

Arboricultural Survey to BS5837:2012

HSP Consulting Engineers Limited

**Cardiff Airport Technology College site,
Land off Port Road,
Vale of Glamorgan,
Cardiff
CF62 3BD**

23 October 2023

Thomas Ramm TechArborA

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If this report has been released electronically the appendices referred to herein can be found in the annexed zip folder/s as .pdf files. If this report has been released in hard copy the appendices will be bound into the back of this report. Plans are annexed separately as A0, A1, A2 or A3 as appropriate.

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1. Introduction

Arbtech Consulting Limited (Arbtech) received written instruction on 16 October 2023 from HSP Consulting Engineers Limited on behalf of WEPCo to attend Cardiff Airport Technology College site, land off Port Road, Vale of Glamorgan, CF623BD; grid reference, ST 07477 67666 (site) to undertake an arboricultural survey to BS5837:2012 guidance to assess trees, hedges and major shrub groups growing on and within influencing distance of the site and to produce a Schedule of Trees, Tree Constraints Plan.

I am Thomas Ramm, an arboricultural surveyor at Arbtech Consulting Ltd. I undertook the tree survey on 22 October 2023 and subsequently have produced this summary of my findings.

I have 13No years of professional industry experience including an additional 4No years as an Arboricultural instructor & technician at Warwickshire College Group. I hold a LANTRA award in professional tree inspection as well as a Level 3 qualification with an extended Diploma in Arboriculture and Forestry and I am a member of the Arboricultural Association at the Technician grade.

The advice below and appended is underwritten by our Professional Indemnity insurance for the business practice of Arboricultural Consultancy in the sum of one million Pounds Sterling in each and every claim.

Table 1: Documents referred to.

Document	Reference No.
Survey base drawing	26417swg-01_06
LPA pre-app comments	N/A
British Standard 5837:2012	“BS5837”
Tree Survey Schedule	Arbtech TS 01
Tree Constraints Plan	Arbtech TCP 01

2. Survey

Survey: An arboricultural survey to BS5837 of all trees within impacting distance of the site was undertaken by Thomas Ramm on 22 October 2023.

During the survey I categorised the trees using “Table 1 – Cascade chart for tree quality assessment” of the BS5837:2012 (see Appendix 1).

A total of 38No individual trees and, 8No groups of trees were surveyed. Details for each of the trees surveyed are provided in the Schedule of Trees (see Appendix 2).

Multiple small trees and shrubs occupy the site, none of which meet the minimum diameter requirements to be considered for this survey.

Table 2: Documents upon which this tree survey has been based.

Document	Originator	Reference Number	Title
Survey Base Drawing	Survey Solutions	26417swg-01_06	Port Road Cardiff

Limitations: The survey was made at ground level using visual observation only. Detailed examinations, such as climbing inspections and advanced decay detection equipment were not employed, though may form part of the survey’s management recommendations. Measurements were taken using specialist tapes, laser, and GPS devices. Where this was not possible, measurements are estimated.

Scope: Pre-development tree surveys make arboricultural management recommendations based exclusively upon the individual tree or group of trees condition relative to their present context (*i.e. not in relation to the proposed development*).

Legal Status: No statutory protection check has been performed. BS5837 does not draw any distinction between trees subject to statutory protection, such as a Tree Preservation Order (“TPO”), and those trees without. This is principally because a detailed planning consent overrides any TPO protection. Consequently, we do not seek to offer any comparison between or infer any difference in the quality or importance of TPO trees and other trees.

* For more information on the surveyed trees please see Arbtech Consulting Ltd, Tree Survey Schedule (Appendix 1), Tree Survey Report and Tree Constraints Plan.

Site description

The site is set within agricultural growing land adjacent north to Cardiff Airport. To the southeast of the site is Port Road with an aircraft tool hire supply shop to the southwest. The site is heavily populated with dense scrub with tracks for access around the site. The topography of the site is relatively level with no sudden or significant changes to ground level except for the southern boundary line where there is a sudden incline.

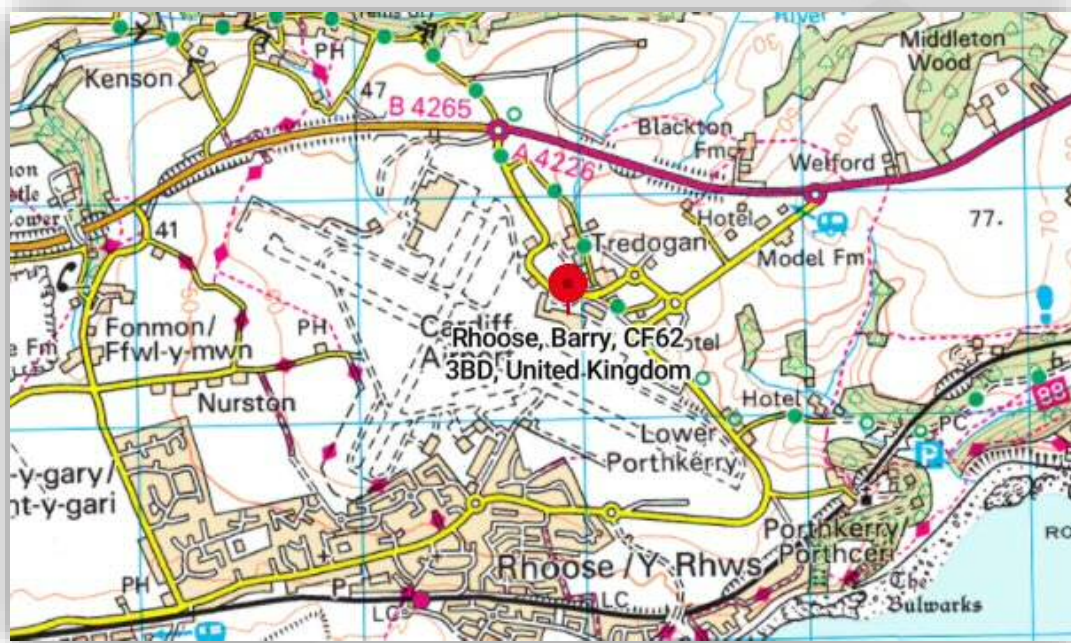


Figure 1: OS Map showing site location (Bing Maps)



Figure 2: Aerial Image of site with approximate red line boundary area surveyed (Google Earth)

Proposed scheme

The proposed scheme for the site is to construct a college site with associated parking.



Figure 3: Proposed scheme, drawing number VG0101-ALA-00-XX-DR-L-00001 (Areas Landscapes Architects LTD)

It is likely that arboricultural impacts can be addressed with arboricultural methodology or minor amendments to the proposal.

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3. BS5837:2012 Scope

This standard recognises that there can be problems for development close to existing trees which are to be retained, and of planting trees close to existing structures. This standard sets out to assist those concerned with trees, in relation to construction, to form balanced judgements. It does not set out to put arguments for or against development, or for the removal or retention of trees. Where development, including demolition, is to occur, the standard provides guidance on how to decide which trees are appropriate for retention, on the means of protecting these trees during development, including demolition and construction work, and on the means of incorporating trees into the developed landscape.

4. Methodology

The methodology used to assess the trees was the British Standard 5837:2012 'Trees in Relation to Construction' tree survey method. The aim of the survey is to establish which trees are moderate and good quality; suitable for retention and justifying protection. And which trees are low or poor quality; either undesirable or unsuitable to retain and protect.

The tree survey includes all trees included in the land survey red line boundary plan, as well as any that may have been missed, and it should categorize trees or groups of trees, including woodlands for their quality and value within the existing context, in a transparent, understandable, and systematic way. Where the arboriculturist has deemed it appropriate, the trees have been tagged with small metal or plastic tags, placed as high as is convenient on the stem of each tree.

