
**BS5837:2012 ‘TREES IN RELATION TO DESIGN,
DEMOLITION AND CONSTRUCTION -
RECOMMENDATIONS’**

INITIAL ARBORICULTURAL SURVEY REPORT

SITE OF SURVEY	Groundhog Ltd. Ynysygerwn Avenue, Aberdulais, Neath SA10 8HH
CLIENTS	Groundhog Ltd. Ynysygerwn Avenue, Aberdulais, Neath SA10 8HH
SURVEYED BY:	Gareth Ayres BSc (Hons) M Arbor A Dip Biol ND Arb T. A. Seymour BA (Hons) M.Arbor A. Dip Geog ND Arb Cardiff Treescapes 17 Ravenscourt Close Penylan Cardiff South Glamorgan Telephone: 02920 481284 Mob 07831109904
DATE SURVEYED	7 th .December 2020. Report valid for 12 months

1. INTRODUCTION

1.1 ASSIGNMENT

We have been instructed by Groundhog Ltd. of Ynysygerwn Avenue, Aberdulais, Neath SA10 8HH to carry out a tree survey in accordance with BS5837:2012 'Trees in relation to design, demolition and construction - recommendations' at the designated site area. The trees were inspected on the 1st December 2020 and the weather at the time was overcast with light winds.

1.2 REPORT METHODOLOGY

The methodology for preparing this report is in accordance with BS5837:2012 'Trees in relation to design, demolition and construction - recommendations' is as follows:-

Tree Survey Plan

The purpose of the Tree Survey is to identify all trees on site that may be within influential distance of any proposed development. The plan will record the condition of the trees, their quality and benefits within the context of the development and their above and below ground constraints in relation to both the site and any proposed development.

1.3 NEXT STAGE

This document is intended to be used as an aid for the site design and layout.

Following the finalised design, and any further arboricultural consultation that this may require, the next stage is the drawing up of an Arboricultural Implications Assessment followed by an Arboricultural Method Statement.

Arboricultural Impact Assessment

The purpose of this part of the report is to identify, evaluate and possibly mitigate the extent of any direct and indirect impacts on the trees. It will also identify any potential impacts of the trees on the proposed development.

Arboricultural Method Statements and Tree Protection Plan

The Arboricultural Method Statement and Tree Protection Plan outline all necessary aspects of arboricultural work and tree protection that is required during the development process.

1.4 LEGAL CONSTRAINTS

If these trees are located in a Conservation area or designated with a Tree Preservation Order, the Local Planning Authority will need to be consulted before any work commences.

1.5 IMPLEMENTATION OF TREEWOR

All tree work should be carried out to BS 3998:2010 'Tree work - Recommendations'.

1.6 SOILS

No soil analysis has been undertaken at this site

2. CONCLUSION

The tree survey and constraints plan have been completed and indicate the crown spreads and root protection areas. It can be seen from the Tree Constraints plan that the Root protection areas of several trees surveyed (T2 T5 T6 T7 T8 T9) conflict with the grounds within the perimeter of the existing factory. It should be noted that this ground is hard surfaced and rooting from these trees is likely to be limited.

It is recommended in BS 5837:2005 'Trees in relation to construction – Recommendations' that this information is used as a tool for design of the proposed building.

APPENDIX 1

TREE SCHEDULE KEY

The trees and groups of trees at the site have been assessed as per the recommendations set out in BS 5837 2012.

Type	Represents the type of vegetation being assessed. These are Tree (T), Group (G), Stump (S), Woodland (W)
Tag No	Each tree has been marked by a numbered tag for on site identification. Where possible this number is related to, or similar to the given tree number. There may be occasions when the tag number bears no relationship to the tree number, but is still useful for on site identification
Common Name Botanical Name	The tree species have been identified and both common and botanical names are given.
Age	Young – (Shown as Y in the schedule) juvenile tree with dominant leading shoot growth and short side branches. Vigorous growth and often of conical form. Semi-mature – (Shown as SM in the schedule) young adult tree, leading shoot growth may not always be dominant but side branches are usually ascending. Vigorous growth, flower and seed production. Minimal deadwood. Early maturity – (Shown as EM in the schedule) adult tree with the main framework of the crown formed. Not yet at full dimensions. Vigorous growth and some shedding of inner branches and deadwood. Horizontal side branches. Mature – (Shown as M in the schedule) adult tree at full crown volume and dimensions. Maximum flower and seed production. Dead wood likely within the crown and reiteration growth in the lower canopy. Over mature – (Shown as OM in the schedule) loss of overall vigor and reduction of full dimensions due to limb loss and branch tip die back. Major dead wood within the crown and possible hollowing and cavities. Retrenchment of the crown through increased reiteration growth on the lower branches. Veteran / Ancient – (Shown as V in the schedule) a tree that has passed beyond maturity and is old in comparison with other trees of the same species. They often have decayed or hollow stems and branches and abundant deadwood. They are important for heritage, landscape and ecological value.
Height (m)	Where site lines allow, tree height has been calculated by means of a laser clinometer and recorded in metres. If the use of a laser clinometer is restricted due to confined space or obscuring vegetation, the height of the tree may be estimated based on the surveyor's experience. Adjacent trees or buildings with a clear view may be measured and used as a height scale. Where several trees are located in close proximity, one tree may be measured and the other trees estimated using the measured tree as a reference.
Diameter (mm)	The stem diameter is measured in millimetres in accordance with Annex C of BS5837 2012.
Stems	The number of stems are recorded, eg 1, 2, 3 etc.
Crown Height (m)	Is the distance from the lowest point of the crown from ground level.
FSB Height (m) /Direction	The height of the First Significant Branch (FSB) is recorded in metres and the direction of growth is in relation to the cardinal points of the compass.
North (m) South (m) East (m) West (m) (Crown Spread)	As it is rare that a tree's crown is asymmetric, the crown spread is measured at the four cardinal points of the compass to give an estimated representation of the crown spread which is then recorded on the tree survey plan.

