

Arboricultural Impact Assessment

At

219 Swakeleys Road, Uxbridge, Middlesex, UB10
8DP

Mr Nigel Gornall



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Client	Mr Nigel Gornall	Client Ref	-
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Report Date	24 th April 2018 Revised: 18 th December 2018	Quality Checked	Tony Davison
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Environmental Services

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Report Caveats

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Specific - Trees

All tree inspections, unless specified, have been undertaken from ground level and using non-invasive techniques. Comments contained within the report on the condition and risk associated with any tree relate to the condition of the tree at the date and time of survey. Please note that the condition of trees is subject to change. This change may occur, but is not limited to biological and non-biological factors as well as mechanical/ physical changes to conditions in the proximity of the tree. Trees should be inspected at intervals relative to identified site risks and in accordance with relevant HSE and Central Government guidance. Environmental Services can provide further information on this matter if required.

Please note no statutory control checks have been undertaken (unless specified). Where tree surgery works have been identified these works are based on the assumption that planning is approved, no tree works should be undertaken prior to determination of this application without up to date confirmation of the Tree Preservation Order / Conservation Area Status of the vegetation. All works should be undertaken in accordance with the appropriate Duty of Care. This should include, for example, site specific risk assessments and due diligence inspections for the presence of protected species.

Any comment relating to 3rd party trees has been made without full access to the tree(s). Should these trees have any impact on the proposed development we would advise you to instruct us to contact the 3rd party and undertake further inspection work.

1.0 Introduction

- 1.1 Environmental Services have been appointed by Mr Nigel Gornall to provide advice on the arboricultural issues relating to the proposed development of the above site.
- 1.2 We undertook a Pre-Development Tree Condition Survey (see Appendix 1), in April 2018. This survey assessed the condition of the tree resource, categorised the trees and provided the Root Protection Area (RPA) information according to the BS5837:2012 "*Trees in relation to design, demolition and construction – Recommendations*".
- 1.3 Following preparation of our Tree Condition Survey we received a copy of the layout drawing showing the development proposal for the site.
- 1.4 Our detailed check with the Local Planning Authority has confirmed that no trees identified within this report are protected by a TPO nor do they reside within a Conservation Area.
- 1.5 The tree numbers used in this report refer to the tree numbers used in our Tree Condition Survey.

2.0 Executive Summary

- 2.1 The site consists of a single multi-storey dwelling with associated hard and soft landscaping. Trees onsite are located to the site peripheries at both front and rear locations of the existing dwelling.
- 2.2 The client proposed the demolition of the existing dwelling, followed by the construction of an apartment building with associated hard and soft landscaping.
- 2.3 A total of one category A tree, one category B tree and one category C tree and tree group are proposed for removal as part of the development proposals.
- 2.4 Tree protection measures include the installation of tree protective fencing and temporary ground protection will adequately protect the retained trees RPA's, if accompanied by detailed methods and supervision by a consultant arboriculturist.
- 2.5 A summary of the affected trees is detailed in the table below:

Impact	Reason	A	B	C	U
Trees to be removed	To facilitate the development or due to their condition (U cat)	T2	T10	TG1, T11	T5, T6, T7, T12, T13, T14, T15, T17, T18, T29 and T30

3.0 Scope of Tree Survey

- 3.1 To carry out a tree condition survey on the trees and hedgerows at and immediately adjacent to the site, identifying any hazard trees and making recommendations for those trees to be retained and low amenity value and hazard trees to be replaced.
- 3.2 To undertake the tree survey in accordance with the principles of BS5837: 2012 '*Trees in relation to design, demolition and construction – Recommendations*'.
- 3.3 To produce a tree constraints plan (TCP) showing the location of surveyed trees, their BS5837: 2012 categorisation and the theoretical Root Protection Areas (RPA).
- 3.4 To carry out an arboricultural impact assessment on the effect of the new development at the site identifying the construction exclusion zones (CEZ) shown on the tree protection plan (TPP). This will also show the locations for tree protective fencing, any temporary ground protection required and identify 'No-Dig' zones for RPAs shown outside of CEZs.
- 3.5 The purpose of this report is to comment on the arboricultural implication of the proposed development and to aid the preservation of trees to be retained at and adjacent to the site during the construction works by setting out the tree protection methods, construction techniques and working practices that are to be adopted on this site.
- 3.6 If the guidelines and principles outlined in this report are not adhered to, as with all development sites, there is a risk that the construction activities will result in damage to and potentially the death of the retained trees. Damage to the trees will significantly increase the risk of their health declining and may increase the risk of their complete or partial failure.

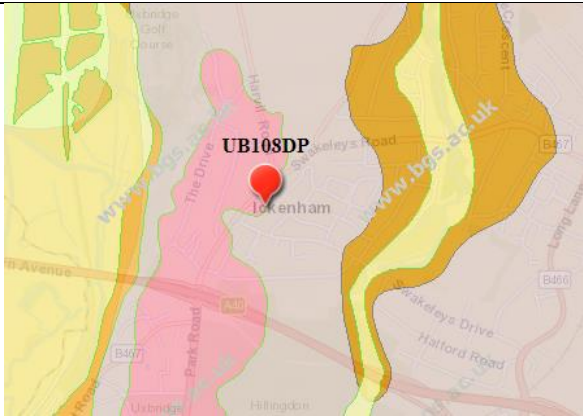
4.0 Terms of Reference

4.1 Reference Documents:

- BS5837:2012 '*Trees in relation to design, demolition and construction – recommendations*'
- BS3998:2010 '*Tree work – recommendations*'
- NJUG 4 – National Joint Utilities Group "*Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees. Volume 4, issue 2. London: NJUG 2007*"
- BGS Open Source Soil Data <http://www.bgs.ac.uk/nercsoilportal/maps.html>

5.0 Description of Site

- 5.1 The site consists of a single multi-storey dwelling with associated hard and soft landscaping. Trees onsite are located to the site peripheries at both front and rear locations of the existing dwelling.
- 5.2 The immediate and distant landscape character is best described as being of a built urban environment. The site is boarded by the B467 to the North and residential dwellings to the East, South and West.

