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DRAFT

Arboricultural Impact Assessment and Tree Protection Plan

for trees on

Land to the west of Wales One, Magor

On behalf of

Cubex Land Ltd
Richmond House
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Bristol
BS8 1BA

Inspected and prepared by

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SUMMARY

This arboricultural impact assessment report supports a full planning application, submitted on behalf of Cubex Land ltd for the construction of an industrial/storage and distribution warehouse with associated infrastructure including parking, landscaping, drainage works and a new site entrance on land to the west of Wales One in Magor.

Arboricultural advice was taken early in the planning process with the aim of incorporating the best trees on the site. To construct the proposed development, nine trees must be removed, including seven C-grade trees and two trees in poor condition (Category-U). Additionally one short section of hedge, and part of three further hedges will need to be removed, these are all C-grade arboricultural features.

The loss of these trees will be compensated by new tree planting, which has been designed to complement the new site layout. These new trees will also provide age and species diversity to enhance the resilience of the existing tree canopy cover.

During construction, temporary fencing will be used to protect retained trees situated near works areas. For effective tree protection, fencing must be installed before any heavy plant machinery is used on the site and must remain in place until the construction works have been completed.

Supervision by a suitably qualified arboriculturist will be required in the event of any unforeseen construction activity within the root protection area of retained trees at or near the development site. It is advised to inform the project arboriculturist and the local authority's arboricultural officer of necessary works near trees as soon as they become apparent.

This report also includes further advice on the protection of trees during construction works. The site manager must be made aware of the tree protection requirements at the site. They must be given a copy of this report and impart the information herein to all construction staff.

Contents

1 INTRODUCTION

1.1 Background

Cubex Land Ltd proposes a new development on land to the west of Wales one in Magor (NP26 3DG). This land is hereafter referred to as the 'site'. This would involve constructing an industrial/storage and distribution warehouse with associated infrastructure including parking, landscaping, drainage works and a new site entrance; these proposals are hereafter referred to as the 'proposed development'.

The following documents have been reviewed to inform this report:

- Topographical Survey - Clifton Surveys - Drawing # 989/5071/1
- Proposed Site Layout - UMC Architects - Drawing # 21368 F0012

An initial tree constraints plan was produced in early January 2022 and this has informed the layout of the proposed site layout.

I am informed by E-mail correspondence with Monmouthshire County Council that none of the trees at the site are protected by a tree preservation order (TPO), and that the site is not situated within a Conservation Area.

1.2 The assignment

Instructed by KAM, on behalf of Cubex Land Ltd, Bosky Trees conducted a site visit, surveyed the trees that might be affected by the proposed development and specified suitable tree protection measures in the event of a successful planning application. The information compiled in this report is in accordance with the British Standard *BS5837:2012 – Trees in relation to design, demolition and construction – Recommendations*.[1]

This report includes the following to accompany a full planning application for the proposed development:

- A tree survey plan based on the topographical survey provided, with any additional tree(s) indicatively plotted
- An arboricultural impact assessment of the proposed development, identifying trees that will be lost, as well as trees that can be retained and protected during development works
- A tree protection plan, including information on the location of tree protection fencing and ground protection measures
- Recommendations for remedial works for retained trees to be undertaken before site clearance and construction
- Method statements for works near trees

[1] British Standards Institution (2012). *BS5837 Trees in relation to design, demolition and construction – Recommendations*. BSI: London.

1.3 Limitations

The assessment and works recommendations relate to conditions found at the time of inspection. Any significant alteration to the site that may affect present trees, or have implications for planning (including level changes, hydrological changes, storms, extreme climatic events or site works) will necessitate re-assessment of the trees.

Note that this survey is not a tree safety inspection; it has been carried out to inform the planning process. Where clear and obvious hazards have been observed, these have been addressed in the works recommendations. A full assessment of the risks posed by trees would be informed by consideration of site use together with hazards present within a tree. Changes in site use are likely to occur during, and result from, the proposed development. Given these factors, regular tree risk assessments are advised.

This report does not consider tree-related building subsidence. If shrinkable clay soils are present on site, then guidance given in the National House Building Council (NHBC) Standards, chapter 4.2[2] should be used to avert the risk of future subsidence of new buildings.

No detailed assessment of the potential conflict between future site use and the shade cast by trees has been undertaken within this report.

2 TREE SURVEY INFORMATION

2.1 Details of the site visit

I visited the site and carried out tree survey on 18th January 2022. The survey was not constrained by weather conditions and considered all trees on and around the site. The survey considered all the trees in and around the expected works areas.

The proposed development site is currently an open plot of land used as pasture. There are numerous mature oaks located in the field boundaries which all have great aesthetic value. Hawthorn and blackthorn are the most common species within the old hedgerows.

2.2 Data collection

Trees, tree groups and hedgerows were allocated a unique identifying number, used throughout this report. ID numbers are listed in the tree schedule and are used on the tree plans.