Whilst master plan proposals for the development of the site might be available, the trees have been surveyed without taking these into consideration. All detailed design work on site layout should take into consideration the results of the tree survey (and the TCP).

Trees forming groups and areas of woodland (including orchards, wood pasture and historic parkland) are identified and considered as groups where the arboriculturist has determined that this is appropriate, particularly where they contain a variety of species and age classes that could aid long-term management. It is often expedient to assess the quality and value of such groups of trees as a whole, rather than as individuals. However, an assessment of individuals within any group has been undertaken if they are open-grown or if there is a need to differentiate between them.

The quality and value of each tree or group of trees has been recorded by allocating it to one of the four categories: **A**, **B**, **C**, or **U** (highest to lowest quality respectively). The categories are differentiated on the tree survey plan by colour, or by suffixing the category adjacent to the tree identification number on the TCP.

The survey schedule lists all the trees or groups of trees. The following information is also provided:

- a) reference number (to be recorded on the tree survey plan);
- b) species (common or scientific names);
- c) height in meters (m);
- d) stem diameter in millimetres (mm) at 1.5m above adjacent ground level or immediately above the root flare for multi-stemmed trees;
- e) branch spread in meters taken at the four cardinal compass points;
- f) height of crown clearance above adjacent ground level in meters (m);
- g) age class (newly planted, young, semi-mature, early mature, mature, over mature);
- h) physiological condition (e.g. good, fair, poor, decline and dead);
- i) structural condition (e.g. good, fair, poor or not visible);
- j) comment about the tree, its location and preliminary management recommendations, including further investigation of suspected defects that require more detailed assessment and potential for wildlife habitat;
- k) The retention category referring to the quality and useful contribution in years; **U** = <10yrs; **A** = >40yrs; **B** = >20yrs; **C** = >10yrs. The retention subcategory referring to the type of amenity; 1 = Arboricultural; 2 = Landscape; 3 = Cultural including conservation (see Appendix 1 Cascade chart for tree quality assessment).

5. Definitions

Arboriculturist

An arboriculturist (or arboricultural consultant) is a person who has, through relevant education, training, and experience, gained recognized qualifications and expertise in the field of trees in relation to construction.

Tree Survey

A tree survey should be undertaken by an arboriculturist and should record information about the trees on a site independently of and prior to any specific design for development. As a subsequent task, and with reference to a design or potential design, the results of the survey should be included in the preparation of a tree constraints plan, which should be used to assist with site layout design.

Tree Constraints Plan

A TCP is plan, typically delivered as an AutoCAD drawing (.DWG file format), prepared by an arboriculturist for the purposes of layout design showing the root protection area and representing the effect that the mature height and spread of retained trees will have on layouts through shade, dominance, etc.

Root Protection Area

An RPA is a layout design tool indicating the area surrounding a tree that contains sufficient rooting volume to ensure the survival of the tree, shown in plan form in m².

Construction Exclusion Zone (also termed Tree Protection Zone)

A construction exclusion or tree protection zone is an area based on the RPA (in m²), identified by an arboriculturist, to be protected during development, including demolition and construction work, by the use of barriers and/or ground protection fit for purpose to ensure the successful long-term retention of a tree.

Arboricultural Impact Assessment (AIA)

This is a study, undertaken by an arboriculturist, to identify, evaluate and possibly mitigate the extent of direct and indirect impacts on existing trees that may arise as a result of the implementation of any site layout proposal.

Tree Protection Plan (TPP)

A TPP is plan, typically delivered as an AutoCAD drawing (.DWG file format), prepared by an arboriculturist showing the finalized layout proposals, tree retention and tree and landscape protection measures detailed within the arboricultural method statement, which can be shown graphically.

Arboricultural Method Statement (AMS)

This is a methodology for the implementation of any aspect of development that has the potential to result in loss of or damage to a tree. The AMS is likely to include details of an on-site tree protection monitoring regime.

6. Recommendations

With the benefit of making an assessment of your planning proposals, I make the following recommendation to ensure that there are no irrevocable issues to the proposed retained trees and so that no conditions relating to arboriculture are attached to any planning consent secured; obtain an arboricultural report to include:

- a) An arboricultural impact assessment (AIA).
- b) An arboricultural method statement (AMS).
- c) A tree protection plan drawing (TPP).

7. Limitations

Trees were inspected from using visual observation from ground level only. Trees were not climbed or inspected below ground level. Inaccessible trees will have best estimates made about the location, physical dimensions, and characteristics. Trees have been grouped where BS5837 guides us that it is expedient to do so. Trees have been excluded from the survey if they are found by us to be sufficiently far away from the proposed developable area or if they are outside of the red line boundary plan showing the expectations of our client for the extent of the survey. BS5837 does not draw any distinction between trees subject to statutory protection, such as a Tree Preservation Order (“TPO”), and those trees without. This is principally because a detailed planning consent overrides any TPO protection. Consequently, we do not seek to offer any comparison between or infer any difference in the quality or importance of TPO trees and other trees.

8. Appendices

The following documents were released to the Client as appendices to this report:

- Survey Schedule (.PDF)
- Tree Constraints Plan drawing (.DWG & .PDF)

If you require clarification of information contained herein, please do not hesitate to contact us via [REDACTED]

Yours Sincerely,

[REDACTED]

Thomas Ramm TechArborA
Arboricultural Surveyor

[REDACTED]

Appendix 1: Table 1 Cascade chart for tree quality assessment

BS5837:2012 Trees in relation to design, demolition and construction – Recommendations

Table 1 Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories when appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
Category 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.	<ul style="list-style-type: none"> -Trees that have serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning). -Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline. -Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality. <p><i>NOTE Category U trees can have existing or potential conservation value which might be desirable to preserve; see 4.5.7.</i></p>			Dark red
	1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation	
Trees to be considered for retention				
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years.	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominate and/or principal trees within an avenue).	Trees, groups, or woodlands of particular visual importance as arboricultural and/or landscape features.	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture).	Light green
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remedial defects, including unsympathetic management and storm damage), such that they are unlikely to be suitable for retention of beyond 40 years; or trees lacking the special quality necessary to merit the category 'A' designation.	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality.	Trees with material conservation or other cultural value.	Mid blue
Category C Trees of low quality with an estimated remaining expectancy of at least 10 years, or young trees with a stem diameter below 150mm.	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories.	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape value.	Trees with no material conservation or other cultural value.	Grey

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Ecology – Protected Species - Licensing – Arboriculture – Biodiversity Net Gain – Land/Topographical Survey

Appendix 2: Schedule of Trees

BS5837:2012 Tree Survey

Arbtech Consulting Limited

Client: HSP Consulting Engineers Limited on behalf of WEPCo
 Project: Cardiff Airport Technology College site, CF623BD
 Survey Date: 22/10/2023
 Surveyor: Thomas Ramm

Unit 3, Well House Barns
 Chester Road
 Chester
 Cheshire
 CH4 0DH
 Phone: 01244661170