Site Location (OS)	Site Location (BGS Soil)
	
Summary <i>Superficial soil geology has been identified to most likely contain sand and gravel with lenses of clay.</i>	

- 5.3 The underlying soil on site has been identified as comprising sand and gravel with lenses of clay. This decreases the risk of damage to the trees by way of site compaction as this soil type is less prone to compaction. Trees in this soil type generally explore a greater depth of soil horizons etc.
- 5.4 All comments regarding soils should be verified with onsite geotechnical investigations and laboratory testing with foundation depth and design undertaken by a structural engineer in accordance with the requirements of NHBC Chapter 4.2.

6.0 The Trees

- 6.1 There were 30 Individual trees, 1 group, 0 woodland areas and 0 hedges surveyed onsite or immediately adjacent to the site boundary.
- 6.2 By BS5837:2012 categorisation individually there were; 2 A category trees, 1 B category tree, 16 C category trees. By group and Woodland Area there were 0 A category groups, 0 B category groups, and 1 C category group. In total there were 11 U category individual and group trees which were

identified as being in poor condition or dead / in decline with less than ten years useful life expectancy.

6.3 'U' category trees should be felled and replaced regardless of any impact of the development proposal.

6.4 The trees can be summarized as follows:

BS 5837 Cat	A	B	C	U
Specific Trees	T1, T2	T10	T3, T4, T8, T9, T11, T16, T19, T20, T21, T22, T23, T24, T25, T26, T27, T28 and TG1	T5, T6, T7, T12, T13, T14, T15, T17, T18, T29 and T30
Total Number	2	1	17	11

7.0 Arboricultural Impact Assessment

7.0.1 An Arboricultural Impact Assessment has been undertaken to assess the impact of the development on the existing trees and tree groups.

7.0.2 This assessment is based on the development plan provided by Area Design (ref: 2902_Rev_A _Block_Plan, dated March 2018).

7.0.3 The client proposed the demolition of the existing dwelling followed by the construction of an apartment building with associated hard and soft landscaping.

7.0.4 A total of one category A tree, one category B tree and one category C tree and tree group are proposed for removal as part of the development proposals.

7.0.5 T1, a large / prominent Oak, located at the front of the site is now to be retained.

7.0.6 It is recommended that specialist hard surfacing is provided in the marked area of the trees RPA during post development landscaping; temporary ground protection will serve to limit impact/damage to the root during the construction phase.

7.0.7 Post development ground improvement / amelioration works will serve to mitigate and improve the rooting medium within the retained Oaks RPA.

7.1 Tree Removals

7.1.1 The following trees will be removed to facilitate the development

BS 5837 Cat	A	B	C
Tree to be removed	T2	T10	T11 and TG1

7.1.2 Every effort has been made to reduce the removal of trees from the site. However, to mitigate the tree loss proposed, the Local Planning Authority is invited to secure a detailed Landscaping Proposal by way of Planning Condition.

7.2 Root Protection Area (RPA) Incursions

7.2.1 RPA incursions have been identified for T1 (Oak); See 7.4.1.

7.3 Foundations

7.3.1 There are no foundations proposed within the RPA of retained trees as part of the development.

7.4 Surfaces

7.4.1 New hard surfaces are proposed in the RPA of T1 (Oak). Surfaces should be constructed using no-dig principles i.e. Geotextile base supplemented with a permeable hard surface.

7.5 Services

7.5.1 The route of services has not yet been identified as part of the development proposals. However, it should be noted that the location of any service should be intentionally placed outside of all retained tree RPAs. Where this is not possible, engineering solutions are to be sought and any resulting works within the RPA of retained trees covered within an Arboricultural Method Statement.

7.6 Ground Levels

7.6.1 No changes to existing ground levels are proposed within the RPA's of retained trees.

7.7 Shading

7.7.1 No shading issues have been identified with the proposal on the basis of the orientation of the tree resource relative to the proposal.

7.8 Site Supervision/ Monitoring

7.8.1 Most damage to trees on developments sites is caused inadvertently and to ensure continued protection during development a system of site monitoring is proposed.

7.8.2 Basic checks will ensure that protective fencing remains intact. Any unforeseen issues can also be identified and discussed before damage to the tree(s) occurs.

7.8.3 The Local Planning Authority is invited to secure the following schedule by way of Planning Condition. To be effective the Local Planning Authority must provide us with a copy of the formal Decision Notice to ensure we can then contact and follow up the proposed monitoring. A copy of the Decision Notice should be emailed to planninges@uk.innovation-group.com. The number of proposed visits is driven by the scale of the proposal.