Trees were inspected at ground level using the visual tree assessment method.[3] As described in table 1 of BS5837,[4] each tree was placed into one of four retention categories: A, B, C or U. Stem diameter

[2] National House Building Council (2008). *NHBC Standards Chapter 4.2 - Building near trees*. NHBC: Milton Keynes.

[3] Mattheck, C. and Breloer, H. (1995). *The body language of trees: a handbook for failure analysis*. Research for Amenity Trees 4. HMSO: London.

[4] British Standards Institution (2012). *BS5837 Trees in relation to design, demolition and construction – Recommendations*. BSI: London.

was used to calculate the root protection area (RPA)[5] required by each tree during construction. Information on each tree, tree group and hedgerow is given in Appendix 1.

A total of 28 individual trees, two groups of trees and nine hedges were surveyed (see table 1).

Table 1: Summary of the retentive worth of trees, groups and hedges included in the survey

BS5837 Category	Quality	Number of trees	Number of groups	Number of hedges
A	High	3	0	0
B	Moderate	4	0	0
C	Low	18	2	9
U	Very poor	3	0	0
	Total	**28**	**2**	**9**

2.3 The tree plans

The tree removal plan (TR-1) shows the root protection areas required by each tree and identifies which trees are to be removed to enable the proposed development. The tree protection plan (TPP-1) shows where fencing and other protection measures are required to safeguard trees during construction. These plans are provided at the rear of the report.

3 ARBORICULTURAL IMPACT ASSESSMENT AND PROPOSED MITIGATION

3.1 Trees for removal

Seven C-grade trees (T13, T15–T18, T21 & T23) will need to be removed in order to construct the proposed development. Additionally one short section of hedge (H5), and part of three further hedges (H4, H8 & H9) will also need to be removed, these are all C-grade arboricultural features.

The removal of two further trees (T14 & T24) is recommended because they are in poor condition and have less than ten years useful life expectancy, i.e. their removal is recommended regardless of any development proposals. These trees are considered to be category U in accordance with the guidance provided in Table 1 of BS5837.

3.2 New tree planting

The loss of trees will be compensated by an extensive programme of new tree planting that has been designed to complement the new site layout. The locations for the new trees will provide them with the space that they will require for stem thickening and the development of a full crown at maturity. The proposed locations for these trees are shown on the Landscape Softworks Plan produced by lhc design that accompanies this submission (drawing ref. xxx). Overall, many more trees will be planted than those that are to be removed and the proposed development will result in an increase in local tree canopy cover.

[5] The root protection area (RPA) 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 roots and soil structure is treated as a priority.

3.3 Construction of the roadside pavement

A new pavement is proposed beside the lay-by to the south of the site to facilitate pedestrian access. There is currently a group of ash and field maple located at the bottom of the verge beside the proposed pavement, these all appear to have self-sown. These trees are unlikely to have major roots in the area to be surfaced because they are situated on lower levels. The removal of three of these trees (T21, T23 & T24) will allow space for the pavement to be constructed, I do not expect the construction of the pavement to have any noticeable long-term effect to the remaining trees in this area.

3.4 New service runs

Typical 'open trench' installation of underground services near trees is likely to sever roots; this will harm the tree's physiological condition, provide an opportunity for fungal infection, and could leave them prone to windthrow. Therefore, new underground services will be located and designed to avoid retained trees' root protection areas.

If any additional underground services are required it will be necessary for suitable members of the project team, including an arboricultural consultant, to design their routes. An appropriate specification and method statement are required for their installation and guidance provided in Volume 4 of the National Joint Utilities Guidelines (NJUG4)[6] must be followed.

3.5 Level changes and retaining walls

Level changes or slopes must comply with the constraints attached to the construction exclusion zones. This means that any soil grading must take place outside of the fenced areas identified on the tree protection plans.

3.6 Tree protection fencing

Temporary fencing and/or barriers must be used during construction to protect retained trees situated near works areas. The locations of such fencing/barriers is indicated on tree protection plan at the rear of the report (TPP-1). For effective tree protection, protective fencing must be installed before any heavy plant machinery is used on the site and must remain in place until completion of construction works (unless under arboricultural supervision). The fenced off areas will be designated as 'construction exclusion zones'.

A specification for suitable tree protection fencing is provided in Appendix 2.

3.7 General method statement for effective tree protection

Trees are vulnerable to root damage caused by ground disturbance, direct injury of the trunk or branches, environmental change, pests and diseases. Construction work often exerts pressures on existing trees. A tree that has taken many decades to reach maturity can be irreparably damaged in just a few minutes by unwitting or negligent actions.

The site manager must be informed of the tree protection requirements at the site and the guidance in this report. A pre-start meeting is strongly encouraged to ensure correct erection of temporary

[6] National Joint Utilities Group (2007). *Guidelines for the planning, installation, and maintenance of utility apparatus in the proximity to trees.* Volume 4 (NJUG4). National Joint Utilities Group: Eastleigh.

barriers forming construction exclusion zones to protect retained trees at the site (see also: Section 3.6).