Condition	<u>Physiological Condition</u> Each tree has undergone a brief preliminary visual inspection from ground level. This information is only relevant at the time of inspection because circumstances influencing a tree's condition can change rapidly. This section is divided into two separate sections: G = Good – fully foliated/twigged canopy for the tree's situation with an indication of natural vigor from shoot extension growth and signs of good vitality throughout the tree's system. F = Fair – signs of adequate vigour and vitality up to 70% canopy coverage. May show signs of slight stress such as branch tip die back, slightly sparse foliage, yellow or small foliage. Stress may be alleviated by prescribed maintenance. P = Poor – obvious signs of advance stress including less than 70% canopy coverage, crown die back, significant deadwood. Sparse and discoloured foliage. D = Dead – moribund or dead trees
Comments	<u>Structural Condition</u> Any structural defects are noted such as splits, cracks, tight forks, rubbing branches, cavities, decay and the presence of pests or diseases. These may compromise the mechanical integrity of the tree's structure. (Veteran trees may pose many physiological and structural faults yet still be considered in good condition for their age.)
Recommendations	Following visual inspection preliminary recommended action, further detailed inspection, or maintenance may be prescribed.
RPR (m) Root Protection Radius	This is calculated from Annex D of BS 5837 2012 'Trees in relation to construction - Recommendations'.
RPA (m) Root Protection Area	This measurement is the total area of root protection. This can be modified if necessary by the Arboricultural Consultant.
Category	The tree's overall value is categorised in accordance to the cascade chart (table 1) of BS 5837 2005, see Appendix 2 of this report. In brief, the purpose of the tree categorisation is to identify and quantify the value of the existing tree stock. This will allow informed decisions to be made concerning which trees should be removed or retained should the development occur. <u>Category A</u> Trees of high quality and value that make a substantial contribution. Marked in light green on the tree survey plan. <u>Category B</u> Trees of moderate quality and value that make a significant contribution. Marked in mid blue on the tree survey plan. <u>Category C</u> Trees of low quality and value that provide only an adequate contribution. Marked in grey on the tree survey plan. <u>Category U</u> Trees in such a condition that any existing value would be lost within ten years. This includes trees that should be removed for good arboricultural reasons. Marked in dark red on the tree survey plan.

