Arboricultural Report

Planning and Development

Arboricultural Appraisal, Implications Assessment and Method Statement

Project Name and Address	**36 Lesser Foxholes, Shoreham- By- Sea, West Sussex, BN43 5NT.**		
Prepared for	Nigel Rippon- F3G	**Project Ref**	AWDM/1948/16
ACS Ref	jc/aiams1/foxholes	**Client**	SPV Buxted
Prepared by	James Cox BSc. (Hons), Tech. Cert. Arb (AA)		
Report Date	12th September 2017		

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1.0 Introduction and Scope

1.1 A planning application for the demolition of existing buildings and construction of three new dwellings with associated parking and landscaping has been approved with conditions relating to the protection of trees. For clarity, I have reproduced the relevant condition below:

Application No: AWDM/1948/16

04. 8before any development commences on site, including any works of demolition, the following shall be approved in writing by the Local Planning Authority:- i) A detailed scaled survey plan showing the position of (and allocating a reference number to) every tree on the site with a stem diameter exceeding 75 millimetres (measured over the bark at 1.5 metres above ground level) plus any tree on adjoining land that is likely to have an effect upon or be affected by the proposal (eg. by over shadowing, intrusion of the Root Protection Area etc); ii) A detailed schedule of the trees shown on the above survey plan as specified in 8S5837:2005 (para 4.2.6) ; iii) An arboricultural implications assessment, arboricultural method statement and tree protection plan, including protection measures during and after construction and any construction exclusion zones) in accordance with 8S5837:2005 which shall include any proposal for pruning or other preventative works. Any mitigation or protection measures submitted under (iii) above and approved by the Local Planning Authority shall be put in place prior to commencement of any construction works and retained throughout the period of construction work on the site or for such longer period as approved in writing by the Local Planning Authority any construct ion works and retained throughout the period of construction work on the site or for such longer period as approved in writing by the Local Planning Authority.

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Reason: To protect trees on site which are of significant visual amenity and/or screening to safeguard neighbour amenity from damage and to comply with saved policy AB25 of the Adur District Local Plan.

1.2 Demolition of existing structures and construction of new dwellings is to be undertaken in the vicinity of trees, both within and outside the site boundary. The implications upon the trees and the methods for tree protection and preservation during ground works, demolition and construction are set out in this report which includes a requisite tree protection plan.

1.3 I have been appointed on behalf of the site owners as a competent and qualified arboricultural consultant to provide this report and to supervise any works that may have the potential to affect the protected and retained trees.

1.4 I have inspected the relevant trees on 8th September 2017. The details are provided accordance with the guidance set out in BS 5837:2012 'Trees in relation to design, demolition and construction- Recommendations' (the BS) and an extract from that guidance is appended herewith.

2.0 The Site and Trees

2.1 The site comprises a private plot of land set back from the road within a residential housing estate on the northern eastern edge of Shoreham, West Sussex. A detached private residence is located roughly centrally within the plot, with a detached double garage to the north and private garden to the west. A single width driveway provides access from Lesser Foxholes to the east, opening into a large turning circle in front of the property. The garden consists mainly of lawn with semi-mature conifer trees and hedges bordering the property to the north and west.



Fig. 1. View of site from Lesser Foxholes. T1 and T2 visible.

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2.2 The trees and hedges on site are generally low ('C' grade) in quality although tree no's 1 and 2 stand out in terms of amenity and landscape value. T1 is a mature Robinia that is more remote from the construction site, (although access will be required adjacent to the tree) whilst T2 is a mature Weeping Willow that is a reasonable 'B' grade specimen representing the principle tree constraint on site. All of the trees on site are likely to have been formally planted rather than having developed from seed.

2.3 The BS details of the trees are provided within the tree survey schedule at **Appendix 1** and their corresponding positions are shown on the tree protection plan (TPP1_36LF) included at **Appendix 2**.

Construction and associated works

2.4 The scheme involves demolition of the existing buildings prior to construction of three new dwellings with associated landscaping and parking, including bin and bicycle stores.

2.5 The new bungalow, parking spaces and bike/ bin stores positioned along the northern boundary will be in close proximity to the conifer hedges H4 and H5. In view of this and the trees overall poor condition both hedges will be felled to accommodate the scheme and subsequently replaced with higher quality suitable tree species where feasible along this boundary. Tree No. 7 is a dead tree smothered in Russian Vine. It will be removed to accommodate new parking bays in this area. The tree felling is restricted to 'C' and 'U' grade trees ensuring that the impacts of tree losses are short term and mitigated through replacement planting. In this manner, the scheme provides the opportunity to develop both the visual appearance of the site and provide long term improvements to the visual landscape.