Soil compaction can occur quickly by vehicles passing over an area of soil. Compaction may cause reduced infiltration rates of water, poor drainage, reduced availability of water and reduced air and oxygen supply to roots. This leads to reduced root growth and, as a result, the health of the tree is affected. To avoid soil compaction, no vehicles should enter the fenced-off areas during construction operations.

All construction staff should be made aware of the following restrictions applying to construction exclusion zones:

1) Excavation or raising of soil levels is prohibited within construction exclusion zones without written permission from the project arboriculturist.

2) Site offices and staff welfare facilities must be located outside of construction exclusion zones unless agreed with the local authority's arboricultural officer.

3) No materials of any kind should be stored within the construction exclusion zone.

4) No utility trenches should be routed through a construction exclusion zone without written permission from the local authority's arboricultural officer.

5) Care must be taken when planning site operations to ensure that wide or tall loads, or plants with booms, jibs and counterweights, can operate without coming into contact with retained trees. If necessary, branches may be tied out of the way.

6) Potential contaminants, such as fuel, oils and chemicals, must be stored on an impervious base within a bund able to contain at least 110% of the volume stored. Provision must also be made for any spillage or run-off to be contained away from the protected area.

7) Cement and concrete mixing must take place at least 10m from any trees, over a suitable hard surface to prevent soil contamination from spillage or washing out.

8) Avoid fires; however, if permitted by the site manager, they must not be lit where heat could affect foliage or branches (at least 15 m from the base of a tree is normally sufficient).

4 RECOMMENDATIONS

4.1 Tree work

All tree works necessary for the proposed development are listed in the schedule in Appendix 1.

All permitted and approved tree work must be undertaken in accordance with BS3998:2010 *Recommendations for tree work*,[7] ideally at the beginning of the construction phase before protective fencing is erected. Only qualified and insured tree surgeons should be employed.

[7] British Standards Institution (2010). *BS3998 Recommendations for tree work*. BSI: London.

4.2 Legal restrictions to tree works

At present none of the trees at the site are protected. If this report is submitted to support a full planning application, and that application is subsequently approved, any tree works listed in the report may be carried out prior to the commencement of construction without the requirement for further permission from the planning authority. But if any arboricultural works are intended before planning permission has been approved then, before works start, the local planning authority should be contacted again to confirm if any of the trees have subsequently become protected since the previous check. Also, if trees are owned by a third-party permission for any arboricultural management must be agreed with the owner in advance of the works. Please contact Bosky Trees if you would like these matters explained in more detail.

Works may be constrained between March and August because it is illegal to disturb an active bird's nest. Bat roosts are also protected, so tree works might be delayed if roosting bats are encountered. A tree surgeon or ecologist will advise on this matter.

4.3 Arboricultural supervision

Supervision by a suitably qualified arboriculturist is required if any unforeseen construction activity is to take place within the root protection area of any trees retained on or near the site. The project arboriculturist and the local authority's arboricultural officer should be informed of necessary works near trees as soon as they become apparent.

Appendix 1 - Tree Schedule

Site: Land to the west of Wales One, Magor

Surveyor: Nick Baxter

Date of Survey: 18th January 2022

Tree Number	Tree Species	Height (m)	Number of Stems	Stem Ø (cm)	N - Radius (m)	S - Radius (m)	E - Radius (m)	W - Radius (m)	1st Branch (m)	Age Class	Overall Health	ULE (Years)	Tree Structural Condition & Site Notes	Recommended Management	Category
T1	English oak	16	1	95	5	10	6	6	3	FM	F	20+	Numerous basal wounds with associated decay. The upper crown has shed from 9m but re-grown. Located east of the site beyond a compacted stone surface.	No action required at present.	**C2**
T2	Ash	16	4	50	7.5	7.5	7.5	7.5	4	M	G	20+	Four stems extend from base. Past crown lift. Coppice origin. Located on an old bank.	No action required at present.	**C2**
T3	English oak	7	1	15	1	3	3	3	2	EM	G	40+	A small tree that has grown through the scrub. No obvious significant defects. Located beyond the boundary fence but overhangs into the site by 1m.	No action required at present.	**C2**
T4	English oak	17	1	75	7	7	6	6	9	M	G	40+	Numerous scars in the upper crown but the remaining growth is healthy, this seems to be natural retrenchment. Surveyed from inside the site.	No action required at present.	**B2**
T5	English oak	16	1	73	9	8	8	7	1	M	G	40+	A low limb extends into the site. No obvious significant defects. Situated between two fencelines.	No action required at present.	**B2**
T6	English oak	9	1	70	0.5	5	2	2	3	M	D	<10	A standing dead tree. Situated between two fencelines.	No action required at present.	**U**
T7	Field maple	10	2	35	3	6	6	3	2	M	F	40+	An old hedgerow tree. The crown extends into the site. Arboreal ivy. Situated between two fencelines.	No action required at present.	**C2**
T8	English oak	15	1	65	6.5	6.5	6.5	6.5	2	M	G	40+	This tree has the potential to be a great specimen. Symmetrical crown. No obvious significant defects. Situated between two fencelines.	No action required at present.	**A2**
T9	Field maple	10	MS	32	4	4	4	4	2	M	F	40+	Multi-stemmed from base with grazing damage at the base.	No action required at present.	**C2**
T10	English oak	17	1	109	8.5	8.5	8.5	8.5	2	M	G	40+	An old hedgerow tree with a symmetrical crown. Crown extends from 4m. No obvious significant defects.	No action required at present.	**A2**
T11	English oak	20	1	119	12	11	10	10	1	FM	G	40+	A low crown extends into the site. Arboreal ivy extends to 12m. No obvious significant defects. Situated between two fencelines.	No action required at present.	**A2**
T12	Elder	3	MS	15	3	1	3	1	1	FM	F	10+	An old elder with grazing damage to the base.	No action required at present.	**C2**