Tree and Tag No Species	Hght (m)	Stems		Crown		Age	RP A (m ²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC	
		No	Ø (mm)	Spread (m)	Clear (m)							
G01										Estimated Measurements		
Various <i>See comments for details</i>	12	1	320	N	6	0.5	SM	A: 46.3 R: 3.83	Good	C: Good S: Good B: Good	B.1.2 20+ yrs	
				E	6	0.5				Group is situated to the eastern boundary line; Group is comprised of circa 100+ stems with species to include ash, cherry, hawthorn, field maple and dense scrub; Dimensions recorded represent maximum for group.		
				S	6	0.5						
				W	6	0.5						
G02										Estimated Measurements		
Various <i>See comments for details</i>	10	1	260	N	5	0.5	SM	A: 30.6 R: 3.12	Good	C: Good S: Good B: Good	B.1.2 20+ yrs	
				E	5	0.5				Group is situated within the middle grounds of site; Group is comprised of circa 75+ stems with species to include ash, cherry, hawthorn, field maple, sycamore, hazel and dense scrub; Dimensions recorded represent maximum for group.		
				S	5	0.5						
				W	5	0.5						
G03										Estimated Measurements		
Various <i>See comments for details</i>	8	1	180	N	5	0.5	SM	A: 14.7 R: 2.16	Good	C: Good S: Good B: Good	C.1.2 10+ yrs	
				E	5	0.5				Group is situated within the middle grounds of site; Group is comprised of circa 25+ stems with species to include ash, hawthorn, field maple, with the majority of group being dense scrub; Dimensions recorded represent maximum for group.		
				S	5	0.5						
				W	5	0.5						
G04										Estimated Measurements		
Various <i>See comments for details</i>	10	1	270	N	5	0.5	SM	A: 33 R: 3.24	Good	C: Good S: Good B: Good	B.1.2 20+ yrs	
				E	5	0.5				Group is situated within the middle grounds of site; Group is comprised of circa 50+ stems with species to include ash, hawthorn, field maple, hazel with the majority of the group comprised of dense scrub; Dimensions recorded represent maximum for group.		
				S	5	0.5						
				W	5	0.5						
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	ERC:			Estimated Remaining Contributio

Tree and Tag No Species	Hght (m)	Stems		Crown		Age	RP A (m ²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC	
		No	Ø (mm)	Spread (m)	Clear (m)							
Estimated Measurements												
G05	4	1	180	N	3	0.5	SM	A: 14.7 R: 2.16	Good	C: Good	Group is situated within the middle grounds of site; Group is comprised of circa 25+ stems with species to include hawthorn, field maple and hazel with the majority of group being dense scrub; Dimensions recorded represent maximum for group.	C.1.2 10+ yrs
Various				E	3					S: Good		
<i>See comments for details</i>				S	3					B: Good		
				W	3							
Estimated Measurements												
G06	4	1	180	N	3	0.5	SM	A: 14.7 R: 2.16	Good	C: Good	Group is situated within the middle grounds of site; Group is comprised of circa 30+ stems with species to include hawthorn, field maple and hazel with the majority of group being dense scrub; Dimensions recorded represent maximum for group.	C.1.2 10+ yrs
Various				E	3					S: Good		
<i>See comments for details</i>				S	3					B: Good		
				W	3							
Estimated Measurements												
G07	12	1	320	N	6	0.5	SM	A: 46.3 R: 3.83	Good	C: Good	Group is situated within the middle grounds of site; Group is comprised of circa 75+ stems with species to include ash, cherry, hawthorn, field maple, sycamore, hazel and dense scrub; Dimensions recorded represent maximum for group.	B.1.2 20+ yrs
Various				E	6					S: Good		
<i>See comments for details</i>				S	6					B: Good		
				W	6							
Estimated Measurements												
G08	12	1	340	N	6	0.5	SM	A: 52.3 R: 4.08	Good	C: Good	Group is situated within the middle grounds of site; Group is comprised of circa 75+ stems with species to include ash, cherry, hawthorn, field maple, sycamore, hazel, goat willow and dense scrub; Dimensions recorded represent maximum for group.	B.1.2 20+ yrs
Various				E	6					S: Good		
<i>See comments for details</i>				S	6					B: Good		
				W	6							
Estimated Measurements												
T01	4	1	120	N	3	3	SM	A: 6.5 R: 1.43	Good	C: Good	Tree is situated to southern boundary line; Historical mechanical damage to base to southern main stem; Naturally occurring deadwood typical for species.	C.1 10+ yrs
Silver Birch				E	3					S: Fair		
<i>Betula pendula</i>				S	1					B: Fair		
				W	1							
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	ERC:		Estimated Remaining Contributio

Tree and Tag No Species	Hght (m)	Stems		Crown		Age	RP A (m ²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC	
		No	Ø (mm)	Spread (m)	Clear (m)							
T02												
Silver Birch <i>Betula pendula</i>	6	1	210	N	3	3	SM	A: 20 R: 2.52	Good	C: Good S: Fair B: Fair	C.1.2 10+ yrs	
T03												
Silver Birch <i>Betula pendula</i>	4	1	110	N	2	3	SM	A: 5.5 R: 1.32	Fair	C: Good S: Fair B: Fair	C.1.2 10+ yrs	
T04												
Silver Birch <i>Betula pendula</i>	4	1	170	N	4	2	SM	A: 13.1 R: 2.04	Good	C: Fair S: Fair B: Fair	C.1.2 10+ yrs	
T05												
Silver Birch <i>Betula pendula</i>	5	2	278 (Eq)	N	4	2	SM	A: 34.9 R: 3.33	Good	C: Fair S: Fair B: Fair	C.1.2 10+ yrs	
T06												
Silver Birch <i>Betula pendula</i>	3	1	160	N	3	2	SM	A: 11.6 R: 1.92	Good	C: Fair S: Good B: Fair	C.1.2 10+ yrs	
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	ERC:		Estimated Remaining Contributio

Tree and Tag No Species	Hght (m)	Stems		Crown		Age	RP A (m ²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
		No	Ø (mm)	Spread (m)	Clear (m)						
T07											
Common Ash <i>Fraxinus excelsior</i>	4	2	175 (Eq)	N E S W	1 1 1 1	0.5 0.5 0.5 0.5	Y A: 13.8 R: 2.09	Decline	C: Poor S: Poor B: Good	Tree is situated north of southern boundary line; Main stem bifurcates at 0.5 m to codominant stem; Tree is showing visible signs of ash dieback (<i>Hymenocyphus fraxineus</i>); Tree is in early stages of terminal decline.	U 10+ yrs
T08											
Field Maple <i>Acer campestre</i>	5	1	100	N E S W	3 3 3 3	0.5 0.5 0.5 0.5	SM A: 4.5 R: 1.19	Fair	C: Fair S: Fair B: Good	Tree is situated to the north of the southern boundary line; Crown breaks to subsidiary stems comprised of 10+ stems at 0.5 m; Dimensions recorded represent average for stem diameter; Low foliage density throughout crown.	C.1 10+ yrs
T09											
Silver Birch <i>Betula pendula</i>	4	2	135 (Eq)	N E S W	2 1 2 2	2 2 2 2	SM A: 8.2 R: 1.61	Good	C: Good S: Fair B: Good	Tree is situated to southern boundary line; Historical mechanical damage to exposed roots to the south; Main stem bifurcates to co dominant stem at 0.2 m; Asymmetrical crown due to suppression from adjacent companion trees; Naturally occurring deadwood typical for species.	C.1.2 10+ yrs
T10											
Silver Birch <i>Betula pendula</i>	5	1	220	N E S W	3 2 2 2	2 2 2 2	SM A: 21.9 R: 2.64	Good	C: Good S: Good B: Good	Tree is situated to southern boundary line; Historical mechanical damage to exposed roots to the south; Asymmetrical crown due to suppression from adjacent companion trees; Naturally occurring deadwood typical for species.	B.1.2 20+ yrs
T11											
Silver Birch <i>Betula pendula</i>	5	1	170	N E S W	3 2 1 2	2 2 1 2	SM A: 13.1 R: 2.04	Fair	C: Good S: Good B: Good	Tree is situated to southern boundary line; Historical mechanical damage to exposed roots to the south; Asymmetrical crown due to suppression from adjacent companion trees; Crown is showing low foliage density throughout crown.	C.1.2 10+ yrs
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	ERC:		Estimated Remaining Contributio