2.6 The existing building is essentially being split in half and extended to the east, whilst a separate bungalow will be constructed upon the area currently occupied by the double garage. The footprint of the two new houses does not encroach into the RPA's of any relevant trees.

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2.7 Standard protective fencing will help prevent damage to the trunks and canopies of retained trees throughout the course of the project. In addition, some light pruning will be carried out where overhanging foliage belonging to T2 hinders larger vehicle access. The canopy will be raised and cut back on the north and western sides to accommodate demolition and construction vehicles, thus preventing inadvertent damage to the canopy.

2.8 The existing concrete driveway and turning circle will remain intact throughout the construction process, ultimately being carefully picked out (avoiding damage to tree roots) and replaced with new hard surfacing. Small areas of the new driveway and cycle store will impinge slightly further into the RPA's of T1 and T3. Careful manual excavations and suitable root treatment in the areas marked upon the TPP will prevent undue damage to any significant tree roots.

Table 1 **Proposed Tree Works**

Tree Works (Spec.)	Tree Nos	Visual Landscape Impact of Works*	Available Replacement Planting(Y/N)	Comments
Fell to ground level (Sp6)	4, 5, 7	Low	Y	Removed to facilitate development and create a comfortable separation.
Raise canopy over driveway to provide 5m ground clearance. (Sp4)	2	Low	N/A	To facilitate access during demolition and construction whilst preventing damage to tree canopy.
Cut back canopy by up to 2m on western side. (Sp2)	2	Low	N/A	To facilitate access during demolition and construction whilst preventing damage to tree canopy.
Root Investigation and suitable treatment (SP8)	2, 3	None	N/A	Supervised manual excavations and suitable root treatment prior to construction of driveway, cycle store, low invasive edging.
Total		None		

*This is a preliminary visual appraisal based upon the opinion of the author having inspected the trees in the context of their current surroundings. – None (no change or beneficial impact) Negligible or indiscernible difference to treed landscape; Low – Noticeable but mitigated by retention of other landscape trees and features; Medium – Obvious but temporary alteration to the treed landscape; High – Obvious and permanent alteration to the landscape.

Visual receptors include the public or community at large, residents, visitors or other groups of viewers together with the visual amenity of potentially affected people.

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Submission of this document, which includes Table 1 Recommended Tree Works and specifications, to the Local Planning Authority (LPA) for the proposed discharge of planning conditions, is to be treated as a formal notification of tree pruning/felling (Section 211 Notice), where the above-listed trees fall within a conservation area. The statutory six week consultation period will be deemed to commence upon registration of this document by the LPA.

Specifications for recommended tree works:

General

All work is to conform to BS 3998:2010 'Tree work – Recommendations' and with current arboricultural best practice. Tree works are to be undertaken by a professional and specialist arboricultural contractor, who carries the appropriate experience and insurance cover, equipment and PPE. All works and processes are to comply with all relevant Planning, Wildlife, Environmental, Conservation and Health and Safety legislation.

Sp2. Part reduction includes pruning back from structures or boundaries and which is normally applied to no more than two sides of a tree's canopy. The amount of pruning is specified in metres. The result form will be even and provide a framework for re-growth in an even form. The extent of pruning will not impinge upon tree condition and seek to preserve so far as possible, the natural outline of the tree, which is species determined. All pruning cuts are to be made to a suitable growing point (secondary shoot) and no inter-nodal cuts are to occur.

Sp4. Crown lifting includes the removal of the lowest lateral branches and shoots, (which would not result in irrevocable tree injury), to a specific height above ground level measured in metres.

Sp6. Felling involves the careful removal of a tree to ground level (or other specified height), either in sections or in one unit (straight felling). The method of felling will be suited to the constraints of the site and judged by the competent operator undertaking the task. Removing the stump may be part of the requirements and this will be carried out using a mechanical stump grinder where accessible.

Sp8. Root pruning is to be carried out or supervised by a competent person (arboricultural contractor). Only sharp and specific pruning tools will be used for the root pruning exercise. No roots are to be pruned if it is considered that their loss (or shortening) will adversely impact upon tree condition or anchorage, immediately or in the future. Any exposed roots will be covered with a material to prevent desiccation. All exposed cut root surfaces will be made as small as possible. If possible roots will be pruned back to side shoot.