APPENDIX II

TREE SCHEDULE

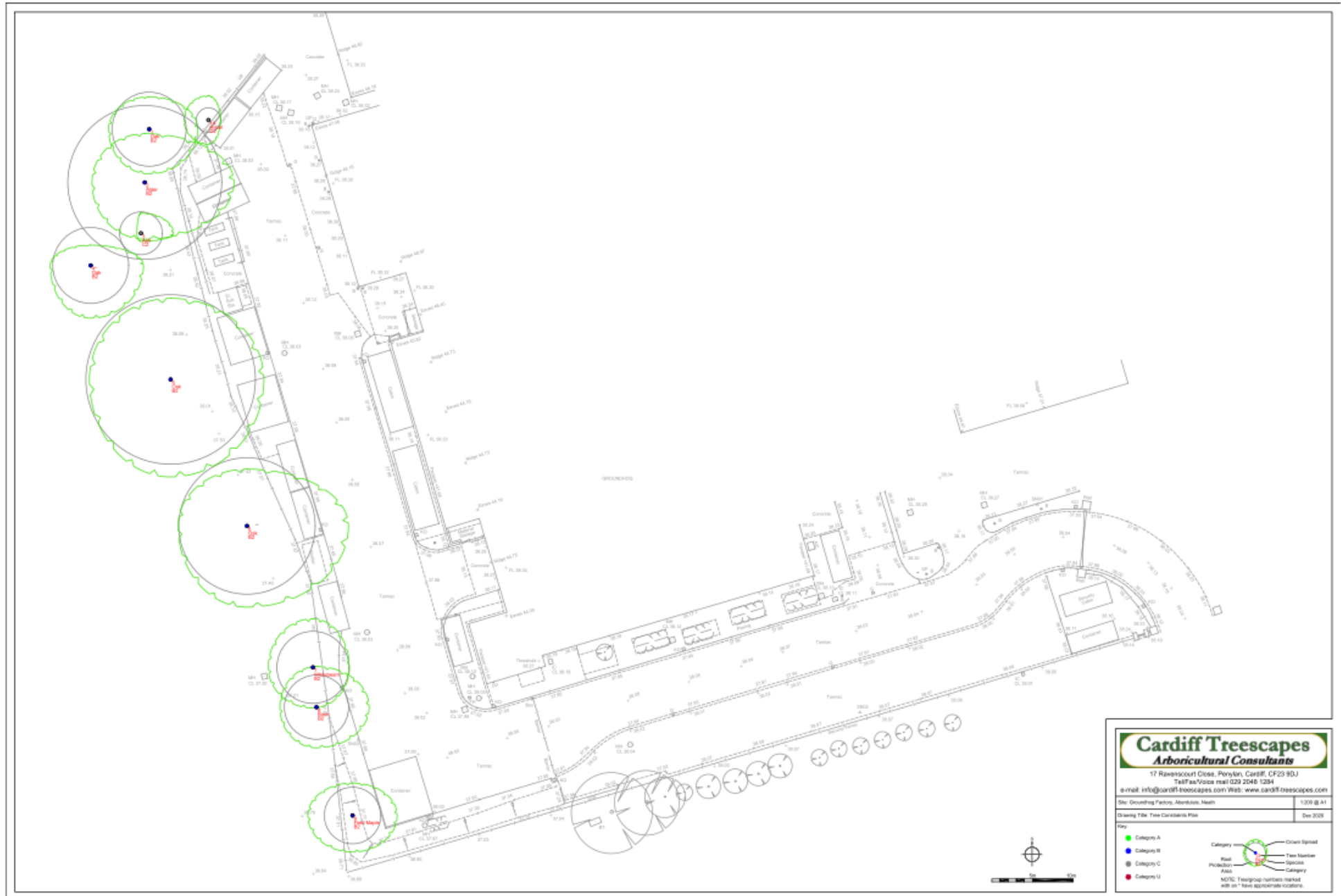
Tree Number	Tag number	Type	Age	Tree Name (Common name)	Tree name (Botanical)	Condition	Crown height	Height	Trunk Dia. (mm)	Single stem (1) or multi-stem (m) *	North (m)	South (m)	East (m)	West (m)	BS Cat.	RRPA Radius(m)	RPA Area (m2)	Comments	Action	
1A		T	EM	Hazel	<i>Corylus avellana</i>	Good	0	4	150	m	3	3	1,5	3	C2	1.50	7.0	Multiple stemmed group growing against railings	Monitor future growth.	
1		T	EM	Oak	<i>Quercus robur</i>	Good	3S	13	380	1	4	5.5	6	5	B2	4.56	65.3	Group tree with suppressed canopy towards neighbouring trees and full crown towards the light. Ivy growth present. Some significant deadwood present. Growing adjacent to 2 drainage ditches and within 5m of boundary fence and industrial site.	Monitor future growth.	
2		T	OM	Alder	<i>Alnus glutinosa</i>	Good	3E	16	790	1	6	7	11	6.5	B2	9.48	282.3	Group tree with suppressed canopy towards neighbouring trees and full crown towards the light. 3 main stems. Area of obvious decay at stem base with fungal activity present. Heavily end loaded stem developing over industrial area. Ivy growth present. Several wounds caused by previously failed limbs in the crown. Growing adjacent to culvert and 3m from boundary fence and industrial site	Pollard at 6m. Monitor re growth.	

3		T	SM	Ash	<i>Fraxinus excelsior</i>	Good	0.5S	8	220	1	2.5	1	4	0.5	C2	2.64	21.9	Group tree with suppressed canopy towards neighbouring trees and full crown towards the light. Minor deadwood present. Growing adjacent to boundary fence and culvert adjacent to industrial area.	Monitor future growth.
4		T	EM	Oak	<i>Quercus robur</i>	Good	4S	13	390	1	2.5	6.5	6.5	5	B2	4.68	68.8	Group tree with suppressed canopy towards neighbouring trees and full crown towards the light. Ivy growth present. Large pruning peg on main stem. Minor deadwood present. Stem contacts concrete fence post. Growing in recreational greenspace adjacent to play area and residential garden.	Monitor future growth.
5		T	EM	Oak	<i>Quercus robur</i>	Good	4E	17	870	1	10	12	11.5	10	B2	10.44	342.4	Open grown tree with single stem and natural taper, supporting a full and naturally formed canopy. Some significant deadwood present. Heavily end loaded limbs developing over industrial site. Growing in recreational greenspace adjacent to play area, boundary fence and industrial site.	Remove significant deadwood. Reduce end loading of vulnerable limbs by 2m. Prune to clear site area. Monitor future growth.

6		T	EM	Oak	<i>Quercus robur</i>	Good	2S	15	700	1	7	10	12.5	8.5	B2	8.40	221.7	Open grown tree with single stem and natural taper, supporting a full and naturally formed canopy. Some significant deadwood present. Limb in lower crown with obvious open cavity and possible spiral crack. Heavily end loaded limbs developing over industrial site. Crossing limb in lower crown. Growing in recreational greenspace adjacent to play area, boundary fence and industrial site.	Remove significant deadwood. Reduce end loading of vulnerable limbs by 2m. Prune to clear industrial site area. Monitor future growth.
7		T	EM	Whitebeam	<i>Sorbus aria</i>	Good	2.5E	8	370	1	6	5	4.5	5.5	B2	4.44	28.3	Open grown tree with single stem and natural taper, supporting a full and naturally formed canopy. Ivy growth on stem and in crown. Branches growing through fence. Bramble and young Hawthorn growing close to stem base. Growing in recreational greenspace adjacent to boundary fence, play area and industrial site.	Sever Ivy and prune to clear industrial site area. Monitor future growth.