A key explaining each category is provided at the rear of the schedule

Tree Number	Tree Species	Height (m)	Number of Stems	Stem Ø (cm)	N - Radius (m)	S - Radius (m)	E - Radius (m)	W - Radius (m)	1st Branch (m)	Age Class	Overall Health	ULE (Years)	Tree Structural Condition & Site Notes	Recommended Management	Category
T13	English oak	9	1	25	6	4	3	5	1.5	EM	G	40+	Past crown lift over the road. Arboreal ivy. Asymmetrical crown. This tree is unlikely to ever become an attractive specimen.	Fell and remove the stump.	**C2**
T14	Ash	10	1	25	5	5	5	5	2	FM	P	<10	Adventitious growth throughout the crown indicating stress, I expect this to be Chalara ash dieback.	Fell and remove the stump.	**U**
T15	Hawthorn	7	1	18	3	3	3	3	3	M	F	10+	A solitary hedgerow tree that has been left to be swarmed by brambles.	Fell and remove the stump.	**C2**
T16	Apple	6	1	13	1	1.5	1	1	3	EM	F	10+	A solitary hedgerow tree that has been left to be swarmed by brambles.	Fell and remove the stump.	**C2**
T17	Hawthorn	6	1	15	1.5	1.5	1.5	1.5	2	EM	G	40+	No obvious significant defects.	Fell and remove the stump.	**C2**
T18	English oak	11	1	22	1	5	4	3	6	EM	G	40+	A small tree with a trunk lean to the south away from the dominant oak. Unlikely to ever become an attractive specimen.	Fell and remove the stump.	**C2**
T19	English oak	16	1	70	7	7	7	7	5	M	G	40+	An old hedgerow tree. Past crown lift.	No action required at present.	**B2**
T20	Field maple	14	3	25	5	6	1	5	3	M	F	20+	A hedgerow tree in close proximity to the adjacent field maple. Located at the bottom of a bank beside the road. Little aesthetic value.	Crown lift to provide 5m of clearance on the south side of the crown.	**C2**
T21	Field maple	14	1	21	3	3	2	2	6	EM	F	20+	A hedgerow tree in close proximity to the adjacent field maple. Located at the bottom of a bank beside the road. Little aesthetic value.	Fell and remove the stump.	**C2**
T22	Field maple	14	1	19	0.5	3.5	1	1	4	EM	F	20+	A hedgerow tree in close proximity to the adjacent field maple. Located at the bottom of a bank beside the road. Little aesthetic value.	Crown lift to provide 5m of clearance on the south side of the crown.	**C2**
T23	Field maple	12	1	16	0.5	3	1	1	4	EM	F	20+	A hedgerow tree in close proximity to the adjacent field maple. Located at the bottom of a bank beside the road. Little aesthetic value.	Fell and remove the stump.	**C2**
T24	Ash	2	1	12	0.5	1	0.5	1.5	1	EM	F	<10	A small self-sown tree located beneath the more dominant ash. Located at the bottom of a bank beside the road. Little aesthetic value.	Fell and remove the stump.	**U**
T25	Ash	17	5	55	8	7	7	7	5	M	F	20+	Multi stemmed from base. Arboreal ivy. Located at the bottom of a bank beside the road. Little aesthetic value.	No action required at present.	**C2**
T26	Field maple	12	1	18	0.5	5	4	1	4	EM	F	20+	Suppressed crown. Arboreal ivy. Located at the bottom of a bank beside the road. Little aesthetic value.	No action required at present.	**C2**
T27	Field maple	13	4	38	6	5	5	5	2	EM	G	40+	Multi stemmed from base. Arboreal ivy. Located at the bottom of a bank beside the road. Little aesthetic value.	No action required at present.	**C2**

A key explaining each category is provided at the rear of the schedule

Tree Number	Tree Species	Height (m)	Number of Stems	Stem Ø (cm)	N - Radius (m)	S - Radius (m)	E - Radius (m)	W - Radius (m)	1st Branch (m)	Age Class	Overall Health	ULE (Years)	Tree Structural Condition & Site Notes	Recommended Management	Category
T28	English oak	14	1	65	6.5	6.5	6.5	6.5	3	M	G	40+	Slight trunk lean to the south. Healthy crown. No obvious significant defects.	No action required at present.	**B1**