8.0 Recommendations

- 8.1 The preliminary treeworks recommended are included in the tree tables contained within this report within the tree works schedule at Appendix 5.
- 8.2 During the construction build phase, following current consultation with the arboriculturist, adequate provision is made for the protection of existing trees on site and the areas to be planted with new trees and shrubs.
- 8.3 By liaison with the council tree officer, formal agreement should be sought regarding the tree pruning required and tree protection methods employed to protect retained trees. These will be via the production of an Arboricultural Method Statement (AMS) and will include:
1. Tree protective fencing as shown on the tree protective plan
 2. No ground excavations within tree RPAs, unless approved by the tree officer
 3. Any anti-compaction measures taken
 4. The specific location of services trenches where possible to avoid excavations within RPAs, or if necessary to be undertaken by hand dig only
 5. Specific methods for construction of site access routes and new drainage ditches close to or within retained trees RPAs
- 8.4 Pre-commencement site meetings should be arranged to discuss the recommendations in this and subsequent reports and method statements. Copies of all relevant arboricultural reports should be available on site.
- 8.5 The Arboricultural Method Statement should be developed further with the contractor through the development process to include comments made by them and the client and design team as well as council officers. A copy of the tree report, including the site specific method statements and tree protection plan is kept on site at all times.

That details of site inspection / supervision visits by the consultant arboriculturist are recorded and sent to the council tree officer with copies retained by the site manager.

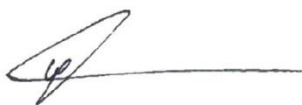
9.0 Conclusions

- 9.1 The site consists of a single multi-storey dwelling with associated hard and soft landscaping. Trees onsite are located to the site peripheries at both front and rear locations of the existing dwelling. The dominant species that reside within the site is Ash. No trees identified within this report are protected by a Tree Preservation Order, or located within a Conservation Area.
- 9.2 A total of one category A tree, one category B tree, and one category C tree and tree group are assumed for removal as part of the development proposals.
- 9.3 Hard surfacing proposed within the RPA of T1 (Oak) should be mitigated by way of a specialist engineering solution i.e. a Geo-textile base with a permeable hard surface. Works within the RPA of T1 should be undertaken in conjunction with Arboricultural supervision and air-spade / hand dig techniques.
- 9.4 Tree protection measures include the installation of tree protective fencing and temporary ground protection that will adequately protect retained trees RPAs if accompanied by detailed methods and supervision by a consultant arboriculturist.
- 9.5 Sufficient development room will be available after protection measures are instigated as described within this report. Excavations within retained tree RPAs for construction operations such as; service trenches; changes in levels, foundations excavations and removal of existing hard surfacing will be avoided where possible.
- 9.6 The development of the site will bring an opportunity for best practice tree management of the remaining trees and group areas on the site and an opportunity for further native and ornamental planting.



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Revised:



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Consultant Arboriculturalist

10.0 Appendices

Appendix 1 Key to Survey Sheets

Appendix 2 Tree Survey Sheets

Appendix 3 Tree Constraints Plan

Appendix 4 Tree Protection Plan

Appendix 5 Tree Works Schedule

Appendix 6 Site Inspection & Monitoring Schedule

Appendix 7 BS5837:2012 Tree Constraints & Protection Methods

Appendix 8 Tree Protection Fencing Specification

Appendix 9 Photographs

Appendix 1 – Key to Tree Survey Sheets

Key

BS 5837 Cat	Description
A	Those of high quality and value: in such a condition as to be able to make a substantial contribution (> 40 years)
B	Those trees of moderate quality and value: those in such a condition as to make a significant contribution (> 20 years)
C	Those trees of low quality and value: currently in adequate condition to remain until new planting could be established (> 10 years)
U	Those in such a condition that any existing value would be lost within 10 years and which should, in the current context, be removed regardless of development

Note: Sub categories are denoted in the tree survey data (A1, B1, C2 etc.). You are referred to the BS for further detail if required.