8		T	EM	Birch	<i>Betula pendula</i>	Good	3E	12	330	1	5	5	6.5	4.5	B2	3.96	49.3	Open grown tree with single stem and natural taper, supporting a full and naturally formed canopy. Growing in recreational greenspace adjacent to boundary fence, play area and industrial site.	Monitor future growth.
9		T	EM	Field Maple	<i>Acer campestre</i>	Good	3E	8	290	1	4	4.5	5.5	5.5	B2	3.48	22.9	Open grown tree with single stem and natural taper, supporting a full and naturally formed canopy. Growing in greenspace adjacent to boundary fence within industrial site.	Monitor future growth.

APPENDIX III TREE CONSTRAINTS PLAN



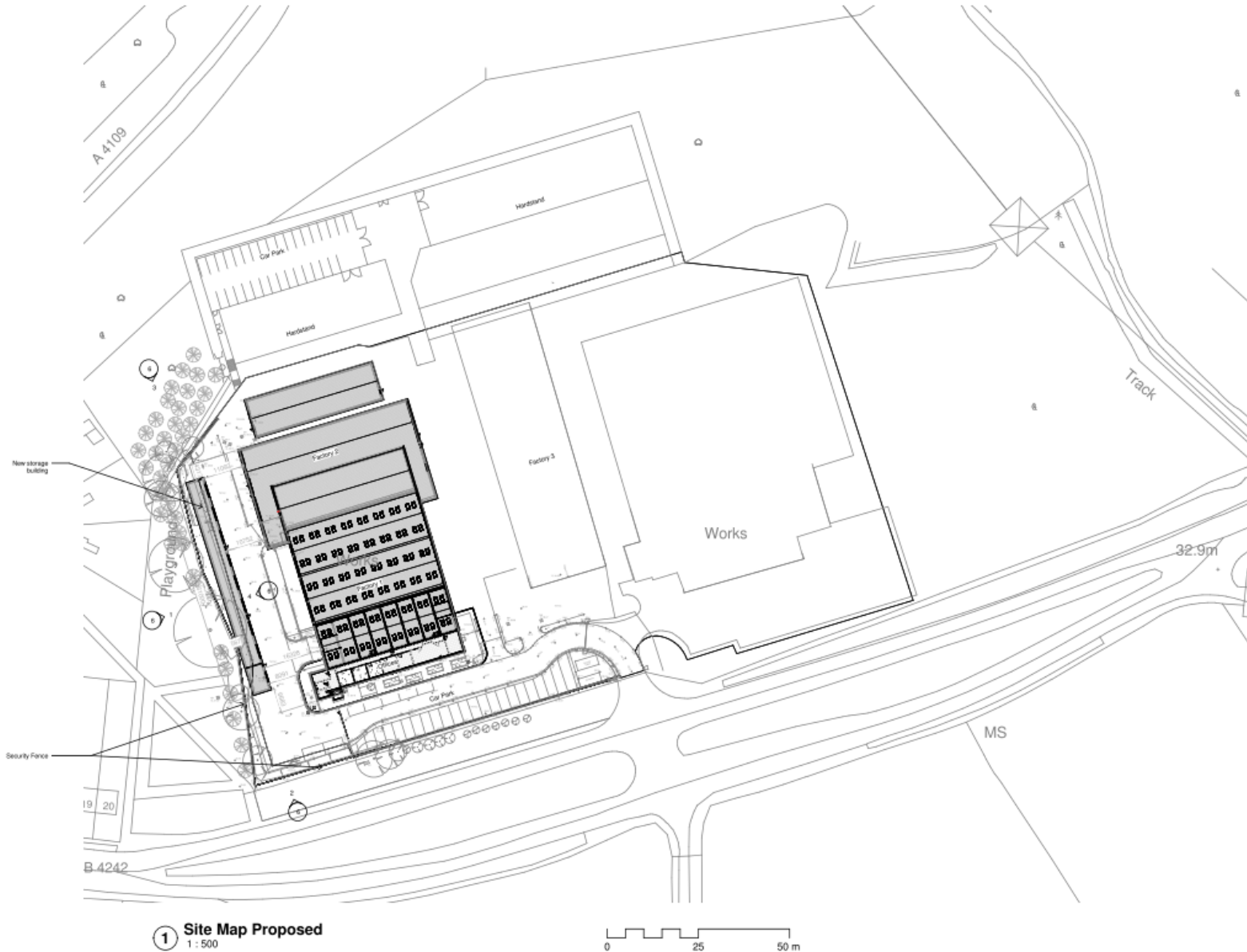
THE DEVELOPMENT PROPOSAL PLANS AND ELEVATIONS

NOTES:

1. All dimensions are in millimetres unless stated otherwise.
2. All levels are shown in millimetres unless stated otherwise.
3. Do not scale from the drawing. Use the given dimensions only.
4. Any dimensions to be repeated are indicated by the dimension line.
5. This drawing is to be read in conjunction with all relevant Architectural, Structural, Services and Specialist drawings and specifications.

ALL DIMENSIONS TO BE CHECKED ON SITE: Contractor to mark and verify all buildings and dimensions. The Contractor is to comply in all respects with the current Building Regulations and any specifically stated on this drawing or not. This drawing must be read and if needed signed by the relevant professional. The drawing is for guidance only of specialist Consultants & Contractors to check and verify. Any discrepancies in all of the above must be reported to the Design team prior to installation.