Tree and Tag No Species	Hght (m)	Stems		Crown		Age	RP A (m ²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
		No	Ø (mm)	Spread (m)	Clear (m)						
T12											
Silver Birch <i>Betula pendula</i>	5	1	130	N E S W	3 2 2 1	3 3 3 3	SM A: 7.6 R: 1.55	Good	C: Good S: Good B: Good	Tree is situated to southern boundary line; Historical mechanical damage to exposed roots to the south; Main stem leans to the east from base; Asymmetrical crown due to suppression from adjacent companion trees; Naturally occurring deadwood typical for species.	C.1.2 10+ yrs
T13											
Silver Birch <i>Betula pendula</i>	6	2	184 (Eq)	N E S W	3 2 2 1	3 3 3 3	SM A: 15.4 R: 2.21	Good	C: Good S: Fair B: Good	Tree is situated to southern boundary line; Historical mechanical damage to exposed roots to the south; Main stem bifurcates from base to co dominant stem; Asymmetrical crown due to suppression from adjacent companion trees; Naturally occurring deadwood typical for species.	C.1.2 10+ yrs
T14											
Field Maple <i>Acer campestre</i>	5	4	383 (Eq)	N E S W	3 3 2 3	1 1 1 1	SM A: 66.2 R: 4.59	Good	C: Good S: Fair B: Good	Tree is situated on southern boundary line; Tree is comprised of x 4 subsidiary stems; Naturally occurring deadwood typical for species.	C.1.2 10+ yrs
T15											
Goat Willow <i>Salix caprea</i>	4	4	361 (Eq)	N E S W	5 4 2 1	2 2 2 2	SM A: 58.9 R: 4.32	Poor	C: Poor S: Poor B: Poor	Tree is situated on southern boundary line; Main stem breaks to multistems at ground level; Large linear crack to northern stem wound not yet occluded; Natural bracing throughout crown; Historically pruned to eastern crown; Poor historical pruning resulting in poor physiological condition.	C.1.2 10+ yrs
T16											
Silver Birch <i>Betula pendula</i>	3	1	100	N E S W	1 1 1 1	2 2 2 2	SM A: 4.5 R: 1.19	Good	C: Good S: Good B: Good	Tree is situated to southern boundary line; Historical mechanical damage to exposed roots to the south; Asymmetrical crown due to suppression from adjacent companion trees; Naturally occurring deadwood typical for species.	C.1.2 10+ yrs
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	ERC:		Estimated Remaining Contributio

Tree and Tag No Species	Hght (m)	Stems		Crown		Age	RP A (m ²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC	
		No	Ø (mm)	Spread (m)	Clear (m)							
T17												
Silver Birch <i>Betula pendula</i>	4	1	180	N	2	2	SM	A: 14.7 R: 2.16	Good	C: Good S: Good B: Good	C.1.2 10+ yrs	
T18												
Silver Birch <i>Betula pendula</i>	4	1	130	N	2	2	SM	A: 7.6 R: 1.55	Good	C: Good S: Good B: Good	C.1.2 10+ yrs	
T19												
Silver Birch <i>Betula pendula</i>	4	2	135 (Eq)	N	2	3	SM	A: 8.2 R: 1.61	Good	C: Good S: Good B: Good	C.1.2 10+ yrs	
T20												
Silver Birch <i>Betula pendula</i>	4	1	90	N	1	3	SM	A: 3.7 R: 1.08	Good	C: Good S: Good B: Good	C.1.2 10+ yrs	
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	ERC:		Estimated Remaining Contributio

Tree and Tag No Species	Hght (m)	Stems		Crown		Age	RP A (m ²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC	
		No	Ø (mm)	Spread (m)	Clear (m)							
T21												
Silver Birch <i>Betula pendula</i>	4	1	120	N E S W	1 1 1 1	2 2 2 2	SM A: 6.5 R: 1.43	Good	C: Good S: Good B: Good	Tree is situated to southern boundary line; Historical mechanical damage to exposed roots to the south; Asymmetrical crown due to suppression from adjacent companion trees; Naturally occurring deadwood typical for species.	C.1.2 10+ yrs	
T22												
Silver Birch <i>Betula pendula</i>	5	1	160	N E S W	3 1 2 1	2 2 2 2	SM A: 11.6 R: 1.92	Good	C: Good S: Good B: Good	Tree is situated to southern boundary line; Asymmetrical crown due to suppression from adjacent companion trees; Naturally occurring deadwood typical for species.	C.1.2 10+ yrs	
T23												
Silver Birch <i>Betula pendula</i>	5	1	200	N E S W	3 1 2 1	2 2 2 2	SM A: 18.1 R: 2.4	Good	C: Good S: Good B: Good	Tree is situated to southern boundary line; Asymmetrical crown due to suppression from adjacent companion trees; Naturally occurring deadwood typical for species.	C.1.2 10+ yrs	
T24												
Field Maple <i>Acer campestre</i>	5	1	180	N E S W	3 3 3 3	0.5 0.5 0.5 0.5	SM A: 14.7 R: 2.16	Fair	C: Fair S: Fair B: Good	Tree is situated to the north of the southern boundary line; No notable features.	C.1 10+ yrs	
T25												
Silver Birch <i>Betula pendula</i>	4	2	189 (Eq)	N E S W	3 2 2 2	2 2 2 2	SM A: 16.1 R: 2.26	Good	C: Good S: Good B: Good	Tree is situated to southern boundary line; Historical mechanical damage to exposed roots to the south; Main stem bifurcates to co dominant stem at 0.2 m; Asymmetrical crown due to suppression from adjacent companion trees; Naturally occurring deadwood typical for species.	C.1.2 10+ yrs	
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	ERC:		Estimated Remaining Contributio