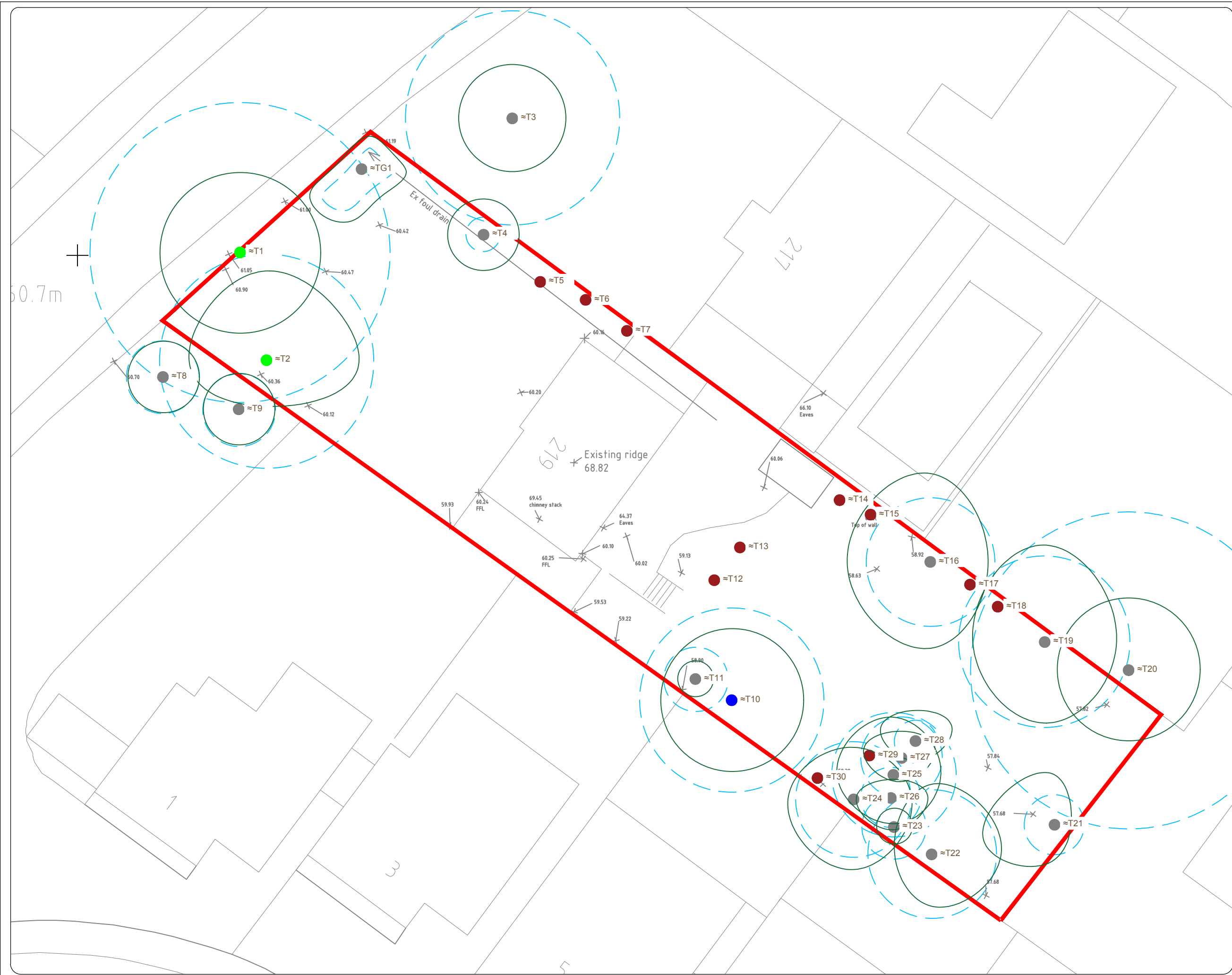
Tree No.	T (tree), G (group), H (hedge), W (woodland) + Ref No.
Species	Common Name
Ht (m)	Measured height in metres
DBH (mm)	Diameter at 1.5m above ground level
Branch Spread	In m to cardinal points
Cr Ht Clearance (m)	Overall height of lowest branches from the ground level on side of proposed development
Life Stage	Young, Semi-Mature, Early-Mature, Mature, Over-Mature
General Observations	Observations on the condition of the tree(s)
Tree Work Specification	Proposed tree works in accordance with BS3998
BS Cat	See above
Life Exp	Estimated remaining contribution in years.
RPA Radius(m)	Radius of the trees Root Protection Area measured from the trunk to the edge of the RPA circle in metres
RPA (m2)	Overall Root Protection Area in m2
*	Indicates where tree data may have been estimated as tree was offsite / restricted access / dense vegetation hindering full inspection

Appendix 2 – Tree Survey Sheets

Tree No.	Species	DBH	No of Stems	Ht (m)	N	E	S	W	BS Cat	Age Class	Life Expect	Cr Ht (m)	Observation	Recommendations	RPA (m2)
T1	Oak.	700	1	10	4.5	4.5	4.5	4.5	A2	Mature	>40	2.4	Past pruning management. Subject to significant crown reduction. Lifting pavement causing an obstruction.	Crown raise to 4m to facilitate proposed development.	221.67
T2	Yew.	500	1	9	5	5	4	5	A1	Mature	>40	1	Good form, shape and condition. Minor lower canopy pruning undertaken in past. Good example of species.	Remove to facilitate proposed development.	113.10
T3	Oak.	50	1	6	3	3	3	3	C2	Mature	10_19	3	Extensive pruning carried out in past. Topped at 4m from ground level. 3rd party tree.	No Works.	1.13
T4	Hawthorn.	80	M/s	4	2	2	2	2	C1	Early-Mature	10_19	0.5	Average form, shape and condition.	No Works.	2.90
T5	Cherry.	75	M/s	3.7	1	1	1	1	U	Semi-Mature	<10	1.2	Poor form, shape and condition.	Remove.	2.54
T6	Ash.	140	1	4	1	1	1	1	U	Young	<10	1.5	Average form, shape and condition. Poor location for species.	Remove.	8.87
T7	Ash.	90	1	3	1	1	1	1	U	Young	<10	1.5	Average form, shape and condition. Poor location for species.	Remove.	3.66
T8	Prunus sp.	170		11	2	2	2	2	C2	Early-Mature	10_19	0	Average form, shape and condition. 3rd party tree.	No Works.	13.07
T9	Prunus sp.	170		11	2	2	2	2	C2	Early-Mature	10_19	0	Average form, shape and condition. 3rd party tree.	No Works.	13.07
T10	Ash.	430	1	12	4	4	4	4	B1	Mature	20_39	2	Average form, shape and condition.	Remove to facilitate proposed development.	83.65
T11	Holly.	150	1	3.5	1	1	1	1	C1	Mature	10_19	0	Average form, shape and condition.	Remove to facilitate proposed development.	10.18
T12	Ash.	180	2	7	1	2	2	2	U	Early-Mature	<10	1	Poor form, shape and condition.	Remove.	14.66
T13	Ash.	180	2	7	2	2	2	1	U	Early-Mature	<10	1	Poor form, shape and condition.	Remove.	14.66
T14	Ash.	180	2	7	1	1	1	1	U	Early-Mature	<10	1	Poor form, shape and condition.	Remove.	14.66
T15	Ash.	180	2	7	1	1	1	1	U	Early-Mature	<10	1	Poor form, shape and condition.	Remove.	14.66
T16	Ash.	300	M/s	13	5	3	5	4	C2	Early-Mature	10_19	2	Average form, shape and condition.	No Works.	40.72
T17	Ash.	180	2	7	1	1	1	1	U	Early-Mature	<10	1	Poor form, shape and condition.	Remove.	14.66
T18	Ash.	180	2	7	1	1	1	1	U	Early-Mature	<10	1	Poor form, shape and condition.	Remove.	14.66