CDM: If we are appointed as a Designer or Principal Designer, for the Pre-Construction Phase only, we will only carry out our duties for that phase. This means that we will not be involved in design or construction for construction in the Construction Phase, Erection & Safety File to the Close of the end of the Pre-Construction Phase. It will be the Client's responsibility to pass that information on to the Principal Contractor and any other Contractors or Designers, which the client subsequently appoints.



1 Site Map Proposed
1 : 500

PLANNING ONLY

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- NOTES
1. All dimensions are in millimetres unless stated otherwise.
 2. All levels are given in millimetres unless noted otherwise.
 3. Do not scale from the drawing. Use figured dimensions only.
 4. Any dimensions are to be indicated immediately to the Designer/Engineer.
 5. This drawing is to be used in conjunction with all relevant Architects, engineers, subcontractors and specialist drawings and specifications.

ALL DIMENSIONS TO BE CHECKED ON SITE. Contractor to check work on all buildings and site dimensions. The Contractor is to comply in all respects with the current Building Regulations unless specifically noted on this drawing or not. This drawing must be read and checked against any other drawings & specifications to be submitted for consideration. It is the Contractor's responsibility to ensure that all dimensions are correct and that the Contractor is aware of any dimensions on the drawing and to ensure that the Contractor is aware of any dimensions on the drawing and to ensure that the Contractor is aware of any dimensions on the drawing.

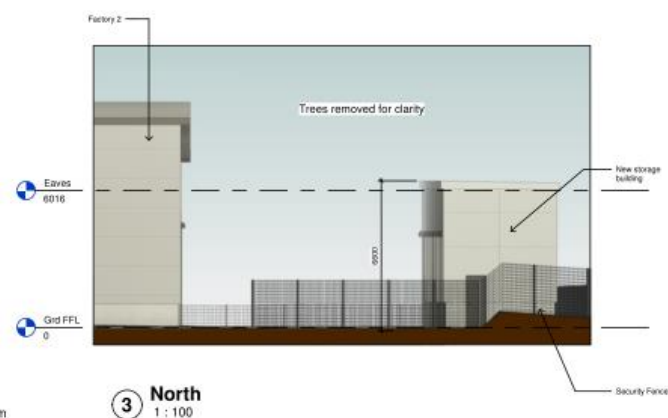
CONTRACTOR: If you are requested as a Designer or Principal Designer, for the Pre-Construction Phase only, we will only carry out our duties for that phase. This means that we will not give any design instructions for consideration in the Construction Phase. Please read & check this drawing and ensure that you are aware of any dimensions on the drawing and to ensure that the Contractor is aware of any dimensions on the drawing.