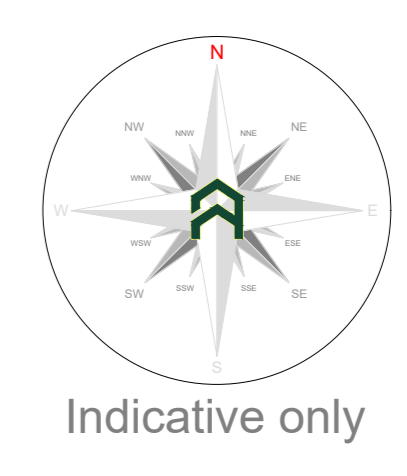
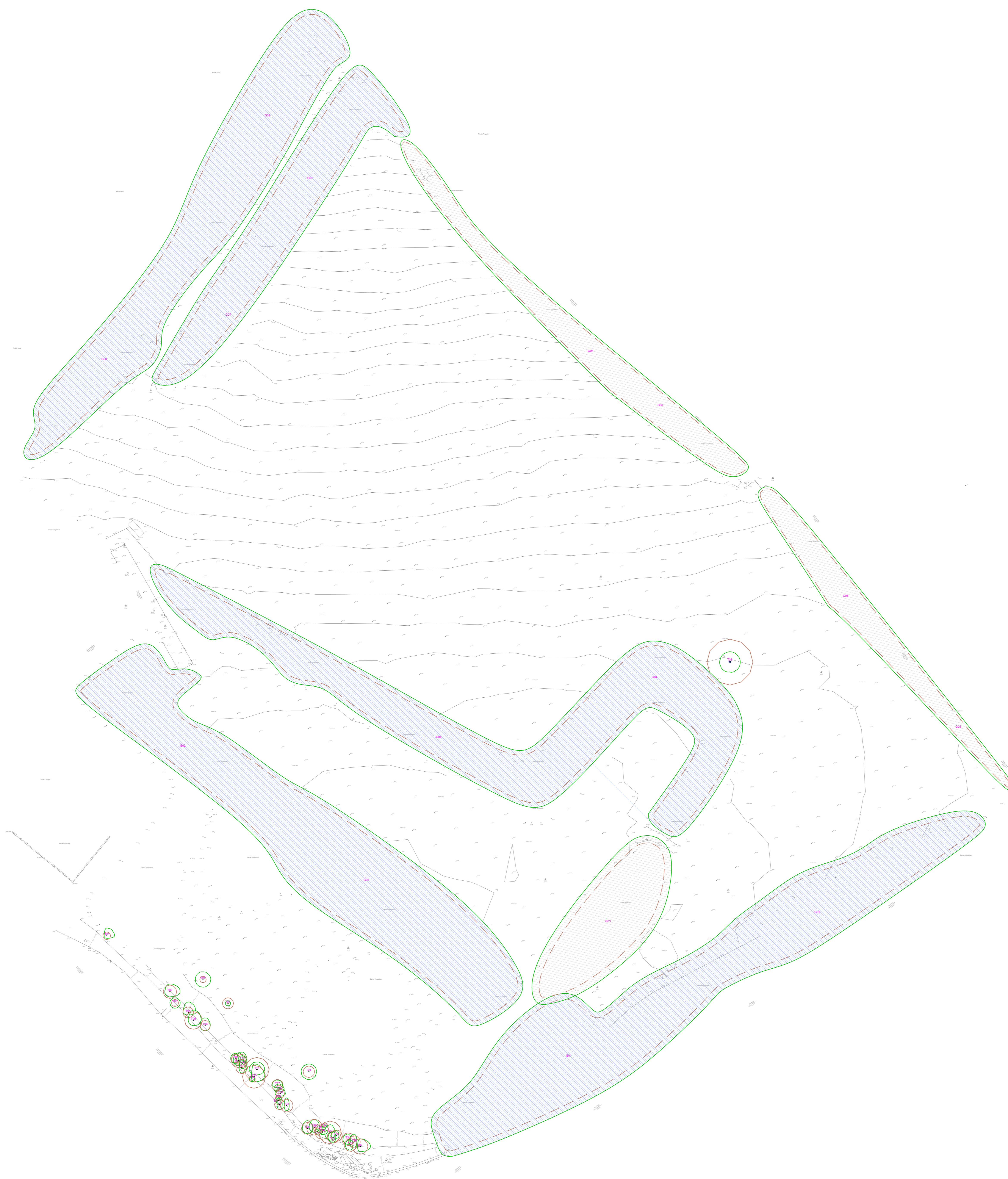
Tree and Tag No Species	Hght (m)	Stems		Crown		Age	RP A (m ²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC	
		No	Ø (mm)	Spread (m)	Clear (m)							
T26												
Silver Birch <i>Betula pendula</i>	7	1	250	N E S W	3 2 2 2	3 3 3 3	SM A: 28.3 R: 3	Good	C: Good S: Good B: Good	Tree is situated to southern boundary line; Asymmetrical crown due to suppression from adjacent companion trees; Naturally occurring deadwood typical for species.	C.1.2 10+ yrs	
T27												
Silver Birch <i>Betula pendula</i>	7	1	110	N E S W	1 2 1 1	3 3 3 3	SM A: 5.5 R: 1.32	Good	C: Good S: Good B: Good	Tree is situated to southern boundary line; Asymmetrical crown due to suppression from adjacent companion trees; Naturally occurring deadwood typical for species.	C.1.2 10+ yrs	
T28												
Silver Birch <i>Betula pendula</i>	7	1	140	N E S W	1 1 1 1	2 2 2 2	SM A: 8.9 R: 1.68	Decline	C: Good S: Good B: Good	Tree is situated to southern boundary line; Main stem showing signs of exposed sapwood; Tree is in decline.	U <10 yrs	
T29												
Silver Birch <i>Betula pendula</i>	4	2	230 (Eq)	N E S W	1 2 1 1	3 3 3 3	SM A: 24 R: 2.76	Fair	C: Good S: Fair B: Good	Tree is situated to southern boundary line; Main stem bifurcates from ground level to co dominant stem; Asymmetrical crown due to suppression from adjacent companion trees; Sparse foliage throughout crown.	C.1.2 10+ yrs	
T30												
Silver Birch <i>Betula pendula</i>	5	1	130	N E S W	1 1 0 1	3 3 3 3	SM A: 7.6 R: 1.55	Fair	C: Fair S: Good B: Good	Tree is situated to southern boundary line; Asymmetrical crown due to suppression from adjacent companion trees; Sparse foliage throughout crown.	C.1.2 10+ yrs	
T31												
Field Maple <i>Acer campestre</i>	7	2	355 (Eq)	N E S W	3 2 3 2	3 3 3 3	SM A: 56.9 R: 4.25	Good	C: Good S: Good B: Good	Tree is situated to southern boundary line; Main stem bifurcates at 0.5 m to co dominant stem; Naturally occurring deadwood typical for species.	B.1.2 20+ yrs	
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	ERC:		Estimated Remaining Contributio

Tree and Tag No Species	Hght (m)	Stems		Crown		Age	RP A (m ²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC	
		No	Ø (mm)	Spread (m)	Clear (m)							
T32 Silver Birch <i>Betula pendula</i>	6	1	190	N E S W	2 1 2 2	3 3 3 3	SM A: 16.3 R: 2.27	Good	C: Good S: Good B: Good	Tree is situated to southern boundary line; Asymmetrical crown due to suppression from adjacent companion trees; Naturally occurring deadwood typical for species.	C.1.2 10+ yrs	
T33 Silver Birch <i>Betula pendula</i>	5	1	180	N E S W	2 1 1 2	3 3 3 3	SM A: 14.7 R: 2.16	Good	C: Good S: Good B: Good	Tree is situated to southern boundary line; Asymmetrical crown due to suppression from adjacent companion trees; Naturally occurring deadwood typical for species.	C.1.2 10+ yrs	
T34 Silver Birch <i>Betula pendula</i>	5	2	198 (Eq)	N E S W	2 1 2 2	3 3 3 3	SM A: 17.8 R: 2.38	Good	C: Good S: Good B: Good	Tree is situated to southern boundary line; Asymmetrical crown due to suppression from adjacent companion trees; Naturally occurring deadwood typical for species.	C.1.2 10+ yrs	
T35 Silver Birch <i>Betula pendula</i>	6	1	200	N E S W	2 1 2 2	3 3 3 3	SM A: 18.1 R: 2.4	Good	C: Good S: Good B: Good	Tree is situated to southern boundary line; Asymmetrical crown due to suppression from adjacent companion trees; Naturally occurring deadwood typical for species.	C.1.2 10+ yrs	
T36 Silver Birch <i>Betula pendula</i>	6	1	190	N E S W	3 1 2 2	3 3 2 1	SM A: 16.3 R: 2.27	Good	C: Good S: Good B: Good	Tree is situated to southern boundary line; Asymmetrical crown due to suppression from adjacent companion trees; Naturally occurring deadwood typical for species.	C.1.2 10+ yrs	
T37 Silver Birch <i>Betula pendula</i>	6	2	244 (Eq)	N E S W	3 4 2 1	3 3 2 1	SM A: 27 R: 2.93	Good	C: Good S: Good B: Good	Tree is situated to southern boundary line; Asymmetrical crown due to suppression from adjacent companion trees; Naturally occurring deadwood typical for species.	C.1.2 10+ yrs	
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	ERC:		Estimated Remaining Contributio

Tree and Tag No Species	Hght (m)	Stems		Crown		Age	RP A (m ²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations		Cat ERC
		No	Ø (mm)	Spread (m)	Clear (m)					Survey Comment		
T38												
Common Oak <i>Quercus robur</i>	6	1	720	N	4	3	M	A: 234.5 R: 8.63	Good	C: Good S: Fair B: Good	Tree has large cavity to eastern main stem from historical limb failure; Cavity is from ground level to 1.5 m; Main stem leans to the south from 1.5 m; Historical limb failure at 4 m to northern crown; Naturally occurring deadwood typical for species.	B.1.2 40+ yrs

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	ERC:		Estimated Remaining Contributio

Appendix 3: Tree Constraints Plan



Tree Categories

Trees are categorised in accordance with the cascade chart in Table 1 of the British Standard BS 5837:2012 'Trees in relation to design, demolition and construction - Recommendations'

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

Category 'L' - Trees of high quality with an estimated remaining life expectancy of at least 40 years.