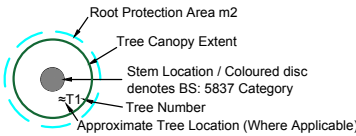
T19	Ash.	400	M/s	12	5	4	5	4	C2	Early-Mature	10_19	2	Average form, shape and condition.	No Works.	72.38
T20	Leyland Cypress.	740	1	9	4	4	4	4	C2	Mature	10_19	2	Average form, shape and condition. 3rd party tree.	No Works.	247.73
T21	Apple.	140	1	3	1	2	4	2	C1	Early-Mature	10_19	1	Asymmetrical canopy with severe lean on main stem.	No Works.	8.87
T22	Ash.	300	M/s	13	4	4	3	2	C2	Early-Mature	10_19	2	Average form, shape and condition.	No Works.	40.72
T23	Ash.	150	M/s	13	1	1	1	1	C2	Early-Mature	10_19	2	Average form, shape and condition.	No Works.	10.18
T24	Ash.	270	M/s	13	4	3	4	4	C2	Early-Mature	10_19	2	Average form, shape and condition.	No Works.	32.98
T25	Ash.	290	M/s	13	3	4.5	2	4.5	C2	Early-Mature	10_19	2	Average form, shape and condition.	No Works.	38.05
T26	Cherry.	140	1	4	1	2	2	2	C1	Early-Mature	10_19	0	Average form, shape and condition.	No Works.	8.87
T27	Cherry.	190	1	4	1	2	2	2	C1	Early-Mature	10_19	0	Average form, shape and condition.	No Works.	16.33
T28	Cherry.	100	1	4	1	2	2	2	C1	Early-Mature	10_19	0	Average form, shape and condition.	No Works.	4.52
T29	Magnolia.	140	1	4	2	2	2	2	U	Early-Mature	<10	2	In decline.	Remove.	8.87
T30	Eucalyptus.	140	1	4	2	2	2	2	U	Early-Mature	<10	2	In decline.	Remove.	8.87
TG1	Lilac.	75	M/s	3	1	1	1	1	C2	Early-Mature	10_19	0	Average form, shape and condition.	Remove to facilitate proposed development.	2.54

Appendix 3 – Tree Constraints Plan



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Tree Survey Drawing Key



See Innovation Environmental Tree Survey for Individual Tree Details

KEY

Tree Category

- U
- C
- B
- A
- Application Boundary



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CLIENT
Mr Nigel Gornall

TITLE
Tree Constraints Plan (TCP)

Job 32862	Scale 1:200 @ A3	DRG NO 14403/01	Revision A
Date 13/04/2018	Type GES.TCP.14403.v1		

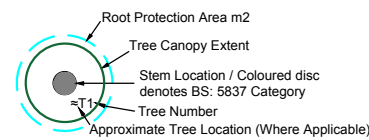
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Appendix 4 – Tree Protection Plan



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Tree Survey Drawing Key



See Innovation Environmental Tree Survey for Individual Tree Details

KEY

Tree Category

- U
- C
- B
- A

Application Boundary

Tree to be Removed

Protective Fencing

Temporary Ground Protection/Geo-textile Surfacing



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B Preliminary LF Dec 2018 L Fraser
REV AMENDMENTS DRAWN DATE AUTH'D

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219 Swakeleys Road, Uxbridge,
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CLIENT
Mr Nigel Gornall

TITLE
Tree Protection Plan (TPP)

Job 32862	Scale 1:200 @ A3	DRG NO 14403/02	Revision B
Date 14/12/2018	Type GES.TCP.14403.v1		

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Appendix 5 – Tree Works Schedule

NOTE: All tree works to be undertaken in accordance with BS 3998:2010 ‘*Treework - Recommendations*’. All pruning cuts to be made at suitable growing points, in line with the principles of natural target pruning. <(In accordance to the current proposed design layout provided)>).

Tree Works Schedule

Tree No.	Species	Proposed Tree Works	Reason	BS Cat
T5	Cherry.	Remove.	Poor form, shape and condition.	U
T6	Ash.	Remove.	Average form, shape and condition. Poor location for species.	U
T7	Ash.	Remove.	Average form, shape and condition. Poor location for species.	U
T12	Ash.	Remove.	Poor form, shape and condition.	U
T13	Ash.	Remove.	Poor form, shape and condition.	U
T14	Ash.	Remove.	Poor form, shape and condition.	U
T15	Ash.	Remove.	Poor form, shape and condition.	U
T17	Ash.	Remove.	Poor form, shape and condition.	U
T18	Ash.	Remove.	Poor form, shape and condition.	U
T29	Magnolia.	Remove.	In decline.	U
T30	Eucalyptus.	Remove.	In decline.	U
T1	Oak.	Crown raise to 4m to facilitate proposed development.	Past pruning management. Subject to significant crown reduction. Lifting pavement causing an obstruction.	A2
T2	Yew.	Remove to facilitate proposed development.	Good form, shape and condition. Minor lower canopy pruning undertaken in past. Good example of species.	A1
T10	Ash.	Remove to facilitate proposed development.	Average form, shape and condition.	B1
T11	Holly.	Remove to facilitate proposed development.	Average form, shape and condition.	C1
TG1	Lilac.	Remove to facilitate proposed development.	Average form, shape and condition.	C2

Appendix 6 – Site Inspection & Monitoring Schedule

In order to ensure that the principals of tree protection set out in the statement are adhered to, it is important to set out communication details for key individuals and tasks that require supervision. These details should be retained by all relevant parties and available on site at all times. Relevant parties will be advised of any changes in personnel or contractor during the development process.