1 East
1 : 100



2 South
1 : 100



3 North
1 : 100

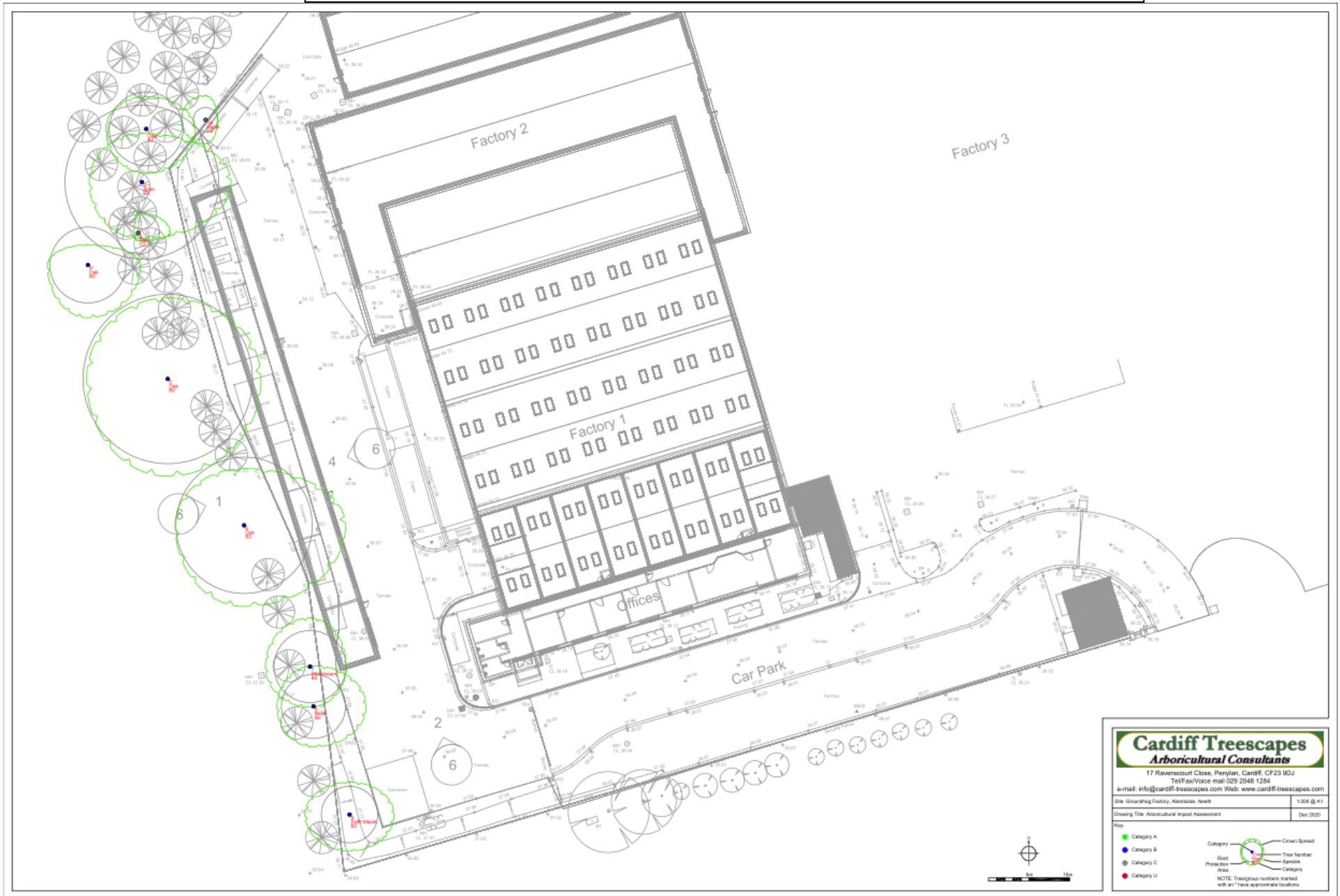


4 West
1 : 100

PLANNING ONLY

Revision			
No.	Date	Description	By
D	01/10/20	Topographical survey added	GT
C	01/10/20	Modified door arrangement & depth	GT
B	01/10/20	Modified door arrangement	GT
A	01/10/20	Storage building footprint	GT
Client			
GroundHog			
Ynyygeren Avenue, Aberdulas, Neath			
SA10 8HH			
Project			
Proposed New Storage Building			
Title			
Proposed Elevations			
360AD Limited			
A Structural Design & Engineering Company			
First Floor, 10, Riverside, Neath			
SA10 8HH			
01632 620000			
email: info@360ad.co.uk			
www: www.360ad.co.uk			
360AD			
Date			
Oct 2020	GT	Checked	ND
Scale @ A1			
1 : 100			
Project number			
20-042			
Status			
System Number	20-042	sig. no.	6
Drawn		sig.	D

APPENDIX IV ARBORICULTURAL IMPACT ASSESSMENT PLAN



3. ARBORICULTURAL IMPACT ASSESSMENT AND METHOD STATEMENT

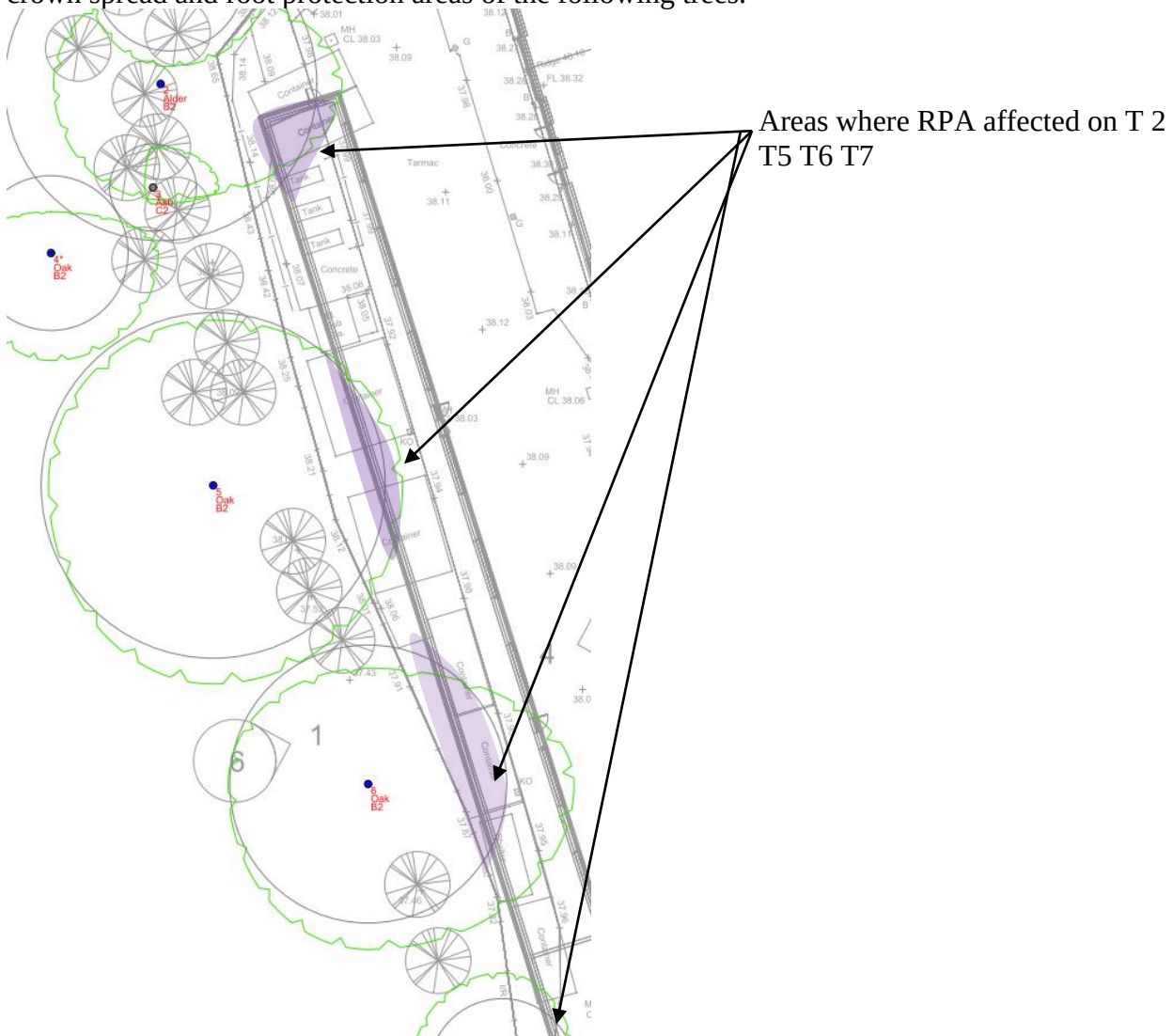
We have been supplied with a development proposal plan for an extension to the existing factory (Drawing No. 5 Rev D Proposed Site Plan Project No 20 042 Dated Oct 2020) as well as elevations. From the plans supplied it appears that the proposal involves the construction of covered storage units along the western boundary of the site adjacent to the park and perimeter fence. The trees, their crown spreads and root protection areas have been overlaid on the development proposal supplied . An impact assessment has been undertaken with reference to these plans