Category 'M' - Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.

Category 'S' - Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm.

Root Protection Area

In order to avoid damage to the roots or rooting environment of retained trees, the Root Protection Areas (RPAs) should be plotted around each of the category A, B and ' trees. This is a minimum area in m² which should be left undisturbed around each retained tree.

The RPA is calculated using the British Standard BS 5837:2012 'Trees in relation to design, demolition and construction - Recommendations'

The calculated RPA is capped to 707m², which is the equivalent to a circle with a radius of 15m. Where there appears to be restrictions to root growth the root protection area is reshaped to more accurately reflect the likely distribution of the roots.

Tree Survey Report

Please refer to Arbttech Consulting Ltd. Tree Survey Report and Tree Schedule for full details on all surveyed trees, hedgerows and major shrub groups.

All trees were surveyed and categorised in accordance with the guidance as set out in the British Standard BS5837:2012 Tree in relation to design, demolition and construction Recommendations.

We make the following recommendation to ensure that no conditions relating to arboriculture are attached to any planning consent secured: obtain and arboricultural report to include:

- a) An arboricultural impact assessment (AIA);
- b) An arboricultural method statement (AMS); and
- c) A tree protection plan (TPP).



Unit 3, Well House Barrs, Chester, CH4 0DH
<https://arbttech.co.uk> 01244 661170

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Client:
 WEPCo

Drawing:
 Tree Constraints Plan

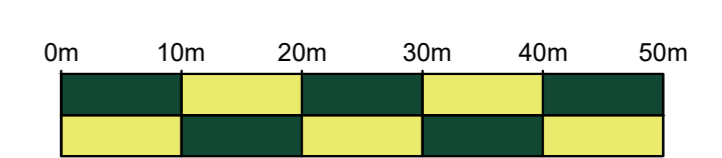
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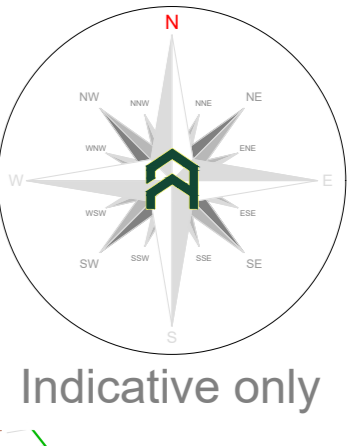
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Date: Oct 2023
Scale: 1:500 @ A0
Rev:
Drawn: TFR

Key:

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RPA:	○	Category 'L' trees	○	Category 'M' trees	○
Category 'M' groups	○	Category 'S' trees	○	Category 'U' groups	○

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Tree Categories

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

Category 'V' - Trees of high quality with an estimated remaining life expectancy of at least 40 years.

Category 'W' - Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.

Category 'X' - Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm.

Root Protection Area

In order to avoid damage to the roots or rooting environment of retained trees, the Root Protection Areas (RPAs) should be plotted around each of the category A, B and C trees. This is a minimum area in m² which should be left undisturbed around each retained tree.

The RPA is calculated using the British Standard BS 5837:2012 'Trees in relation to design, demolition and construction - Recommendations'

The calculated RPA is capped to 707m², which is the equivalent to a circle with a radius of 15m. Where there appears to be restrictions to root growth the root protection area is reshaped to more accurately reflect the likely distribution of the roots.

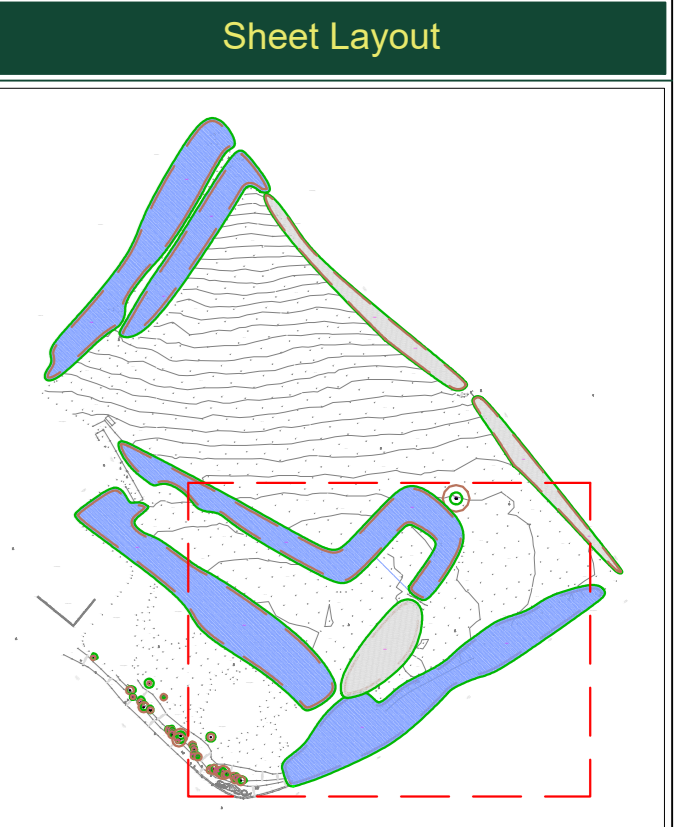
Tree Survey Report

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Client:
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Drawing:
 Tree Constraints Plan