To ensure that the construction process is undertaken with minimal disturbance to the retained tree stock, we recommend that an experienced Environmental Services arboricultural consultant be appointed to undertake regular inspections of the site according to a site inspection / supervision schedule.

It is our experience that a mix of scheduled and unannounced site visits are appropriate these unannounced inspections will serve to identify any damage to the Tree Protection Fencing, poor working practices, potential problems and points of conflict between the construction process and the health of the trees. These reports will include recommendations for remedial action.

During these visits any changes to the proposed works will be discussed, their impact assessed and recommendations for best practice will be outlined. After each of these visits a copy of the report should be sent to the Site Agent, Local Authority Tree Officer and Client. The remedial action undertaken will be recorded on the next visit.

It should be noted that these visits will only be undertaken if a written instruction is received from the client prior to commencement of works on site.

With reference to relevant published guidance, the methodology of this statement follows a logical sequence essential to the efficacy of the protection measures. References may include: British Standard 5837:2012 'Trees in relation to design, demolition and construction - Recommendations'; British Standard 3998:2010 'Tree Work - Recommendations' and National Joint Utilities Group 'Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees, Volume 4' 2007.

It is essential to the successful implementation of the principals set out in this document that effective supervision and enforcement are implemented from the outset as detailed in the following construction phases.

Appendix 7 – BS5837: 2012 Tree Constraints & Protection Methods

Phase 1 *Pre-Construction Meeting*

Prior to commencement of the works an onsite meeting will be held with all relevant parties including the site agent and appointed Environmental Services arboricultural consultant of works. The purpose of this meeting is to record site features including tree condition, agree tree works (See Tree Works Schedule, location of site storage and welfare facilities and the location of tree protection measures.

Phase 2 *Tree Protection Measures*

Subject to planning the Tree Protection Measures outlined in this report will be revisited in detail based on the working drawings, construction programme and method statement to be prepared.

Tree protection fencing should be installed prior to any demolition or ground-works commencing, remain in place throughout construction and be removed only after completion.

The provision of tree protection and light tree surgery will reduce the risk of direct damage to the retained trees. The demolition and construction process should not be commenced until the tree surgery works has been completed and the protective areas have been fenced off.

Tree protection will be installed as per the Tree Protection Plan which will be agreed with the Local Authority Tree Officer and with reference to the British Standard 5837 2012 'Trees in relation to design, demolition and construction – Recommendations'. Prior to commencing any demolition or construction works, the fencing will be inspected by the appointed Environmental Services Arboricultural consultant.

Within the fenced zone, no materials or chemicals should be stored at any time, no fires should be lit, no pedestrian or vehicle traffic, and level changes within these areas should be kept to an absolute minimum. Every effort should be taken to protect a maximum possible area of the root system.

Within the Root Protection Area no level changes or excavation within the RPA should be undertaken without the consent of the LPA Tree Officer.

Clear notices are to be fixed to the outside of the fencing with words such as 'TREE PROTECTION AREA – NO ACCESS OR WORKING WITHIN THIS AREA'. See Appendix 8.

The site agent, all contractors and other relevant personnel are to be informed of the role of the Tree Protection Fencing and their importance. A copy of the Tree Protection Plan will be displayed on site at all times during construction.

Phase 3 Demolition and Enabling Works

Prior to any works commencing on site the Tree Protection Fencing will be erected. During demolition programme and enabling works the existing front access will be in use. Any plant or vehicles engaged in the demolition works will operate outside the fenced off No-Dig / Root Protection Areas.

Phase 4 Locations of Site Offices Compound and Storage Area

The site office, welfare facilities, storage yard and contractors parking area need to be located within an area of the site that is outside the Root Protection Area (RPA). The compound will remain at least 1 metre outside the RPA with access from the main access road.

All fuel storage and loose cement / sand to be batched and stored in the compound area.

Phase 5 Groundworks, Level Changes, Foundations and Services

All spoil, including excavated soil and demolition material will be removed from site or stored in a location remote from any tree protection barriers.

With regard to the drawings provided the construction of foundations for the new build is located beyond the Root Protection Area (RPA) of retained trees, therefore with regard to the health of the retained trees no specialised foundation design is required. If the subsoil is found to be plastic, the foundations will be specified to take into account the potential influence of the vegetation on the moisture content and volume of the subsoil.

We recommend that all drainage and underground service routes are located beyond the RPA of all the retained trees. If the service runs are to be located within the RPA, we recommend that this matter is dealt with by method statement secured by planning condition. If services are located within the RPA special implementation techniques such as moleing, airspade, or hand digging may be required by the LPA. In the majority of cases, however, careful excavation with a low tonnage mechanical excavator supervised by the Environmental Services consultant arboriculturist can adequately undertake services excavations. When tree roots are encountered, hand digging and root protection can then be undertaken as and when they are observed.