3.1 DIRECT LOSS OF TREES

The proposed site layout plan (see above) indicates that none of the trees will be lost as a consequence of this development .

3.2 CONSTRUCTION AND DEMOLITION WITHIN ROOT PROTECTION AREA OR CROWN SPREAD

It appears from the plans supplied that the construction of the proposed building is partly within the crown spread and root protection areas of the following trees.



Tree No	Species	Category	Crown Height	% RPA affected
T2	Alder	B2 *Pending further inspection	3m E	3-5 % apprx.
T5	Oak	B2	4m E	5-7% apprx
T6	Oak	B2	2m S	8-11% apprx
T7	Whitebeam	B2	2.5E	5% apprx

Below ground the infringement on the Root protection areas of all three trees affected, is very minor and it should be noted that:

- * The trees have unlimited rooting space in other directions
- * The areas affected are currently under hard surfacing within the factory site which is likely to have limited rooting from these three trees.
- * Tree 2 (alder) is thought to have significant hidden decay on the main stem and may require significant reduction in height.

The construction of the foundations for the proposed building have not been detailed, and the use of piles rather than strip foundations would limit the risk of root severance further. However, given that the proposed building is at the very limit of the root protection areas of each tree, significant root loss is thought to be unlikely if traditional strip foundations are used.

Above ground the conflict with branches from Trees 2 , 5 and 6 is likely to be minor and can be easily alleviated by minor pruning works to reduce targeted branches without disfiguring any of the trees. It should be noted that within the survey notes numerous low limbs and heavily end loaded limbs have been observed in trees 5 and 6.

The use of machinery and plant on site during the construction phase seem unlikely to affect any of the trees but guidance notes for the protection of trees outside of the site has been included (3.9).

3.3 TREEWORK AND ECOLOGY

Refer to tree report notes for advised tree works.

Bats, nesting birds and some mammals are protected under the Conservation of Habitats and Species Regulations 2010, Wildlife and Countryside Act 1981 and (as amended) Wildlife and Countryside Act 2000. A risk assessment will be required prior to commencement of any tree work or felling to assess the likelihood of disturbing or endangering any protected wildlife or habitat. If any protected species are present in any of the trees, or if the tree has a known bird or bat roost, then consultation with the Statutory Nature Conservation Organisation (SNCO) must be undertaken prior to commencement of work.

3.4 TREE PROTECTIVE BARRIERS

The trees surveyed are within woodland or parkland behind fencing and no further protection measures are required other than exercising caution if and when working within the root protection areas as detailed in the method statements supplied.

3.5 ON SITE STORAGE OF SPOIL, BUILDING AND TOXIC MATERIALS

Prior to and during construction works on site, no spoil or construction materials will be stored within the root protection area of any tree on site or within the adjacent land.

Any facilities for the storage of oils, fuels or chemicals will have to be sited on impervious bases and surrounded by impervious bund walls. The volume of the bund compound will have to be at least equivalent to the capacity of the tank plus 10%. In case of accidental leakage, the compound will have to be at least equivalent to the capacity of the largest tank, or the combined capacity of interconnected tanks plus 10%. All filling points, vents, gauges and sight glasses will have to be located within the bund. The drainage system of the bund will have to be sealed with no discharge to any watercourse, land or underground strata. Associated pipe-work will have to be located above ground and protected from accidental damage. All filling points and tank overflow pipe outlets will have to be detailed to discharge downwards into the bund.

3.6 CHANGES IN GROUND LEVEL

Ground level changes must be avoided within the root protection area of Hedgerow 4 .

3.7 INSTALLATION OF SERVICES

Service runs have not been indicated on the proposed plans although it is not expected that there will be the need for any service runs within the root protection areas of any retained trees on site.

3.8 LANDSCAPING

Although no trees will be lost as a consequence of this proposal it may be thought that the impact on the outside appearance of the site requires the inclusion of some soft landscaping to plant further under storey shrubs to improve the screening of the site.