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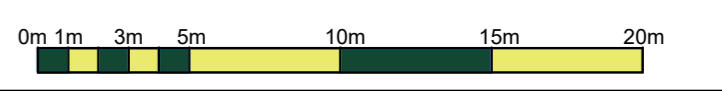
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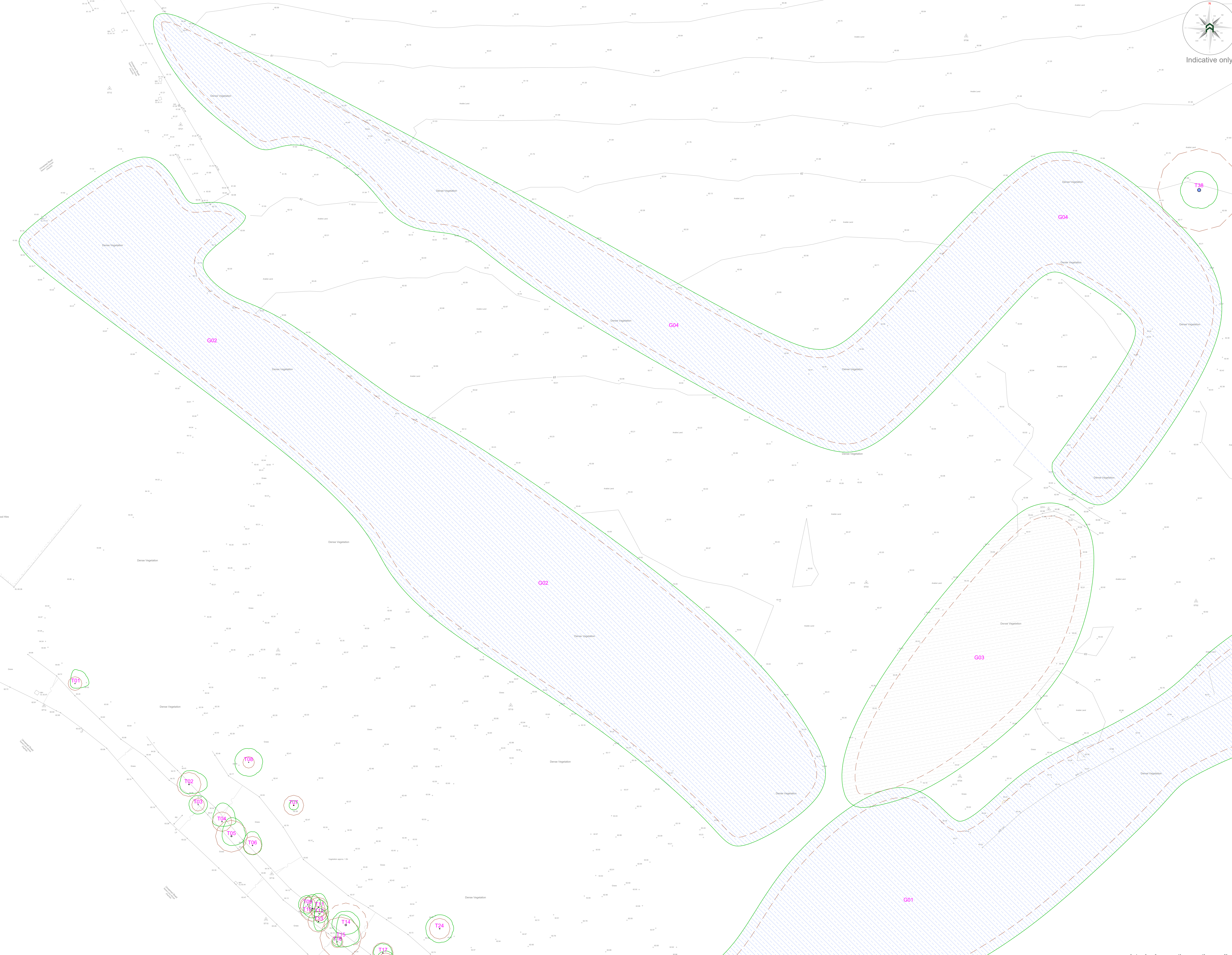
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Key:

Tree No.:	T01	Tree Category:	Trunk:	
RPA:	Category 'U' trees	Category 'V' trees	Category 'W' trees	Category 'X' trees
Category 'U' group:	Category 'V' group:	Category 'W' group:	Category 'X' group:	

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Tree Categories

Trees are categorised in accordance with the cascade chart in Table 1 of the British Standard BS 5837:2012 'Trees in relation to design, demolition and construction - Recommendations'

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

Category 'V' - Trees of high quality with an estimated remaining life expectancy of at least 40 years.

Category 'W' - Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.

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Root Protection Area

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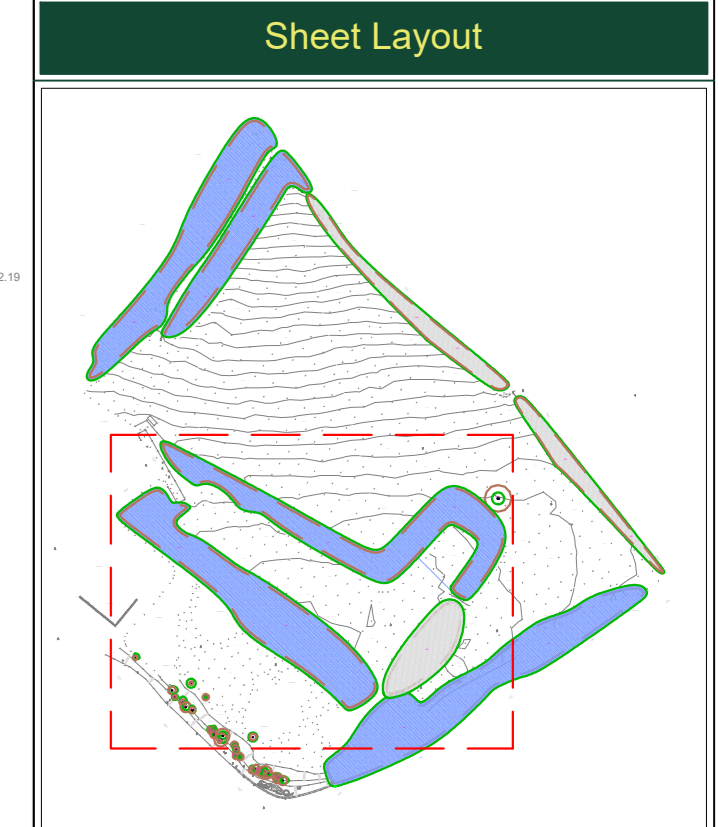
Tree Survey Report

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Client:
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Drawing:
 Tree Constraints Plan

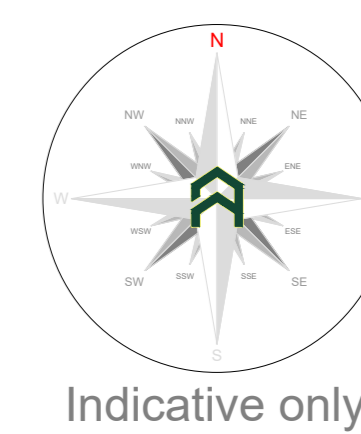
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Drawing No: Arbttech TCP 01 (Sheet 2 of 4)
Date: Oct 2023 **Scale:** 1:250 @ AD **Drawn:** TFR

Key:

Tree No.:	T01	Tree Category:	Trunk:	○
RPA:	○	Category 'U' trees:	Category 'W' trees:	○
Category 'W' groups:	○	Category 'X' trees:	Category 'U' groups:	○

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Tree Survey Report

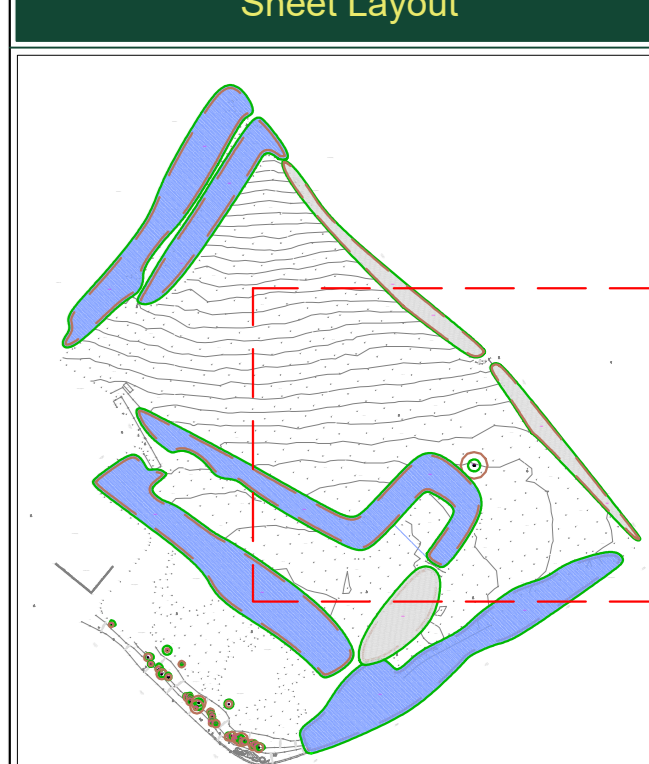
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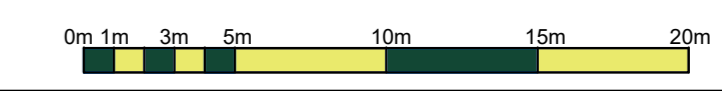
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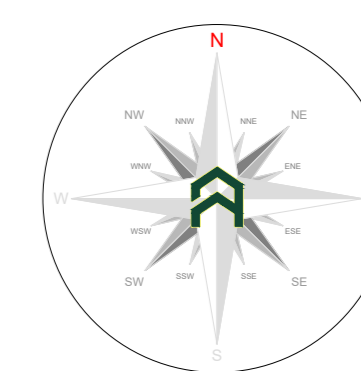
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Key:

