Tree Survey Data.
- 3.2 Tree Survey Summary Table (See Appendix 3 for BS5837 category definitions). (A more detailed Tree Survey Data Summary can be found in Appendix 1B)

BS5837:2012 Quality Category	Total Number of Individual Trees Surveyed	Total Number of Tree Groups Surveyed	Total Number of Tree Areas Surveyed	Total Number of Woodland Areas Surveyed	Total Number of Hedgerows Surveyed	Total
A (High - Most desirable for retention)	1	0	0	0	0	1
B (Moderate - Desirable for retention)	0	18	1	0	0	19
C (Low - Optional for retention)	2	8	1	0	43	54
U (Poor - Unsuitable for retention)	0	0	0	0	0	0
Total A,B,C,U	3	26	2	0	43	74

4.0 Tree Constraints Plan (TCP) Information

- 4.1 A Tree Constraints Plan (TCP) can be found at Appendix 2 of this report. An introduction to TCP can also be found at the start of Appendix 2. For further information and details regarding TCP please see the *British Standard 5837:2012, Trees in relation to design, demolition and construction – Recommendations*.

5.0 Tree Protection Information

- 5.1 No Arboricultural Impact Assessment, Tree Protection Plan or Tree Protection Method Statement are included within this report for the proposed development design. An introduction to Tree Protection can be found at Appendix 4.

6.0 Conclusion

- 6.1 This site has potential to accommodate development whilst retaining the trees of value. The significant trees on or adjacent to this site should be given due consideration in the development design process.
- 6.2 If the health and stability of the trees are maintained, and the following strategies implemented: a suitable development design; tree protection methods; Arboricultural site supervision and tree after care, the process of construction could be conducted with no adverse impact on the important trees upon or adjacent to this site.

7.0 Further Information & Qualifications

Stephen Lucocq has been involved in Arboriculture within South Wales for nearly twenty years. He has worked as an Arborist for many of these years and has a good working knowledge of the practical side of the profession. He has always taken an active interest in all areas of Arboriculture and kept up to date with current research and developments.

Qualifications

- First Class BSc (Hons) Degree – Combined Studies - Biology and IT
- Arboricultural Association Technicians Certificate – Level 4 - (Merit)
- PTI - Professional Tree Inspection (Lantra Awards)
- 2D Computer Aided Design (City and Guilds - Level 3)
- Quantified Tree Risk Assessment (QTRA) – Mike Ellison
- Visual Tree Assessment (VTA) – Mike Ellison
- Arboriculture and Bats (Lantra)
- Industrial Rope Access Trade Association (IRATA)
- Practical Arboriculture Qualifications (NPTC)

Membership

- Arboricultural Association Professional Member (*M.Arbor.A*)

8.0 Web Information & Bibliography

Web Information

- Arboricultural Association
<http://www.trees.org.uk/>
- Cellular Confinement System
GeoWeb - [GreenFix](#)
CellWeb - [Geosynthetics](#) [Cellweb](#)
- Underground Utilities Installation
<http://www.njug.org.uk/>

Bibliography

- British Standards 3998 (2010) Recommendations for Tree Work UK; British Standards Intuition
- British Standard 5837:2012, Trees in relation to design, demolition and construction - Recommendations UK; British Standards Intuition
- Coombes, A.J (1992) Trees London; Dorling Kindersley
- Lonsdale, D (1999) Principle of Tree Hazard Assessment and Management Edinburgh; Forestry Commission
- Mattheck, C (2007) Field Guide for Visual Tree Assessment Germany; Karlsruhe Research Centre
- Shigo, A.L (1991) Modern Arboriculture USA; Shigo and Trees, Association
- Sterry, P (2007) Collins Complete British Trees London; Collins
- Strouts, R.G (2000) Diagnosis of ill-health in trees Edinburgh; Forestry Commission
- Weber, K & Mattheck, C (2003) Manual of wood decay UK; Arboricultural Association

9.0 Appendix 1A -Tree Survey Data

Tree ID #	Tree Species	Age	Stems	Stem Diam (mm)	Cat	Height + (Lower Branch Height)	Nrth	Est	Sth	Wst	Phys Cond	Struc Cond	Est. Remain Contrib	Comments	Preliminary Management Recommendations	Work Priority	RPR (m)	RPA (m2)
A1	Fraxinus excelsior (Ash), Quercus robur (Common Oak), Salix caprea (Goat Willow), Acer pseudoplatanus (Sycamore)	EM	1	200	B2	7(0)	2	2	2	2	F	F	20+	low B category. area of small trees and scrub growing on motorway embankment, western end sparse in tree cover			2.4	18.1
A2	Acer pseudoplatanus (Sycamore), Fraxinus excelsior (Ash), Crataegus monogyna (Hawthorn), Prunus spinosa (Blackthorn)	SM	1	150	C2	5(0)	2	2	2	2	G/F	F	20+	sparse area of small trees and scrub growing on motorway embankment			1.8	10.18
G1	Fraxinus excelsior (Ash), Prunus spinosa (Blackthorn), Crataegus monogyna (Hawthorn), Sambucus nigra (Elder)	EM	1	300	C2	8(0)	3	3	3	3	F	F	20+	high C category. area of mainly blackthorn scrub with two early mature ash trees not, group located in small depression in the ground			3.6	40.72
G2	Acer pseudoplatanus (Sycamore), Prunus avium (Wild Cherry), Acer platanoides (Norway Maple), Crataegus monogyna (Hawthorn), Cypress spp (Cypress spp), Aesculus hippocastanum (Horse Chestnut)	EM	1	400	B2	9(0)	3	3	3	3	G/F	F	20+	low B category. road side group of trees and shrub of moderate value			4.8	72.39
G3	Fraxinus excelsior (Ash), Crataegus monogyna (Hawthorn), Acer pseudoplatanus (Sycamore), Prunus spinosa (Blackthorn), Acer campestre (Field Maple), Salix fragilis (Crack Willow), Salix caprea (Goat Willow), Cypress spp (Cypress spp)	EM	1	250	B2	8(2)	2	2	2	2	G/F	F	20+	low B category. group of trees and scrub growing along motorway and road, some sparse areas and sprawling scrub noted			3	28.28