3.9 GENERAL CONSTRUCTION OUTSIDE RPA

- a) Care should be taken when planning site operations to ensure that wide or tall loads, or plant with booms, jibs and counterweights can operate without coming into contact with retained trees. Such contact can result in serious damage to them and might make their safe retention impossible. Consequently, any transit or traverse of plant in close proximity to trees should be conducted under the supervision of a banksman to ensure that adequate clearance from trees is maintained at all times.
- b) Material which will contaminate the soil, eg concrete mixings, diesel oil and vehicle washings should not be discharged within 10m of the tree root protection area..
- c) Fires should not be lit in a position where their flames can extend to within 5m of foliage, branches or trunk. This will depend on the size of the fire and wind direction.
- d) Notice boards, telephone cables or other services should not be attached to any part of the tree.
- e) It is essential that allowances should be made for the slope of the ground so that damaging materials such as concrete washings, mortar or diesel oil cannot run towards the trees.

4. SITE MONITORING

Once planning permission has been granted it is important that an open line of communication is maintained between the Contractors, the appointed Arboriculturalist and the Local Planning Authority.

The Arboriculturalist should be called upon to give advice and act as a watching brief where the trees are likely to be impacted by construction operations.

During the period of intensive construction, it is advisable that the Arboriculturalist is contacted should any issues related to retained trees arise. Site visit inspection sheets should be completed and made available to the developer, tree officer and contractors.

5. CHRONOLOGY OF EVENTS FOR ARBORICULTURAL WORK

PLANNING STAGE

- 1 Tree Survey – completed.
- 2 Arboricultural Impact Assessment, Method Statements and Tree Protection Plan – completed.

Preparation of further site specific method statements, if required.

PRE-CONSTRUCTION PHASE

Supply all main contractors with a copy of the Tree Survey report including the Arboricultural Impact Assessment, Arboricultural Method Statement and the Tree protection Plan.

Inform all site staff and contractors of tree protection implications and restrictions, within the site induction system.

Carry out tree work once planning permission has been granted.

Initial meeting between Construction Contractors, Developers and the appointed Arboriculturalist to clarify tree issues.

Site inspection by the Arboriculturalist before construction begins.

CONSTRUCTION PERIOD

Site inspection by appointed the Arboriculturalist as required.

On completion of the main construction period inspect trees for any damage

Carry out landscaping, replanting and light construction work and ameliorate any soil root area compaction.

POST CONSTRUCTION

Regularly inspect the trees every 2.5 years to monitor condition and assess for hazard risk.* (Owners responsibility)

APPENDIX IV

QUALIFICATIONS AND PROFESSIONAL DEVELOPMENT

Mr G.M. Ayres BSc (Hons) M. Arbor A. NDArb

1. **QUALIFICATIONS**

- BSc (Hons) Biological Sciences & Environmental studies
- Diploma in Biological Sciences
- Surrey County Diploma in Arboriculture 1981 – Merrist Wood College
- Ordinary National Diploma in Arboriculture – 1981 Merrist Wood College, Surrey
- M.Arbor A Professional membership of The Arboricultural Association

Mr T.A.SEYMOUR BA.(Hons) M.Arbor A.

1. **QUALIFICATIONS**

- BA (Hons) Human geography & Environmental studies
- Diploma in Environment and Geography
- Surrey County Diploma in Arboriculture 1981 – Merrist Wood College
- Ordinary National Diploma in Arboriculture – 1981 Merrist Wood College, Surrey
- M.Arbor A Professional membership of The Arboricultural Association

3. **CONTINUAL PROFESSIONAL DEVELOPMENT**

- **Some recent courses attended:**
- Seminar Prof. Dr Claus Mattheck VTA update.
- A new branch attachment model starting from Alex Shigo's model
- A new unpredictable lateral grain failure mode of branches which look absolutely safe
- Possible symptoms for the new failure mode and related risks of misinterpretation
- Relationship between topping, root decay and branch failure due to lateral grain
- Slenderness failures of lion-tail branches versus failures due to vigour and compactness – the unbelievable comes true!
- The life-long fight between branch and trunk
- Conclusions for decay propagation from trunk to branch and vice versa
- Truth and lies in the body language of the 'Chinese moustache' (branch bark ridge) – common errors May 2014
- Seminar Prof. Dr Claus Mattheck VTA update, Shear square method, tensile triangles & force cones. Sac fungi. Age determination of perennial fungal fruiting bodies. How broadleaf trees fight spiral cracks & the biomechanical similarities between the hazard beam crack and spiral crack. May 2010.
- Management of veteran trees in historic gardens (N.Fay & T. Green) Nov 2008
- Seminar XII TEP Trees, Roots, Fungi, Soil Nov. 2008
- Picus masterclass July 2008
- Mattheck VTA update May 2008
- Seminar IX TEP Fungal Decay Process & Applied Engineering Nov. 2007
- Seminar V11 TEP Tree Morphology 2 June 2007
- Seminar VI TEP The future of Tree risk management September 2006
- Seminar V TEP Tree morphology March 2006
- Decay Detection Master class (Picus Sonic Tomograph) May 2005
- Principles of Tree Risk Assessment & Management Silwood Park 2002
- Principles of Tree Risk Assessment – July 2002
- Tree Mechanics with Dr Claus Mattheck – 2002
- Biology of Decay in Trees – Hatfield Forest – November 2001
- Trees and the Law Leicester Racecourse 2001
- Modern Arboriculture – a system approach to practical tree care – Dr Alex Shigo – 1992

4. **PROFESSIONAL AFFILIATIONS**

- Arboricultural Association