A key explaining each category is provided at the rear of the schedule

Appendix 1 - Group Schedule

Site: Land to the west of Wales One, Magor

Surveyor: Nick Baxter

Date of Survey: 18th January 2022

Group Number	Tree Species	Number in Group	Height (m)	Number of stems	Stem Ø (cm)	N - Radius (m)	S - Radius (m)	E - Radius (m)	W - Radius (m)	1st Branch	Age Class	Overall Health	ULE (Years)	Tree Structural Condition & Site Notes	Recommended Management	Category
G1	Hawthorn	12	6	MS	**15**	2	2	2	2	2	M	G	40+	A long group of trees located at the top of the motorway embankment. No obvious significant defects.	No action required at present.	**C2**
G2	Hazel	5	6	MS	**20**	3	3	3	3	1.5	M	G	40+	Small trees located at the edge of a small copse.	No action required at present.	**C2**

A key explaining each category is provided at the rear of the schedule

Appendix 1 - Hedge Schedule

Site: Land to the West of Wales One, Magor

Surveyor: Nick Baxter

Date of Survey: 18th January 2022

Hedge Number	Tree Species	Height (m)	No. of Stems	Stem Ø (cm)	Width (m)	Length (m)	Age Class	Overall Health	ULE (Years)	Condition & Notes	Recommended Management	Category
H1	Hawthorn, field maple, blackthorn and elder	4	MS	**12**	4	88	M	G	40+	An old field boundary hedgerow. The inside has been regularly cut back. The eastern side has been left unmanaged with dense scrub beyond.	Cut back overhanging branches by 1m.	**C2**
H2	Blackthorn	4	MS	**9**	5	25	M	G	40+	An area of overgrown scrub which leans into the site by 2m.	Cut back to the fenceline.	**C2**
H3	Hawthorn, field maple, blackthorn and elder	4	MS	**6.5**	6	65	FM	F	20+	An old field boundary hedgerow with numerous gaps and few signs of past management. Arboreal ivy. Situated between two fencelines.	No action required at present.	**C2**
H4	Hawthorn, field maple, blackthorn and elder	5	MS	**14.6**	6	65	FM	F	20+	An old field boundary hedgerow with numerous gaps and few signs of past management. Arboreal ivy. Situated between two fencelines.	Cut back overhanging branches by 1m. Remove a short section in the middle of this hedge as indicated on the tree removal plan (TR-1).	**C2**
H5	Blackthorn	6	MS	**12**	6	10	M	F	20+	A short section of blackthorn hedge. One tree has collapsed into the site. Few signs of past management.	Remove.	**C2**
H6	Hawthorn, ash and blackthorn	6	MS	**15**	5	100	M	G	40+	A roadside hedgerow which has been left to grow tall but regularly flailed back on the sides. Numerous young ash have self-sown at the edge, these have little long-term value.	Cut back on the road side by 2m and crown lift the young ash trees to 6m to facilitate visibility splays.	**C2**
H7	Hawthorn and hazel	4	MS	**12**	2	52	EM	F	20+	A roadside hedgerow which is largely overgrown with brambles.	No action required at present.	**C2**
H8	Hawthorn	5	MS	**15**	4	15	EM	G	20+	A short section of hedge. Few signs of past management.	Remove a 4m section from the western end of this hedge as indicated on the tree removal plan (TR-1).	**C2**
H9	Hazel and blackthorn	4	MS	**15**	6	50	M	G	40+	A field boundary hedge with few signs of past management. Located at the bottom of a bank away from the road.	Remove a 5.5m section from this hedge as indicated on the tree removal plan (TR-1).	**C2**

A key explaining each category can be found at the rear of the schedule.

Tree Schedule - KEY

Tree/Group/Hedge Number
Tree, tree-groups or hedges have been allocated a number for the purpose of this survey. Numbers within the Tree Schedule relate to those marked on the Tree Constraints Plan and Tree Protection Plan drawings.

Species
Common names are listed.

Number in Group
Number of trees within a group. A group of trees may comprise of more than one species.

Height (m)
All heights are estimated in metres.

Number of Stems
The number of stems is either 1, 2, 3, 4, 5 or MS (multi-stemmed). This feature influences how the area of the recommended root protection area is calculated.

Stem or Combined Diameter (cm)
Single stem diameters are measured at 1.5m with a diameter tape. The combined stem diameters for trees with up to five stems and trees with more than five stems (MS) trees are calculated in accordance with the guidance. The stem diameters are measured in accordance with Figure C.1 of BS5837:2012. All measurements in bold are estimates due to restricted access to the tree trunk.

Crown Spread Radius (m)
The crown radius from tree trunk to crown limit identified at the four cardinal points (N, S, E and W) in order to allow presentation of the above ground constraints on the Tree Constraints Plan and Tree Protection Plan. Measurements are approximate and recorded to the nearest half metre.

All measurements depend on clear access about the crown.

1st Branch (m)
This is a record of the height of the lowest branch. This is useful when planning access routes or considering if pruning will be required to site new features under a tree crown.