Tree ID #	Tree Species	Age	Stems	Stem Diam (mm)	Cat	Height + (Lower Branch Height)	Nrth	Est	Sth	Wst	Phys Cond	Struc Cond	Est. Remain Contrib	Comments	Preliminary Management Recommendations	Work Priority	RPR (m)	RPA (m2)
G4	Crataegus monogyna (Hawthorn), Corylus avellana (Hazel), Ilex aquifolium (Holly), Fraxinus excelsior (Ash), Prunus spinosa (Blackthorn)	M	1	200	C2	5(2)	4	4	4	4	F	F	10+	small section of recently unmanaged hedgerow			2.4	18.1
G5	Crataegus monogyna (Hawthorn), Fraxinus excelsior (Ash), Malus (Apple)	EM	1	350	C2	10(0)	5	5	5	5	F	F	10+	elapsd managed section of hedgerow that has developed into multistemmed trees			4.2	55.42
G6	Crataegus monogyna (Hawthorn), Salix caprea (Goat Willow), Prunus spinosa (Blackthorn)	EM	1	150	C2	4(2)	2	2	2	2	F	F	10+	road side group of trees and scrub with some gaps noted			1.8	10.18
G7	Fagus sylvatica (Beech)	EM	1	550	B2	10(2)	5	5	5	5	G/F	G/F	20+	road side group of beech trees			6.6	136.9
G8	Prunus spinosa (Blackthorn), Pinus nigra (Austrian Pine), Crataegus monogyna (Hawthorn), Salix caprea (Goat Willow), Fagus sylvatica (Beech), Acer pseudoplatanus (Sycamore)	EM	1	400	B2	15(3)	4	4	4	4	F	F	20+	road side group of trees and scrub, some pine with sparse needle cover noted	thin out weak declining / dead trees	H/M	4.8	72.39
G9	Acer pseudoplatanus (Sycamore), Fagus sylvatica (Beech), Pinus nigra (Austrian Pine), Acer campestre (Field Maple)	EM	1	450	B2	14(4)	5	5	5	5	F	F	20+	road side group of trees and scrub, some pine with sparse needle cover noted	thin out weak declining / dead trees	H/M	5.4	91.62
G10	Acer campestre (Field Maple), Corylus avellana (Hazel)	EM	1	200	C2	4(2)	3	3	3	3	F	F	10+	small section of recently unmanaged hedgerow			2.4	18.1
G11	various tree and scrub spp (various tree and scrub spp)	EM	1	250	B2	7(0)	3	3	3	3	G/F	F	20+	road side group of trees			3	28.28

Tree ID #	Tree Species	Age	Stems	Stem Diam (mm)	Cat	Height + (Lower Branch Height)	Nrth	Est	Sth	Wst	Phys Cond	Struc Cond	Est. Remain Contrib	Comments	Preliminary Management Recommendations	Work Priority	RPR (m)	RPA (m2)	
G12	Acer pseudoplatanus (Sycamore)	EM	1	450	B2	8(3)	5	5	5	5	G/F	G/F	20+	small row of sycamore			5.4	91.62	
G13	Acer pseudoplatanus (Sycamore), Fraxinus excelsior (Ash), Acer campestre (Field Maple)	EM	1	450	B2	10(3)	7	7	7	7	F	F	20+	road side group of trees and scrub, some scrub areas noted			5.4	91.62	
G14	Acer pseudoplatanus (Sycamore)	EM	1	450	B2	10(0)	6	6	6	6	F	F	20+	road side group of trees and scrub, some gaps and scrubby areas noted			5.4	91.62	
G15	Acer pseudoplatanus (Sycamore), Prunus spinosa (Blackthorn), Sorbus aria (Whitebeam), Crataegus monogyna (Hawthorn)	EM	1	450	B2	9(0)	6	6	6	6	F	F	20+	low B category. road side group of trees and scrub, some gaps and scrubby areas noted			5.4	91.62	
G16	Acer pseudoplatanus (Sycamore), Quercus robur (Common Oak), Acer campestre (Field Maple)	EM	1	500	B2	13(4)	6	6	6	6	G/F	G/F	20+	road side row of trees			6	113.1	
G17	various tree and scrub spp (various tree and scrub spp)	EM	1	350	B2	10(0)	3	3	3	3	G/F	G/F	20+	Surrounding vegetation prevented close inspection of the tree therefore all observations and measurements are estimated.	large group of trees and scrubs			4.2	55.42
G18	various tree and scrub spp (various tree and scrub spp)	EM	1	350	B2	10(0)	3	3	3	3	G/F	G/F	20+	Located on private land preventing a close inspection of the tree therefore all observations and measurements are estimated.	located between field system and railway line, unable to survey closely as cattle located in field			4.2	55.42
G19	various tree and scrub spp (various tree and scrub spp)	EM	1	250	C2	6(0)	4	4	4	4	F	N/A	10+	unable to survey closely as cattle located in field			3	28.28	
G20	various tree and scrub spp (various tree and scrub spp)	EM	1	400	B2	14(0)	5	5	5	5	F	N/A	20+	boundary group of trees, unable to survey closely as cattle located in field			4.8	72.39	