Phase 6 *Dismantling Protection Barriers*

Dismantling the protection barriers around retained trees may be required to allow completion of final surface treatments and landscaping. Supervision of this exercise and control of the landscaping thereafter will be administered by the appointed Environmental Services arboricultural consultant. The removal of the Tree Protection Fencing is not an opportunity for machinery to access the previously fenced off area.

No further excavation will be carried out during this process and soils levels will not be raised above that existing by greater than 100mm and not within 2m of the trunk. Any removal of existing structures within the Root Protection Area including gardens type walls or paths will be carried out by hand.

Appendix 8 – Tree Protection Specification

BS 5837:2012

BRITISH STANDARD

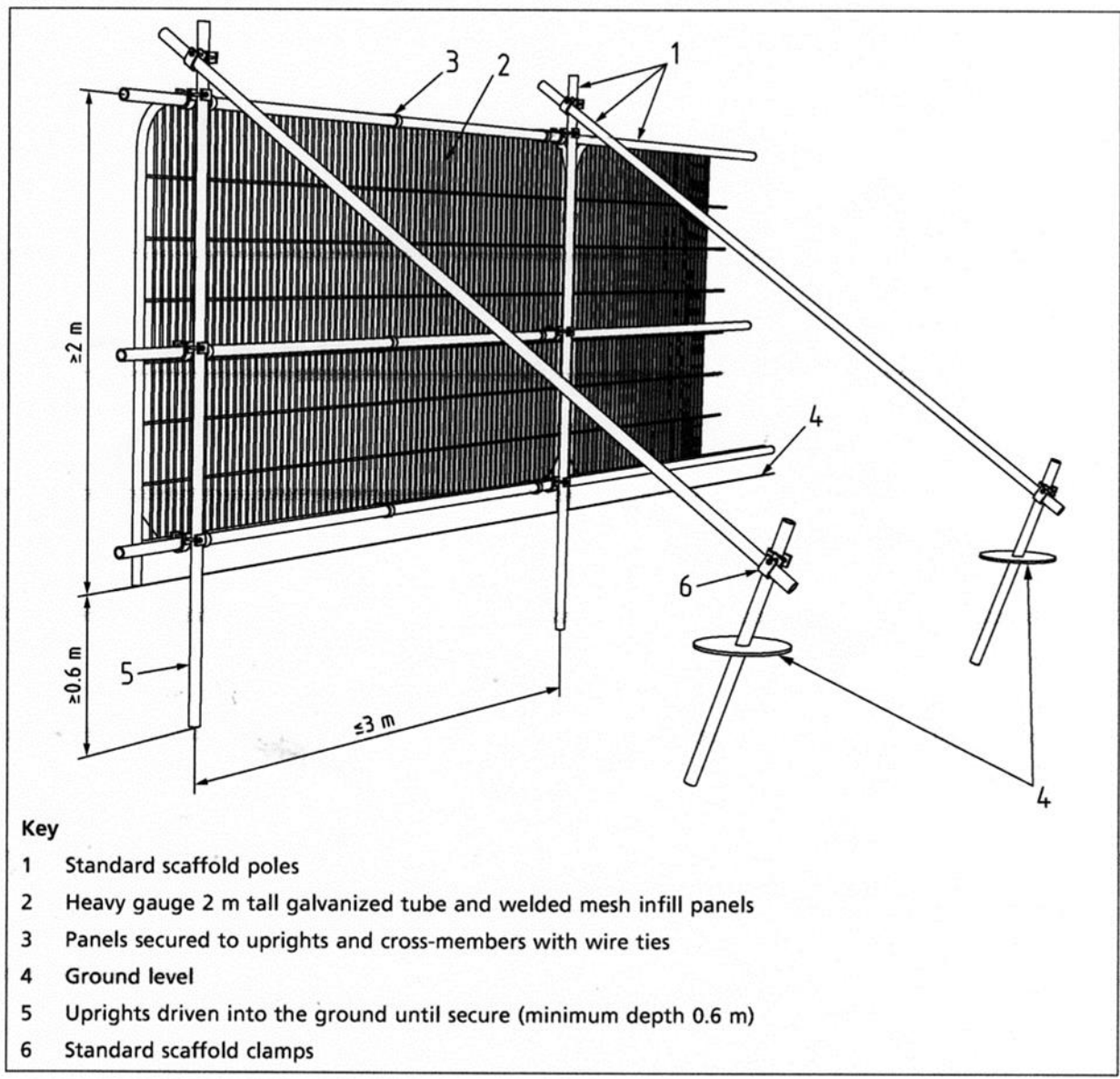
on retained hard surfacing or it is otherwise unfeasible to use ground pins, e.g. due to the presence of underground services, the stabilizer struts should be mounted on a block tray (Figure 3b).

NOTE 1 Examples of configurations for steel mesh perimeter fencing systems are given in BS 1722-18.

NOTE 2 It might be feasible on some sites to use temporary site office buildings as components of the tree protection barriers, provided these can be installed and removed without damaging the retained trees or their rooting environment.

6.2.2.4 All-weather notices should be attached to the barrier with words such as: "CONSTRUCTION EXCLUSION ZONE – NO ACCESS".