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Table 2 Summary of Implications of Construction on Trees*

Tree Ident.	Landscape Contribution	Implications/Impact	Mitigation measures	Impact Assessment**
4, 5, 7	Low	Felled to accommodate proposed scheme and improve poor quality trees.	1. Robust planting of suitable species during the landscaping phase.	Positive
2	Medium	Canopy damage due to vehicle access during demolition and construction.	1. Conduct all tree pruning works professionally and prior to commencement.	Neutral
2, 3	Low-Medium	Loss of rooting area, root damage, root severance.	1. Install BS- grade fencing and on preserved ground and around trees. 2. Carry out initial supervised excavations and root treatment where appropriate. 3. Install low invasive edging within RPA's. 4. Services to comply with NJUG4 guidelines.	Neutral

* Main trees selected for comment included above. Refer to previous notes on other trees.
** Negative – adverse impact upon trees and landscape; Neutral – no material impact (negative or positive); Positive – improvement (potential) to tree quality and landscape

3.0 Recommended Tree Protection Methods

3.1 In order to afford protection from general construction processes associated with building of the new dwellings and parking infrastructure, it will be necessary to erect a robust tree protection fence (normally wire mesh panels) in the position indicated on the Tree Protection Plan at **Appendix 2** (TPP1_36LF). A recommended example of the type BS grade tree protection fencing is included at **Appendix 3**.

3.2 All necessary ground protection (refer to TPP) will be provided by the existing concrete driveway that is to be retained throughout the project. This will ensure that roots under the surface are not damaged by compaction during regular passing by operatives and light machinery.

3.3 The methods of manual digging near trees is described with **Appendix 5** but for clarity I have set out the procedure below, which is to be overseen by the appointed arboricultural consultant:

i) Clearly mark out the area for hand dig (using biodegradable marker paint) (see TPP)

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ii) Use hand tools (forks and spades) to remove the spoil and deposit beyond RPA.

iii) Identify roots to be retained by brushing or the use of compressed air

iv) Unless after professional assessment permits pruning, roots in excess of 25mm Ø are to be retained in-situ by manually clearing around (with compressed air for example), wrapping with non-woven geotextile (e.g.Terram), covering with a void former e.g. split, rigid polythene piping.

v) Unless after professional assessment permits pruning, retention of roots 50mm Ø or more will be by the use of void-formers.

vi) Roots <25mm Ø will be pruned using sharp pruning tools ensuring that no splits or tears occur and that the pruning wound is made as small as possible. Roots will be pruned back to a side shoot where possible or to a suitable position.

NOTE: THE APPOINTED ARBORICULTURAL SUPERVISOR IS TO BE CONSULTED BEFORE ANY WORK, EITHER SCHEDULED OR UNSCHEDULED, IS CONSIDERED WITHIN THE EXCLUSION ZONE OR ROOT PROTECTION AREAS OF ANY RETAINED TREE. FAILURE TO DO SO MAY LEAD TO ENFORCEMENT ACTION BY THE LPA.

3.4 In order to ensure that the tree protection measures are implemented effectively, a site monitoring exercise will be undertaken to confirm:

i) The efficacy and accuracy of the fencing

ii) The root inspection and treatment exercise

An example of a site record (tree protection) is provided at **Appendix 4**. In this case, the form will be used as confirmation that all practical precautions have been undertaken in accordance with this method statement.

3.5 A copy of this method statement is to be retained on site for the duration of the build process together with a scaled, colour copy of the Tree Protection Plan.

3.6 The details pertaining to tree protection as set out in this method statement, specifically include:

i) erection of tree protection barriers:

ii) the installation of ground protection;

iii) lines of communication and incident reporting,

are to be explained to the Site Agent at the pre-commencement site meeting. It will be the responsibility of the Site Agent to ensure that all personnel working on site

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are aware to the tree protection measures processes. A copy of this method statement is to be retained on site for the duration of the build process together with a scaled, colour copy of the Tree Protection Plan.

3.7 Key times for site supervision include:

1. Completion of agreed/necessary tree works
2. Erection of tree protection fencing
3. Installation of ground protection
4. Works within RPAs of retained trees
5. Landscaping

3.8 Effective site monitoring will be undertaken from the outset of the project and at agreed intervals thereafter. The frequency of monitoring may well decrease following the proper installation of all tree protection measures. Below is a recommended programme of arboricultural supervision. (This programme may alter dependent upon site circumstances or by agreement.)