Tree ID #	Tree Species	Age	Stems	Stem Diam (mm)	Cat	Height + (Lower Branch Height)	Nrth	Est	Sth	Wst	Phys Cond	Struc Cond	Est. Remain Contrib	Comments	Preliminary Management Recommendations	Work Priority	RPR (m)	RPA (m2)	
G21	Fagus sylvatica (Beech), Pinus nigra (Austrian Pine)	EM	1	500	B2	10(3)	5	5	5	5	G/F	G/F	20+				6	113.1	
G22	Fagus sylvatica (Beech), Acer campestre (Field Maple)	EM	1	300	C2	10(4)	4.5	4.5	4.5	4.5	G/F	G/F	20+	road side row of trees			3.6	40.72	
G23	Acer pseudoplatanus (Sycamore), Fraxinus excelsior (Ash), Acer campestre (Field Maple), Crataegus monogyna (Hawthorn), Salix caprea (Goat Willow)	EM	1	450	B2	11(3)	7	7	7	7	F	F	20+	road side group of trees and scrub, some scrubby areas noted, overhanging carriageway	fell declining branches / trees and reduce overextend overhanging branch over the carriage by 30 to 40 percent in branch length	H/M	5.4	91.62	
G24	Acer pseudoplatanus (Sycamore)	EM	1	550	B2	8(3)	5	5	5	5	G/F	G/F	20+	end tree of small row of sycamore			6.6	136.9	
G25	Cypress spp (Cypress spp)	EM	1	300	C2	7(0)	3	3	3	3	G/F	F	10+	row of conifer spp			3.6	40.72	
G26	Fagus sylvatica (Beech), Acer pseudoplatanus (Sycamore)	M	1	800	B2	16(6)	9	9	9	9	F	F	20+	low B category. one large beech with southern stem removed and two smaller suppressed sycamore trees, unable to survey closely as cattle located in field			9.6	289.6	
H1	Native Hedgerow Spp (Native Hedgerow Spp)	M	1	100	C2	1.5(0)	1.5	1.5	1.5	1.5	G/F	G/F	20+	Field boundary hedgerow			1.2	4.52	
H2	Native Hedgerow Spp (Native Hedgerow Spp)	M	1	100	C2	1.5(0)	2	2	2	2	G/F	G/F	20+	Field boundary hedgerow			1.2	4.52	
H3	Native Hedgerow Spp (Native Hedgerow Spp)	M	1	100	C2	2(0)	1.5	1.5	1.5	1.5	F	F	10+	A hedgerow with no noticeable gaps noted.	Field boundary hedgerow			1.2	4.52
H4	Native Hedgerow Spp (Native Hedgerow Spp)	M	1	100	C2	2(0)	1.5	1.5	1.5	1.5	G/F	G/F	20+	Field boundary hedgerow			1.2	4.52	
H5	Native Hedgerow Spp (Native Hedgerow Spp)	M	1	100	C2	1.5(0)	1.5	1.5	1.5	1.5	F	F	10+	Field boundary hedgerow			1.2	4.52	
H6	Native Hedgerow Spp (Native Hedgerow Spp)	M	1	200	C2	5(0)	3	3	3	3	G/F	G/F	20+	A hedgerow with minor gaps noted.	Field boundary hedgerow, thick and overgrown in places			2.4	18.1
H7	Native Hedgerow Spp (Native Hedgerow Spp)	M	1	100	C2	2(0)	2	2	2	2	F	F	20+	A hedgerow with minor gaps noted.	Field boundary hedgerow			1.2	4.52
H8	Native Hedgerow Spp (Native Hedgerow Spp)	M	1	150	C2	4(0)	3.5	3.5	3.5	3.5	F	F	20+	high C category.	Field boundary hedgerow			1.8	10.18
H9	Native Hedgerow Spp (Native Hedgerow Spp)	M	1	100	C2	1(0)	1	1	1	1	F/P	F/P	10+	low C category. A hedgerow with major gaps noted.	Field boundary hedgerow			1.2	4.52
H10	Native Hedgerow Spp (Native Hedgerow Spp)	M	1	150	C2	3(0)	3	3	3	3	G/F	G/F	20+	Field boundary hedgerow			1.8	10.18	