Age Class
(Y) Young, (SM) Semi-Mature, (EM) Early-Mature, (M) Mature, (FM) Fully-Mature or (V) Veteran.

Overall Health
An overall assessment of the physiological condition of the tree recorded as (G) Good, (F) Fair, (P) Poor, (D) Dead.

ULE (Years)
Useful Life Expectancy. Anticipated future contribution to amenity, in years.

Tree Structural Condition & Site Notes
Observations on the form of the tree, condition and structural integrity.

Site notes are detailed when relevant to the growth conditions or rooting constraints.

Management Recommendations
Recommended tree surgery works to be carried our prior to construction. Terminology used is based on guidance detailed in BS3998:2010 – Recommendations for tree work[1].

Category
Tree category as defined within BS5837:2012. Categories A (high quality), B (moderate quality) and C (low quality) are trees that should be considered for retention. Category U trees are unsuitable for retention.

[1] British Standards Institution (2010). BS3998 - Recommendations for Tree Work. BSI, London.

APPENDIX 2

SPECIFICATION FOR TREE PROTECTION FENCING

The location of the tree protection fencing that will be required is shown on the tree protection plan, (this is provided at the rear of this document). **For effective tree protection it is crucial that the protective fencing is installed before any heavy plant machinery is used on the site.** The tree protection fencing must remain in place until the construction works have been completed (unless under arboricultural supervision). The fenced off areas will be construction exclusion zones.

Most planning permission notices include a condition for tree protection that requires proof to be provided to demonstrate that the tree protection fencing has been put up properly and in accordance with the tree protection plan. This can be done by installing the fencing and informing the council two weeks in advance of starting construction, or by employing an arboricultural consultant to check the fencing and produce a record of the inspection. Alternatively, photos could be taken as evidence that the fencing has been put up before any other works have started.

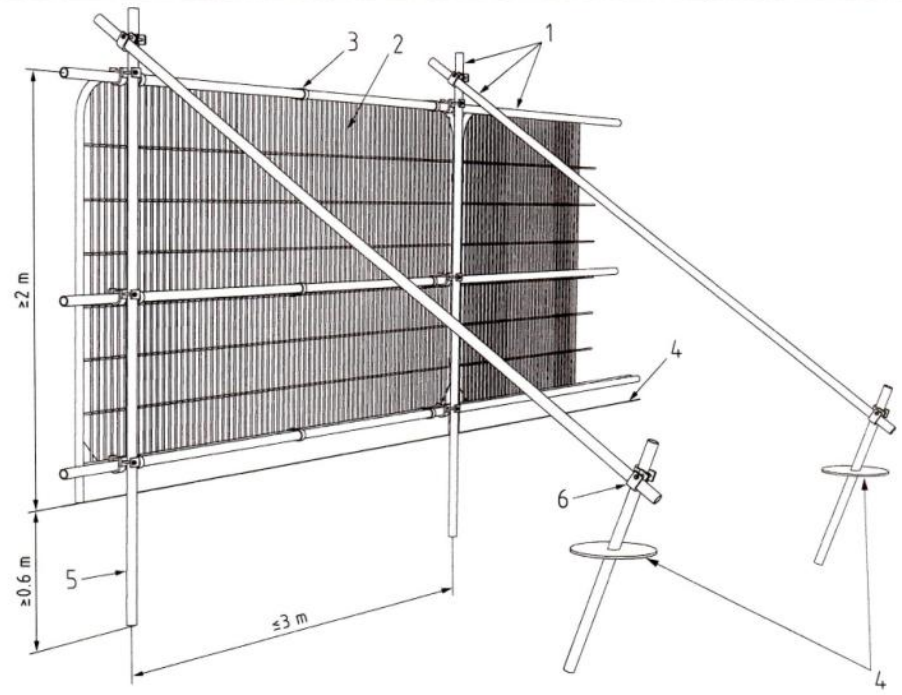
Fencing (or other forms of barrier) must be fit for the purpose of excluding construction activity and appropriate to the degree and proximity of work taking place around the retained trees. In most cases fencing should consist of a scaffold framework comprising a vertical and horizontal framework, well braced to resist impacts, with vertical tubes spaced at a maximum interval of 3m. A specification for fencing suitable for most construction sites is provided in Figure 2 of BS5837 but in some situations more light-weight stabilising systems for fencing may be sufficient, this is detailed in Figure 3a and 3b in BS5837 (both diagrams are reproduced on the next page). Alternative methods of barrier could be appropriate for tree protection, provided they are sufficient to exclude construction activity; but any such methods must first be agreed by the Local Authority's arboricultural officer.

Once the barriers have been erected the areas of land within the construction exclusion zone should be regarded as sacrosanct and should not be removed or altered without prior consultation with the project arboriculturist and, where necessary, approval from the local planning authority. All-weather notices should be attached to the fencing with words such as: 'Construction Exclusion Zone - No Access'. Throughout the construction period attention should be paid to ensure that barriers remain rigid and complete.

Arboricultural supervision will be required whenever construction and development activity is to take place within a construction exclusion zone. This supervision must be carried out by a suitably qualified arboriculturist.