Tree No.:	T01	Tree Category:	Trunk:	○
RPA:	○	Category 'U' trees:	Category 'V' trees:	○
Category 'W' trees:	○	Category 'X' trees:	Category 'U' groups:	○

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Tree Survey Report

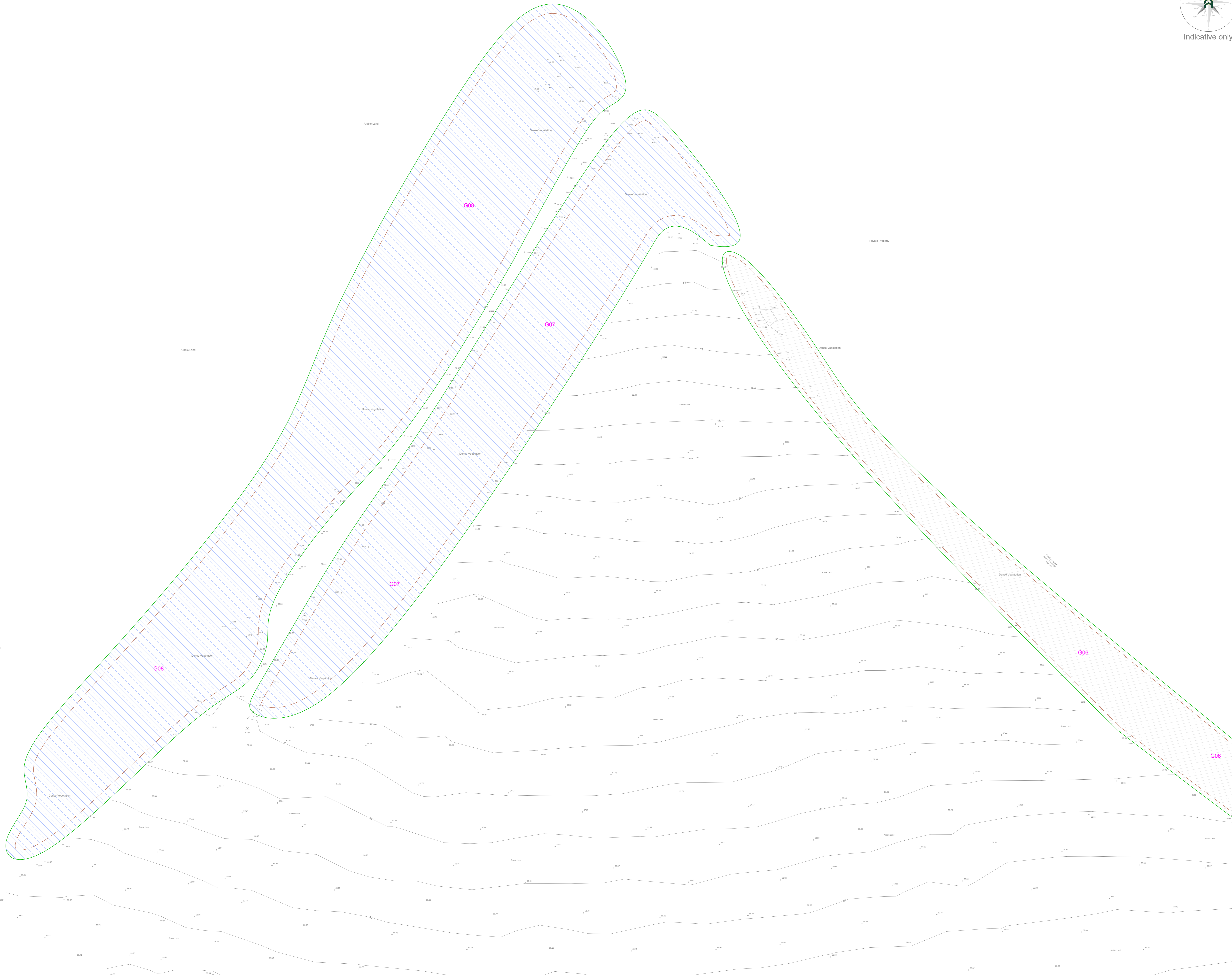
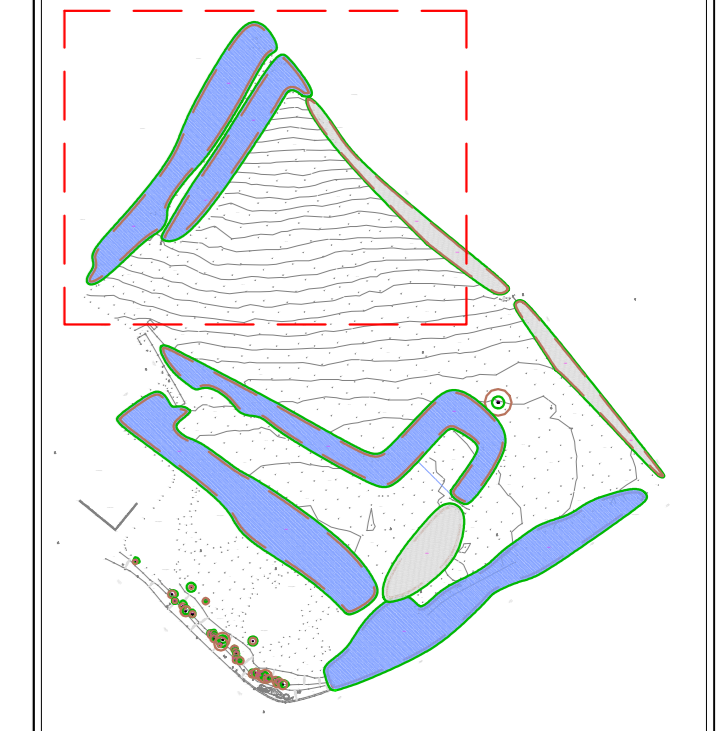
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(Sheet 4 of 4)

Date:
Oct 2023

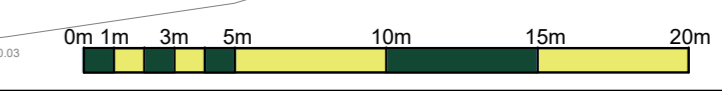
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Rev:
TFR

Key:

Tree No.:	T01	Tree Category:	Trunk:	○
RPA:	Category 'U' trees	Category 'V' trees	Category 'W' trees	○
Category 'U' group:	Category 'V' trees	Category 'W' trees	Category 'X' trees	○

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