Tree ID #	Tree Species	Age	Stems	Stem Diam (mm)	Cat	Height + (Lower Branch Height)	Nrth	Est	Sth	Wst	Phys Cond	Struc Cond	Est. Remain Contrib	Comments	Preliminary Management Recommendations	Work Priority	RPR (m)	RPA (m2)	
H11	Native Hedgerow Spp (Native Hedgerow Spp)	M	1	150	C2	2(0)	2.5	2.5	2.5	2.5	F	F	10+		Field boundary hedgerow			1.8	10.18
H12	Crataegus monogyna (Hawthorn), Fraxinus excelsior (Ash), Prunus spinosa (Blackthorn), Salix caprea (Goat Willow)	EM	1	100	C2	2.5(0)	3	3	3	3	F	F	10+		sprawling area of scrub and brambles with a few number of small trees			1.2	4.52
H13	Native Hedgerow Spp (Native Hedgerow Spp)	M	1	150	C2	1.5(0)	2	2	2	2	F	F/P	10+	A hedgerow with major gaps noted.	Field boundary hedgerow			1.8	10.18
H14	Native Hedgerow Spp (Native Hedgerow Spp)	M	1	100	C2	1.5(0)	1.5	1.5	1.5	1.5	F	F	20+		Field boundary hedgerow			1.2	4.52
H15	Native Hedgerow Spp (Native Hedgerow Spp)	M	1	100	C2	2(0)	1.5	1.5	1.5	1.5	F	F	20+		Field boundary hedgerow			1.2	4.52
H16	Native Hedgerow Spp (Native Hedgerow Spp)	M	1	100	C2	2(0)	1.5	1.5	1.5	1.5	F	F	10+		Field boundary hedgerow			1.2	4.52
H17	Native Hedgerow Spp (Native Hedgerow Spp)	M	1	100	C2	1.5(0)	1.5	1.5	1.5	1.5	F	F	20+	A hedgerow with minor gaps noted.	Field boundary hedgerow			1.2	4.52
H18	Native Hedgerow Spp (Native Hedgerow Spp)	M	1	100	C2	1.5(0)	1.5	1.5	1.5	1.5	F	F	20+	low C category. A hedgerow with major gaps noted.	Field boundary hedgerow			1.2	4.52
H19	Native Hedgerow Spp (Native Hedgerow Spp)	M	1	100	C2	2(0)	1.5	1.5	1.5	1.5	F	F	20+		Field boundary hedgerow			1.2	4.52
H20	Native Hedgerow Spp (Native Hedgerow Spp)	M	1	100	C2	1.5(0)	1.5	1.5	1.5	1.5	F	F	20+		Field boundary hedgerow			1.2	4.52
H21	Native Hedgerow Spp (Native Hedgerow Spp)	M	1	100	C2	1.5(0)	1.5	1.5	1.5	1.5	F	F	10+		Field boundary hedgerow			1.2	4.52
H22	Native Hedgerow Spp (Native Hedgerow Spp)	M	1	100	C2	1.5(0)	1.5	1.5	1.5	1.5	F	F	10+		Field boundary hedgerow			1.2	4.52
H23	Native Hedgerow Spp (Native Hedgerow Spp)	M	1	100	C2	1(0)	1.5	1.5	1.5	1.5	F	F	10+		Field boundary hedgerow			1.2	4.52
H24	Native Hedgerow Spp (Native Hedgerow Spp)	M	1	100	C2	1.5(0)	1.5	1.5	1.5	1.5	F	F	10+		Field boundary hedgerow			1.2	4.52
H25	Native Hedgerow Spp (Native Hedgerow Spp)	M	1	100	C2	1.5(1)	1.5	1.5	1.5	1.5	F	F	10+	A hedgerow with minor gaps noted.	Field boundary hedgerow			1.2	4.52
H26	Native Hedgerow Spp (Native Hedgerow Spp)	M	1	100	C2	1.5(0)	1.5	1.5	1.5	1.5	F	F	20+		Field boundary hedgerow			1.2	4.52
H27	Native Hedgerow Spp (Native Hedgerow Spp)	M	1	100	C2	1.5(0)	1.5	1.5	1.5	1.5	G/F	G/F	20+		Field boundary hedgerow			1.2	4.52
H28	Native Hedgerow Spp (Native Hedgerow Spp)	M	1	100	C2	1.5(1)	1.5	1.5	1.5	1.5	F	F	10+		Field boundary hedgerow			1.2	4.52
H29	Native Hedgerow Spp (Native Hedgerow Spp)	M	1	100	C2	2(0)	1.5	1.5	1.5	1.5	F	F	10+		Field boundary hedgerow			1.2	4.52
H30	Native Hedgerow Spp (Native Hedgerow Spp)	M	1	150	C2	2(0)	1.5	1.5	1.5	1.5	G/F	G/F	20+		Field boundary hedgerow			1.8	10.18
H31	Native Hedgerow Spp (Native Hedgerow Spp)	M	1	150	C2	4(0)	2	2	2	2	F	F	10+		Field boundary hedgerow			1.8	10.18
H32	Native Hedgerow Spp (Native Hedgerow Spp)	M	1	100	C2	1.25(0)	1.5	1.5	1.5	1.5	F	F	10+		Field boundary hedgerow			1.2	4.52
H33	Native Hedgerow Spp (Native Hedgerow Spp)	M	1	100	C2	2(0)	1.5	1.5	1.5	1.5	F	F	10+	A hedgerow with no noticeable gaps noted.	Field boundary hedgerow			1.2	4.52
H34	Native Hedgerow Spp (Native Hedgerow Spp)	M	1	100	C2	1(0)	1	1	1	1	F	F	10+		Field boundary hedgerow			1.2	4.52
H35	Native Hedgerow Spp (Native Hedgerow Spp)	M	1	100	C2	1(0)	1	1	1	1	F	F	10+		Field boundary hedgerow, over grown with brambles and ferns			1.2	4.52
H36	Crataegus monogyna (Hawthorn), Fraxinus excelsior (Ash), Prunus spinosa (Blackthorn), Salix caprea (Goat Willow)	EM	1	100	C2	2.5(0)	2	2	2	2	F	F	10+		sprawling area of scrub and brambles			1.2	4.52