Tree protection fencing recommended by BS5837:2012

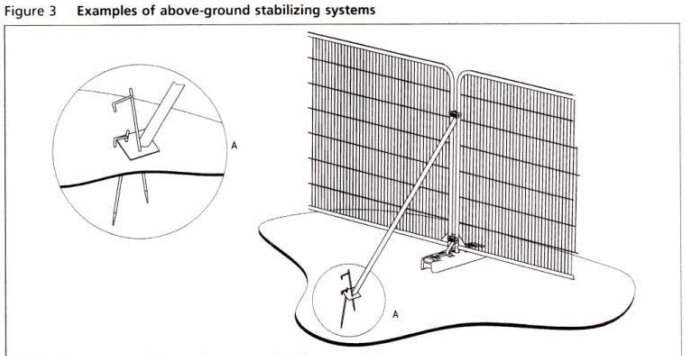
Figure 2 **Default specification for protective barrier**



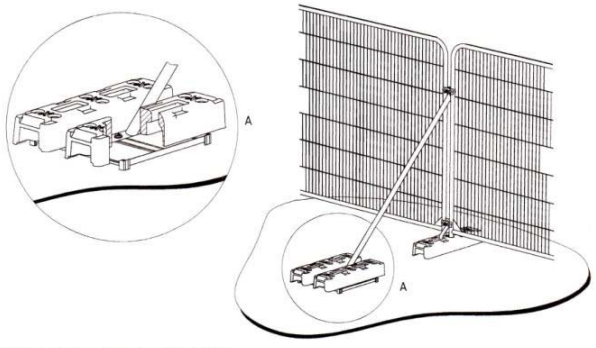
Key

1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6 m)
6 Standard scaffold clamps

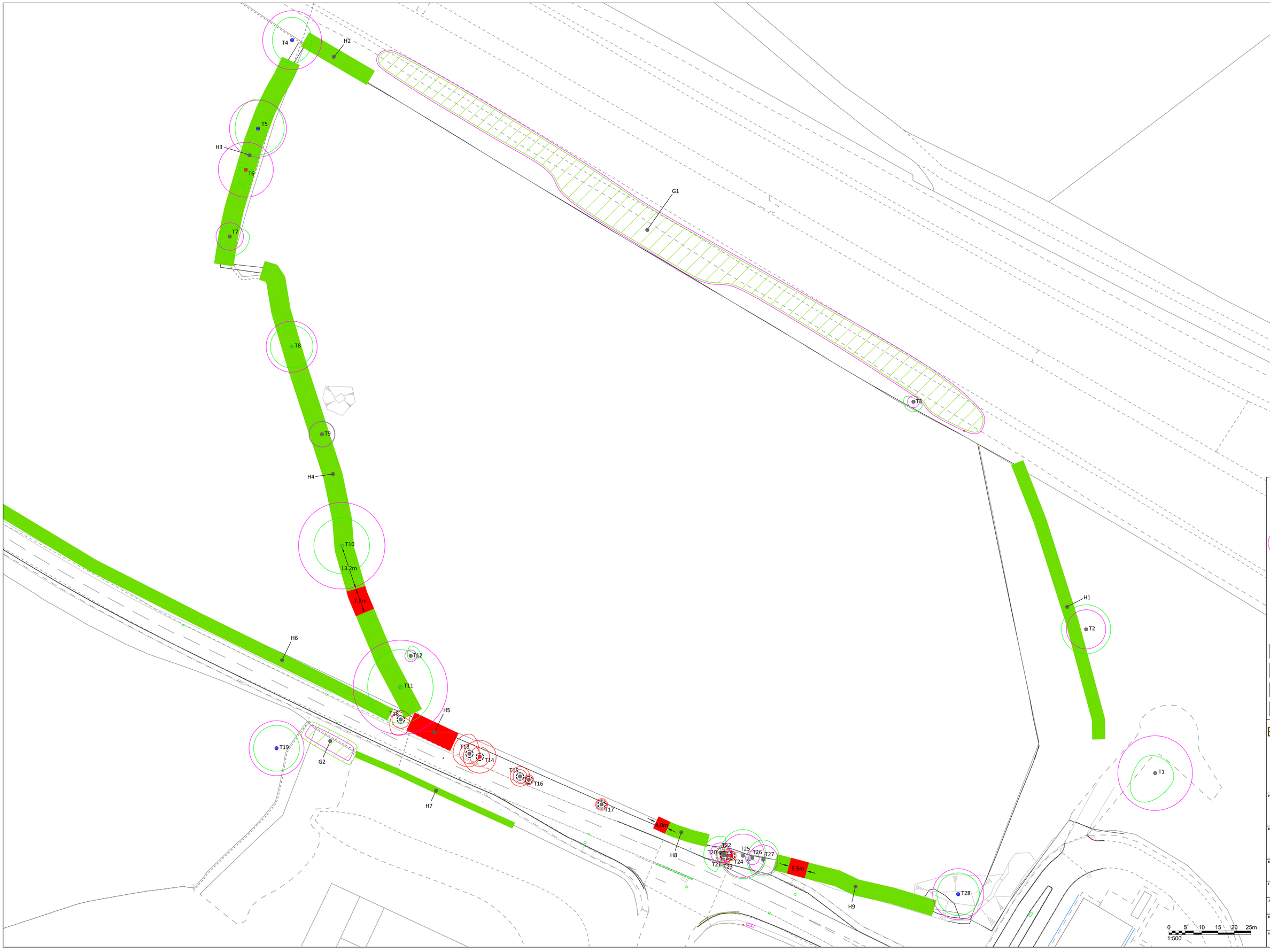
Figure 3 **Examples of above-ground stabilizing systems**