3.9 The process for recording the tree protection measures will involve:

i) Site Agent to contact Arboricultural Supervisor with a minimum of 5 days' notice of any site work commencement.
ii) Arboricultural Supervisor to monitor site to agree tree protection fencing
iii) When all tree protection is installed in accordance with the tree protection plan, the Arboricultural Supervisor is to arrange with LPA tree officer and relevant contractors **the pre-commencement site meeting** in order to agree the tree protection and subsequent works within RPAs of retained trees and importantly the lines of communication between the on-site contractors, the Arboricultural Supervisor and the LPA tree officer and incident reporting,
iv)Arboricultural Supervisor to record all site visits and distribute reports to LPA tree officer and contractors for their records
v)Subsequent to completion, Arboricultural Supervisor to sign-off and complete.
vi) Any incidents resulting in potential tree damage are to be reported in line with the 'Incident Reporting Flow Chart in **Appendix 4**.

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Table 3 Preliminary site supervision schedule

Stage	Action	Arboricultural Supervisor (AS) (Required – Y/N)	Notes
1	Pre-commencement meeting*	Y	Site Agent(SA) and LPA tree officer, contractor to attend
2	Tree works	Y	Following completion of tree works
3	Installation of tree protection	Y	PRIOR to ground/demolition works
4	Demolition Phase	Y	AS to monitor tree protection at agreed and suitable intervals
5	Manual excavations and root treatment; other groundworks	Y	SA to advise AS prior to commencement
6	Construction phase	Y	AS to monitor tree protection at agreed and suitable intervals
7	Remove tree protection fencing/ground protection	N	No tree protection to be removed without prior agreement with the AS
8	Tree planting/landscaping	Y	Brief landscape company & sign off

3.9.1 The frequency of tree protection monitoring depends upon the nature of the project. In this case, it will be appropriate for the SA to organise with the AS monitoring visits to be twice in the initial 28 days from commencement and thereafter once every 28 days for two months and then by agreement.

Contact List (to be completed **PRIOR** to commencement)

Interested Party	Name	Company/LPA	Contact Number(s)	Comment/ Responsibilities
Site Agent	TBA			Day to day site management; co-ordination of timings; **contact with project Arboriculturist**
Main Contractor	TBA			Legal and administrative running of the project; finance; appointment of and liaison with all project consultants
Arb. Supervisor	TBA			Tree protection and management; dissemination of tree-related information
LPA Tree Officer	Jeremy Sargeant	Adur and Worthing Council	01273 263477	Tree protection and enforcement
Site Engineers	TBA			Technical advice and design
Architects	/	To-Do Design	020 7095 0511	Design

TBA – to be advised

***Pre-commencement means i) before any works including tree felling or pruning and ii) before any ground works or demolition commences and upon completion of the initial installation of the tree protection, including ground protection.**

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4.0 Precautions during Landscape Work

4.1 The following steps (both general and site specific), are advisable in relation to implementing any landscape works, which may have the potential to affect retained and or protected trees:

1. Advise arboricultural supervisor of intended time frame of landscape work in advance of commencement.
2. Re-locate existing tree protection fencing/ground protection to enable landscape work to proceed.
3. With bio-degradable spray paint or site pins with plastic tape, mark out the position of the relevant tree root protection areas (RPA) as per the tree protection plan.
4. Within the RPAs, avoid using any mechanical tools or vehicles (e.g. tracked or wheeled machinery).
5. Spread any mulch or top soil manually, with the use of wheel barrows and hand tools. It will be acceptable to use of the back actor of a tracked excavator to spread piled top soil or mulch into the RPAs of protected trees provided the bucket does not come in contact with the ground and that the power unit is positioned outside of the RPAs at all times.
6. Any planting pits are to be excavated manually within the RPAs of any retained trees.
7. Multiple passes within the RPAs along one route, pedestrian and with wheel barrows will require some ground protection to be installed prior to working. Ground protection can be scaffold boards over wood chip for example.
8. A record of the landscape working method is to be made and provided to the Council for their file.
9. Hard landscaping features will be constructed under supervision within the RPA of retained trees and will avoid, where possible, the re-grading of soil.

5.0 General site care (trees)

5.1 No fires will be lit on site.

5.2 No access will be permitted to within the fenced or otherwise protected areas (unless for site accommodation or Authorised agreement) at any stage during construction.

5.3 No materials, equipment or debris will be stored within the fenced areas unless agreed with the arboricultural supervisor.

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5.4 Areas for mixing are to be located beyond RPAs of trees and contained to prevent leaching into the soil.

5.5 A copy of this report and the Tree Protection Plan is to remain on site at all times.

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Please note that all relevant planning approvals and approval to planning conditions must first have been issued by the relevant planning authority in order for this report to become effective. We strongly advise that you consult your planning advisors before implementing any recommendations set out in this report.