Tree ID #	Tree Species	Age	Stems	Stem Diam (mm)	Cat	Height + (Lower Branch Height)	Nrth	Est	Sth	Wst	Phys Cond	Struc Cond	Est. Remain Contrib	Comments	Preliminary Management Recommendations	Work Priority	RPR (m)	RPA (m2)
H37	Native Hedgerow Spp (Native Hedgerow Spp)	M	1	150	C2	4(0)	3	3	3	3	G/F	G/F	20+	high C category.	Field boundary hedgerow		1.8	10.18
H38	Native Hedgerow Spp (Native Hedgerow Spp)	M	1	150	C2	3(0)	3	3	3	3	G/F	G/F	20+	A hedgerow with moderate gaps noted.	Field boundary hedgerow		1.8	10.18
H39	Native Hedgerow Spp (Native Hedgerow Spp)	M	1	150	C2	3(0)	3.5	3.5	3.5	3.5	F	F	20+		Field boundary hedgerow		1.8	10.18
H40	Native Hedgerow Spp (Native Hedgerow Spp)	M	1	100	C2	1.25(0)	1.5	1.5	1.5	1.5	F	F	10+	A hedgerow with minor gaps noted.	Field boundary hedgerow		1.2	4.52
H41	Native Hedgerow Spp (Native Hedgerow Spp)	M	1	100	C2	1.25(0)	1.5	1.5	1.5	1.5	F	F	10+		Field boundary hedgerow		1.2	4.52
H42	Native Hedgerow Spp (Native Hedgerow Spp)	M	1	100	C2	1.5(0)	1.5	1.5	1.5	1.5	F	F	10+		Field boundary hedgerow, unable to survey closely as cattle located in field		1.2	4.52
H43	Native Hedgerow Spp (Native Hedgerow Spp)	M	1	100	C2	1.5(0)	1.5	1.5	1.5	1.5	F	F	10+		Field boundary hedgerow		1.2	4.52
T1	Acer pseudoplatanus (Sycamore)	M	1	1150	A2	13(3)	10	9	9	10	G/F	N/A	20+		unable to be inspected due to cattle in field, appears a tree of some age and value when in inspected from road		13.8	598.4
T2	Malus (Apple)	M	1	300	C3	5(2)	4	4	4	4	F	F	10+		small fruit tree of moderate interest, animal damage to buttress noted		3.6	40.72
T3	Pinus nigra (Austrian Pine)	EM	1	350	C2	14(4)	4	7	3	5	F/P	F	10+	Slightly sparse foliage cover.	small for species pine, two small low quality conifers and small copper beech noted adjacent to pine		4.2	55.42

9.0 Appendix 1B – Detailed Tree Survey Data Summary

(Please see Appendix 3 - Tree Survey Key)

Field Usage Results.		
Total Records: 74		
Type	Count	% of Total
T	3	4.1
G	26	35.1
A	2	2.7
H	43	58.1
Tree Species	Count	% of Total
Native Hedgerow Spp (Native Hedgerow Spp)	41	55.4
Acer pseudoplatanus (Sycamore)	4	5.4
Malus (Apple)	1	1.4
Pinus nigra (Austrian Pine)	1	1.4
Fagus sylvatica (Beech)	1	1.4
various tree and scrub spp (various tree and scrub spp)	5	6.8
Cypress spp (Cypress spp)	1	1.4
Age	Count	% of Total
SM	1	1.4
EM	28	37.8
M	45	60.8
Cat	Count	% of Total
A2	1	1.4
B2	19	25.7
C2	53	71.6
C3	1	1.4
Average Stem Diameter	Count	% of Total
<150	33	44.6
<250	15	20.3
<500	20	27
<750	4	5.4
<1000	1	1.4
<2000	1	1.4