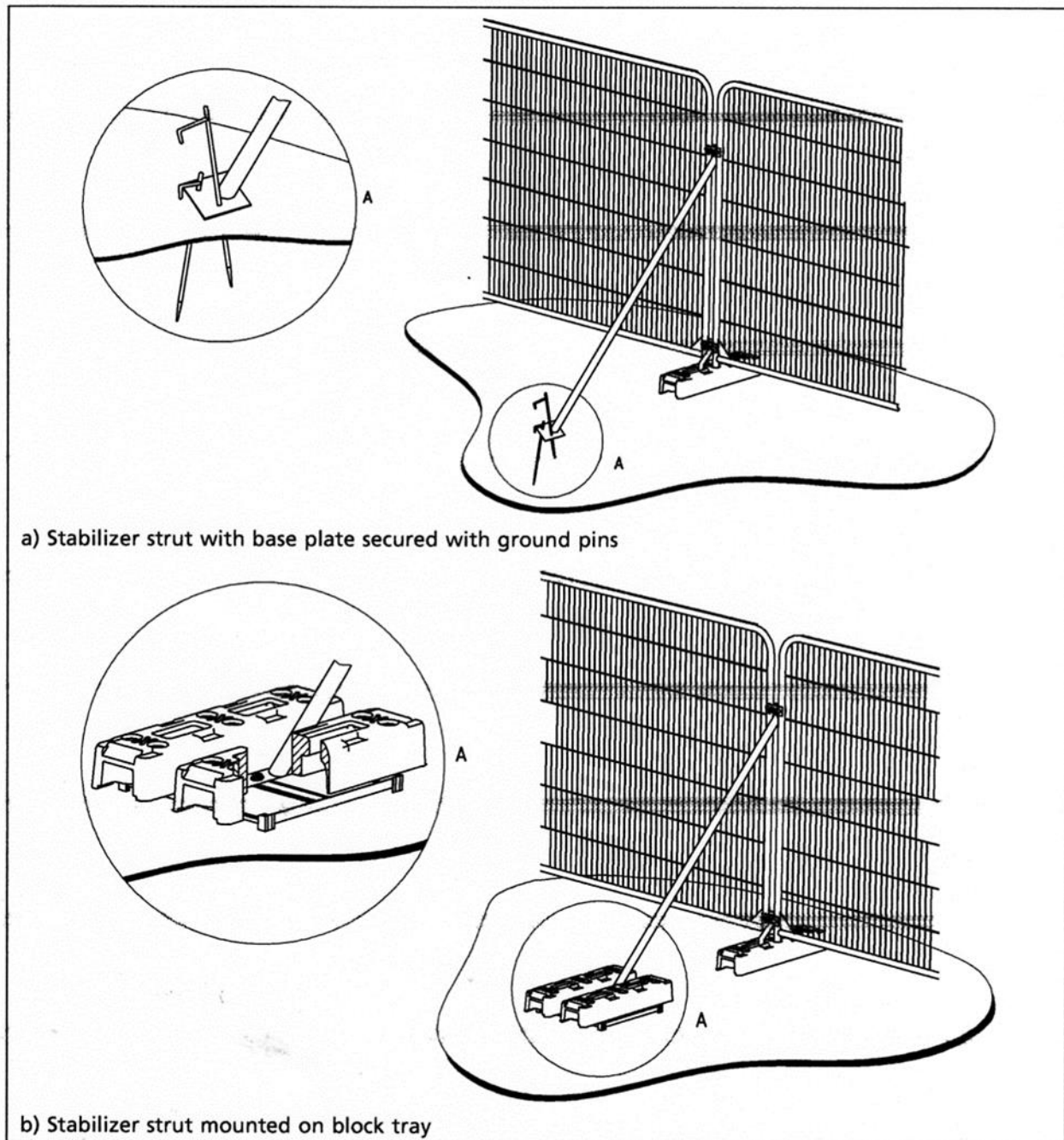
Figure 2 Default specification for protective barrier



BRITISH STANDARD

BS 5837:2012

Figure 3 Examples of above-ground stabilizing systems



6.2.3 Ground protection during demolition and construction

6.2.3.1 Where construction working space or temporary construction access is justified within the RPA, this should be facilitated by a set-back in the alignment of the tree protection barrier. In such areas, suitable existing hard surfacing that is not proposed for re-use as part of the finished design should be retained to act as temporary ground protection during construction, rather than being removed during demolition. The suitability of such surfacing for this purpose should be evaluated by the project arboriculturist and an engineer as appropriate.

Suggested protective fencing warning sign format



TREE PROTECTION AREA
KEEP OUT

(TOWN & COUNTRY PLANNING ACT 1990)

**THE VEGETATION PROTECTED BY THIS FENCE IS
PROTECTED BY PLANNING CONDITIONS AND/OR IS THE
SUBJECT OF A TREE PRESERVATION ORDER.**

IF YOU REQUIRE ACCESS INTO THIS AREA PLEASE CONTACT

[planning@ innovation-environmental.co.uk](mailto:planning@innovation-environmental.co.uk)

T: +44 (0)330 380 1036

Appendix 9 – Photographs



T1 - Oak



TG1 - Lilac



T2 - Yew



T3 - Oak



T4 - Hawthorn



T5 - Cherry (left) T6 and T7 - Ash (right)



T8 - Prunus



T9 - Prunus



T10 - Ash (left) T11 - Holly (right)



T12 and T13 - Ash



T14 and T15 - Ash



T16 - Ash



T17 and T18 - Ash



T19 - Ash



T20 - Cypress



T21 - Apple



T22 and T23 - Ash



T25 (Ash) T27 and T28 (Cherry)



T30 - Eucalyptus