a) Stabilizer strut with base plate secured with ground pins



b) Stabilizer strut mounted on block tray



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Drawing Title:
Tree Removal Plan

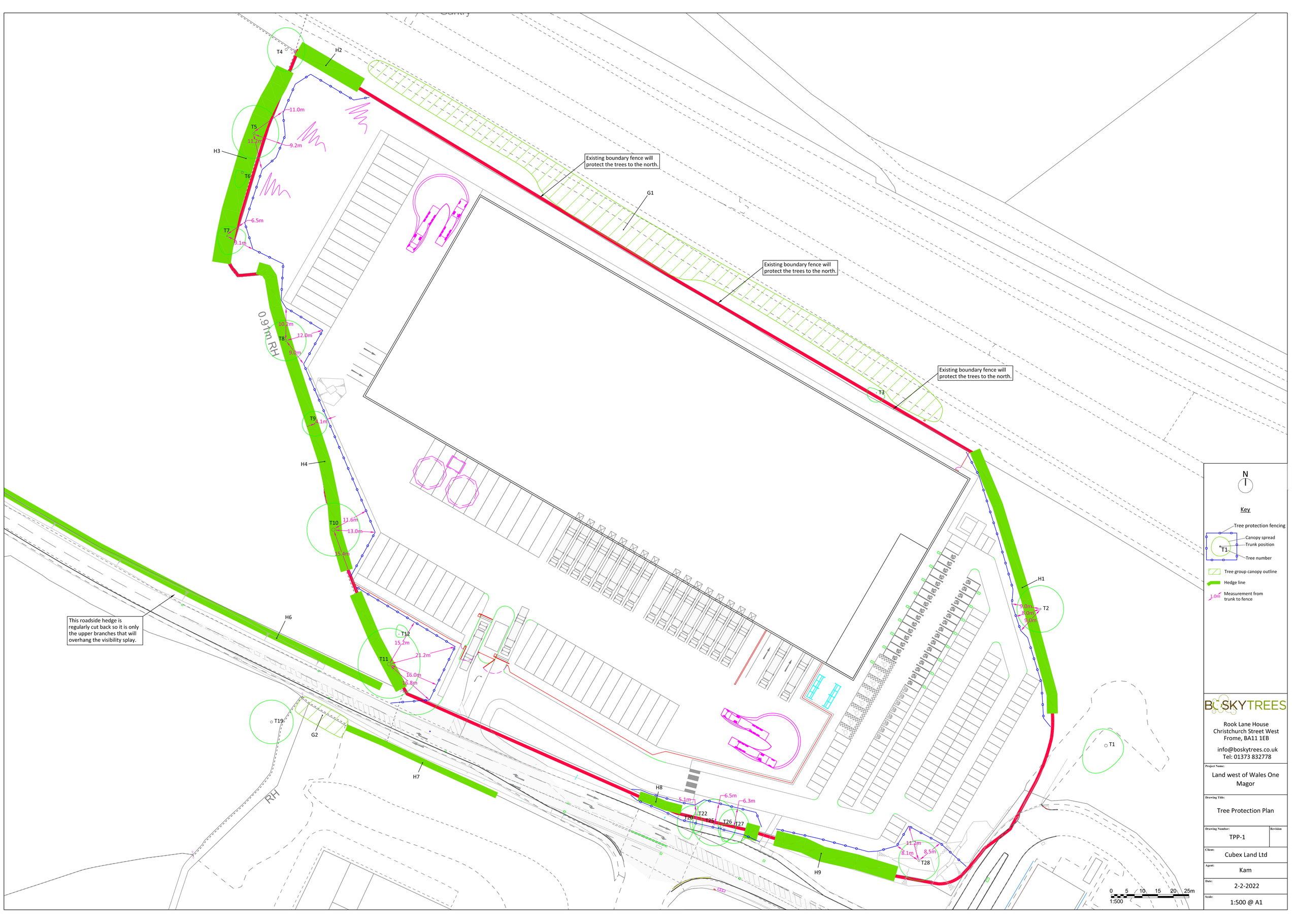
Drawing Number: TR-1
Revision:

Client: Cubex Land Ltd

Agent: Kam

Date: 2-2-2022

Scale: 1:500 @ A1



N

Key

- Tree protection fencing
- Canopy spread
- Trunk position
- Tree number
- Tree group canopy outline
- Hedge line
- Measurement from trunk to fence

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