Height	Count	% of Total
<5	44	59.5
<10	14	18.9
<15	14	18.9
<20	2	2.7
Phy Cond	Count	% of Total
G/F	23	31.1
F	49	66.2
F/P	2	2.7
Stuc Cond	Count	% of Total
G/F	17	23
F	52	70.3
F/P	2	2.7
N/A	3	4.1
Est. Remain Contrib	Count	% of Total
10+	32	43.2
20+	42	56.8
RPR	Count	% of Total
<5	62	83.8
<10	11	14.9
<15	1	1.4
RPA	Count	% of Total
<5	33	44.6
<15	11	14.9
<20	4	5.4
<30	3	4.1
other	23	31.1

9.0 Appendix 2 - Tree Constraints Plan

An introduction to the Tree Constraints Plan (TCP)

Trees which have been identified to be retained should be treated as constraints to the design of future development. A Tree Constraints Plan has been drawn and can be found over leaf.

- **Tree Quality** - The TCP highlights the above and below ground constraint each tree poses to the design of future development schemes. Further to this the BS5837 tree quality category (A - High, B - Moderate, C - Low and U- Unsuitable for retention) are coloured coded as solid circles at the centre of the trees' position.
- **Root Protection Area** – A magenta circle on the TCP sets out root protection area (RPA). Within this area no construction work, alteration in ground levels or site traffic (machinery or persons) should occur. This prevents damage to tree roots and soil compaction. (Where possible an Arboriculturist can design suitable tree protection methods to facilitate construction work/site traffic within these areas).
- **Tree Canopy** - The jagged green circle/oval on the TCP sets out the above ground constraints of tree canopy spread. Within this area no construction work or site traffic (machinery or persons) should occur if the tree is to be retained. This prevents damage to the tree branches and trunk. (Where possible an Arboriculturist can design suitable tree protection methods to facilitate construction work/site traffic within these areas).
- **Tree Shading** – Shade from the retained trees should be considered in the development design. The shade cast, depending on the trees height and width, will be from a North West to East pattern through the main part of the day.
- **Tree Future growth** - Within future development design, consideration should also be given to the ultimate height and extent of the canopy spread of all trees within the site identified to be retained.

- **Category A (High)**
 ("Highly desirable for retention")
- **Category B (Moderate)**
 ("Desirable for retention")
- **Category C (Low)**
 ("Consider for retention")
- **Category U (Poor)**
 ("Not suitable for retention")

- Tree Key - Individual Trees**
- Tree Species
 - Tree DBH (in centimetres)

Best Protection Area (BPA) (A buffer zone around the maximum spread of a tree deemed to be necessary to protect the tree's ability, and where the protection of the tree and its structure is critical to a project)

- Tree Key - Groups/Species/Qualities**
- Tree Group/Species
 - Tree Species
 - Tree DBH (in centimetres)

- Shade Patterns - shade patterns that show an area of shade cast by a tree**
- Shade Pattern

Retention of BPA's 2012 Categories for Trees, Woodlands and Hedgerows (ECoT)

- A - Those of high quality with an extended canopy and a high density of trees.
- B - Those of moderate quality with an extended canopy and a high density of trees.
- C - Those of low quality with an extended canopy and a high density of trees.
- D - Those of low quality with an extended canopy and a high density of trees.
- E - Those of low quality with an extended canopy and a high density of trees.
- F - Those of low quality with an extended canopy and a high density of trees.
- G - Those of low quality with an extended canopy and a high density of trees.
- H - Those of low quality with an extended canopy and a high density of trees.
- I - Those of low quality with an extended canopy and a high density of trees.
- J - Those of low quality with an extended canopy and a high density of trees.
- K - Those of low quality with an extended canopy and a high density of trees.
- L - Those of low quality with an extended canopy and a high density of trees.
- M - Those of low quality with an extended canopy and a high density of trees.
- N - Those of low quality with an extended canopy and a high density of trees.
- O - Those of low quality with an extended canopy and a high density of trees.
- P - Those of low quality with an extended canopy and a high density of trees.
- Q - Those of low quality with an extended canopy and a high density of trees.
- R - Those of low quality with an extended canopy and a high density of trees.
- S - Those of low quality with an extended canopy and a high density of trees.
- T - Those of low quality with an extended canopy and a high density of trees.
- U - Those of low quality with an extended canopy and a high density of trees.
- V - Those of low quality with an extended canopy and a high density of trees.
- W - Those of low quality with an extended canopy and a high density of trees.
- X - Those of low quality with an extended canopy and a high density of trees.
- Y - Those of low quality with an extended canopy and a high density of trees.
- Z - Those of low quality with an extended canopy and a high density of trees.



Category A (High)
Highly desirable for retention*

Category B (Moderate)
Desirable for retention*

Category C (Low)
Marginal for retention*

Category U (Poor)
Unsuitable for retention*

Tree Key - Individual Trees
Tree Species
Tree DBH (cm)
Tree Height (m)

Tree Key - Group/Tree Stand/Woodland
Tree DBH (cm)
Tree Height (m)
Average Branch Spread

Shade Pattern - shade
Shade pattern that shows an area of shade cast by trees on the ground.

Boundaries of Retention Categories for Trees, Woodlands and Hedgerows (Colours)

* Those of high quality with an extended canopy life expectancy of at least 20 years. ** Highly desirable for retention. *** Marginal for retention. **** Unsuitable for retention.



- Category A (High) - (Highly desirable for retention)
- Category B (Moderate) - (Desirable for retention)
- Category C (Low) - (Consider for retention)
- Category U (Poor) - (Not suitable for retention)

- Tree Key: Individual Trees
- Shrub Species
- Tree Species
- Tree DBH

Best Practice Area (BPA) (A green design tool indicating the maximum area available for planting trees and shrubs and ensuring compliance with the local authority, in order to protect the environment and not obstruct the view of the road)

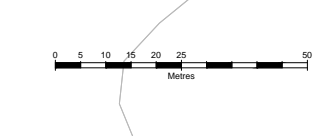
- Tree Key: Groups/Species/Qualities
- Tree DBH
- Tree Species
- Tree DBH

Shade Pattern - shade patterns that show an area of shade cast by a tree

- Retention of Existing Trees Categories for Trees, Woodlands and Hedgerows (Table 1)

- A - Those of high quality with an estimated remaining life expectancy of at least 40 years. (Highly desirable for retention)
- B - Those of moderate quality with an estimated remaining life expectancy of at least 20 years. (Desirable for retention)
- C - Those of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 100mm. (Consider for retention)
- U - Those in such a condition that they cannot naturally be retained as living trees in the context of the current land use. (Not suitable for retention unless provided high amenity value)





Tree Key - Individual Trees

- Tree Species (Green circle)
- Tree Size (Red circle)
- Tree ID (Blue circle)

Best Practice Area (BPA) (A) (Green)
 A Best Practice Area (BPA) is a specific area of land where the maximum tree density and canopy cover is maintained or enhanced. It is used to protect and enhance the biodiversity and ecological value of the site. The BPA is defined by the location and extent of the trees and shrubs which are to be retained or planted. The BPA is used to guide the design and construction of the site, ensuring that the trees and shrubs are protected and enhanced.

Tree Key - Hedgerow/Field Margin

- Hedgerow/Field Margin (Green line)
- Tree ID (Blue circle)
- Tree Species (Green circle)
- Tree Size (Red circle)

Shade Pattern - (Green)
 Shade patterns are shown on the plan to indicate the potential impact of trees on the site. The shade patterns are based on the height and canopy cover of the trees, and are used to guide the design and construction of the site, ensuring that the trees are protected and enhanced.

Section 60(1)(b) Compliance for Trees, Woodlands and Hedgerows (Table 1)

- A: Those of high quality with an estimated remaining life expectancy of at least 40 years. (*Highly desirable for retention?*)
- B: Those of moderate quality with an estimated remaining life expectancy of at least 20 years. (*Desirable for retention?*)
- C: Those of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 100mm. (*Not suitable for retention unless protected as a priority?*)
- D: Those of such a condition that they cannot reasonably be retained as long trees in the context of the current land use. (*Not suitable for retention unless protected as a priority?*)

9.0 Appendix 3 - Tree Survey Data Key

- **Tree ID #** - Identifies the location of individual trees (T-ID Number), Groups of trees (G-ID Number), Area of trees (A-ID Number), Hedgerow (H-ID Number), Woodland (W-ID Number), Row of trees (R-ID Number) and tree Stumps (S-ID Number) on the accompanying plan. *(Please note: A group of trees here refers to two or more standing trees that form a visual whole, whereas an area of trees refers to dispersed individual trees standing within the site)*
- **Tree Species** - Scientific names and common tree name in brackets are generally shown.
- **Age**
 - o (Y) Young – Less than 1/3 of life completed
 - o (SM) Middle Aged - 1/3 - 2/3 of life completed
 - o (EM) Early Mature – Just entering Maturity
 - o (M) Mature – more than 2/3 of life completed
 - o (OM) Over Mature - more than 3/3 of life completed and declining
 - o (V) Veteran - (v) Veteran – Veteran trees have no precise definition but are trees considered to be of biological aesthetic or ecological value because of their age
- **Stems** – Number of tree stems used to calculate the RPR/RPA
- **Stem Diam** (mm) - Diameter of tree stem measured in millimetres for single stem trees or average stem diameter calculated for multi-stemmed trees as detailed in section 4.6 & Annex C of the British Standard 5837:2012, Trees in relation to design, demolition and construction - Recommendations. The height above ground level where the stem measurement was taken will be shown if not measured at 1.5 metres above ground level. *(Please note: that the stem diameter of certain trees will have to be estimated due to difficulties in taking measurements or for trees with a large number of stems)*
- **Cat** – Tree Quality Category - British Standard 5837:2012 A, B, C, U + 1, 2, 3

Based on BS5837:2012 categories A, B, C, U provides the basis of prioritising trees for retention:

- o A – Those of high quality with an estimated remaining life expectancy of at least 40 years. (*Most desirable for retention*)
- o B - Those of moderate quality with an estimated remaining life expectancy of at least 20 years. (*Desirable for retention*)
- o C – Those of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm. (*Optional for retention*)
- o U – Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years. (*Unsuitable for retention unless provides high conservation value*)

Retention Criteria Subcategories: Used for identifying subcategories

E.g. A2 = A high quality tree with high landscape qualities (further details can be found in British Standard 5837:2012, Trees in relation to design, demolition and construction - Recommendations UK; British Standards Intuition)

- o 1 – Mainly Arboricultural qualities
- o 2 – Mainly landscape qualities
- o 3 – Mainly cultural values, including conservation

- **Height + (Lower Branch Height)** - Tree height in metres and in brackets height in metres of the crown (tree branches) clearance at its lowest point above adjacent ground levels.

- **Nrth, Est, Sth, Wst** - Crown Spread (Metres) -Tree branch spread in metres measured in four directions (North, East, South, West) from the trunk.

- **Phys Cond** - Physiological Condition Indicating the health of the tree (*rudimentary assessment carried out only*) -
 - o (G) Good
 - o (F) Fair
 - o (P) Poor
 - o (D) Dead
 - o (N/A) Not Applicable – unable to fully inspect tree due to surrounding vegetation or access issues.

- **Struc Cond** – Structural Condition indicting the structural integrity of the tree (*rudimentary assessment carried out only*) -
 - o (G) Good – No, or remediable physical defects or decay
 - o (F) Fair - Physical non-remediable defects or decay present, not presenting imminent danger but should be monitored
 - o (P) Poor - physical non-remediable defects or decay present, tree liable to imminent collapse or loss of major limbs.
 - o (D) Dead
 - o (N/A) Not Applicable – unable to fully inspect tree due to surrounding vegetation or access issues.

- **Est. Remain Contrib** - (<10, 10+, 20+, 40+)

The trees estimated remaining contribution in years, recorded as:

 - o <10 – less than 10 years
 - o 10+ – at least 10 years
 - o 20+ – at least 20 years
 - o 40+ – at least 40 years

- **Comments** – Additional Comments if required

- **Preliminary Management Recommendations** – Work Recommendations, including further investigation of suspected defects that require more detailed assessment and pose potential for wildlife habitat.
- **Work Priority** - Work Priority -This gives a work priority rating of preliminary management for each tree.
 - o H - High – Urgent work to be carried out as soon as practicable due to safety reasons (Within 14 days).
 - o H/M - High- Medium – Work to be carried out within 6 months/or before construction phase begins
 - o M - Medium – Work to be carried out in 12 months
 - o L - Low – After consideration/Re-inspect in 18-24 months
 - o Blank – No work required.
- **RPR** – Root protection radius / **RPA** - Root Protection Area - Is a layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority. RPR is a circular area measured as a radius in metres from the centre of the tree or RPA is an area in metres squared. Where required this area may be changed in shape but not reduced in area whilst providing adequate protection of the tree's rooting system.

9.0 Appendix 4 – An Introduction to Tree Protection

For the purpose of this report an introduction is given to tree protection. If required an Arboricultural Impact Assessment, Tree Protection Plan and Tree Protection Methods Statement can be provided for the finalised development design.

Tree protection methods must be considered and designed by an Arboriculturist. These should then be implemented BEFORE any machinery or materials are brought onto site and before any demolition, development or stripping of soil commences. The Root Protection Area (RPA) (cyan circles/lines) indicated on the Tree Constraints Plan must be set out and the protective barriers and ground protection installed accordingly for retained trees. The protective barriers and ground protection areas shall be regarded as sacrosanct, and shall not be removed or altered without prior recommendation by an Arboriculturist and approval of the LPA.

The areas protected by barrier fencing and ground protection shall be subject to the following restrictions:

- Existing soil levels within the protected areas shall not be altered.
- No excavation of any kind shall take place within the protected areas.
- The protected areas shall not be used for storage of any kind.
- No vehicles or machinery shall be allowed into the areas protected by fencing.
- Should the developer require the above restrictions to be breached for unforeseen reasons, an appropriate method of works must be agreed with the Local Planning Authority prior to any works taking place within the protected areas.

Additional precautions outside protected barrier areas and ground protection:

- All underground services should be installed following NJUG Volume 4 Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees. The full document is available at <http://www.njug.org.uk/>.
- Building materials and fuels such as oil, bitumen or cement should not be stacked or discharged within 10 metres of the trees stem.
- Fires will not be lit beneath any tree or in a place where flames could extend to within 10 metres of the outer canopy of any tree.
- Trees that are to be retained and protected should not be used as anchorage for services or equipment.
- The use of cranes and large machinery on site should be planned and care taken not to damage the tree during the process.

Visits by an Arboriculturist during the construction process should be conducted to ensure all of the above are being strictly adhered to.

9.0 Appendix 5 – Tree Photographs

Tree ID#G7



Tree ID#G16



Tree ID#G15



Tree ID#G13 + G23



Tree ID#A1



Tree ID#A2



Tree ID#T2 + G10



Tree ID#G4



Tree ID#G3



Tree ID#H37



Tree ID#H6



Tree ID#G26



Tree ID#T3



Tree ID#T1