James Cox
Date: 12th September 2017

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APPENDIX 1

ACS (Trees) Consulting
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Tree Survey Schedule

Site:Lesser Foxholes, Shoreham, Sussex

Date: 8th September 2017

Surveyor: J. Cox
Ref:ts1/lsrfoxholes

Tree No.	English Name	Height	Crown Spread	Ground Clearance	Age Class	Stem Diameter	Protection Multiplier	Protection Radius	Growth Vitality	Structural Condition	Landscape Contribution	B.S. Cat	Sub Cat	Useful Life	Observations
T1	Robinia	9	4 4 4 4	2/E2	Mature	400	12	4.8	Normal	Fair	Medium	C	1,2	10-20	Ivy covered trunk and branches Multi stem weakness 3x stems: 200, 200, 280
T2	Willow, Weeping	12	8 6 5 4	2/N2	Mature	520	12	6.2	Normal	Good	Medium	B	1,2	20-40	A tree with insignificant defects Deadwood (small diameter)
T3	Beech, Common	5	2 2 2 2	2/N2	Middle Aged	300e	12	3.6	Normal	Good	Low	C	1,2	10-20	Off-site tree Reduced in past
H5	Cypress, Leyland	4	1 1 1 2	2/S2	Middle Aged	200a	12	2.4	Normal	Fair	Low	C	2	10-20	Dying back Boundary screen hedge
G6	Cypress, Leyland	6	2 2 2 2	2/S2	Middle Aged	200a	12	2.4	Normal	Good	Low	C	2	10-20	A tree with insignificant defects Boundary tree (group)
T7	Cypress, Monterey	6	4 3 2 2	2/N2	Mature	300e	12	3.6	Dead	Fair	Low	U	1	<10	Dead Ivy smothered Dead tree swamped by Russian Vine
H8	Cypress, Leyland	5	1 1 1 1	2/E2	Middle Aged	200a	12	2.4	Normal	Fair	Low	C	2	10-20	Off-site tree Boundary tree (group) One sided forms

Notes:

1. Height describes the approximate height of the tree in meters from ground level.
2. The Crown Spread refers to the crown radius in meters from the stem centre and is shown above on each of the four compass points (i.e. N, E, S, W) clockwise.
3. Ground Clearance is the height in meters of crown clearance above adjacent ground level together with the height and direction of the lowest branch
4. Stem Diameter is the diameter of the stem measured in millimetres at 1.5m from ground level. The diameter may be estimated (e), where access is restricted. An average (a) may be taken for tree groups. A full inspection is always recommended.
5. Protection Multiplier is 12 for single-stemmed trees; for multi-stemmed a cross-sectional area is calculated to derive the DBH, which in turn is multiplied by 12.
6. Protection Radius is a radial distance measured from the trunk centre and is used to calculate the BS RPA.
7. Growth Vitality - Normal growth, Moderate (below normal), Poor (sparse/weak), Dead (dead or dying tree).
8. Structural Condition - Good (no or only minor defects), Fair (remediable defects), Poor - Major defects present or suspected.
9. Landscape Contribution - High (prominent landscape feature), Medium (visible in landscape), Low (secluded/among other trees).
10. B.S. Cat. refers to British Standard 5837:2012 Table 1 category and refers to tree/group quality and value; 'A' - High, 'B' - Moderate, 'C' - Low, 'U' - Remove or very poor quality.
11. Sub Cat refers to the retention criteria values where 1 is Arboricultural, 2 is Landscape and 3 is Cultural including Conservation/ecological, historic and commemorative.
12. Useful Life is the tree's estimated remaining effective contribution in years.

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Tree Survey Schedule

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Date: 8th September 2017

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Tree No.	English Name	Height	Crown Spread	Ground Clearance	Age Class	Stem Diameter	Protection Multiplier	Protection Radius	Growth Vitality	Structural Condition	Landscape Contribution	B.S. Cat	Sub Cat	Useful Life	Observations
H4	Cypress, Leyland	3	1 1 1 1	2/S2	Middle Aged	150a	12	1.8	Normal	Fair	Low	C	2	10-20	Dying back Boundary screen hedge One sided forms

Notes:

1. Height describes the approximate height of the tree in meters from ground level.
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Table 1 **Cascade chart for tree quality assessment**

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	• Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) • Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline • Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality *NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see **4.5.7**.*			See Table 2
	1 Mainly arboricultural qualities	**2 Mainly landscape qualities**	**3 Mainly cultural values, including conservation**	
Trees to be considered for retention				
Category A **Trees of high quality** with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	See Table 2
Category B **Trees of moderate quality** with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	See Table 2
Category C **Trees of low quality** with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	See Table 2

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APPENDIX 2

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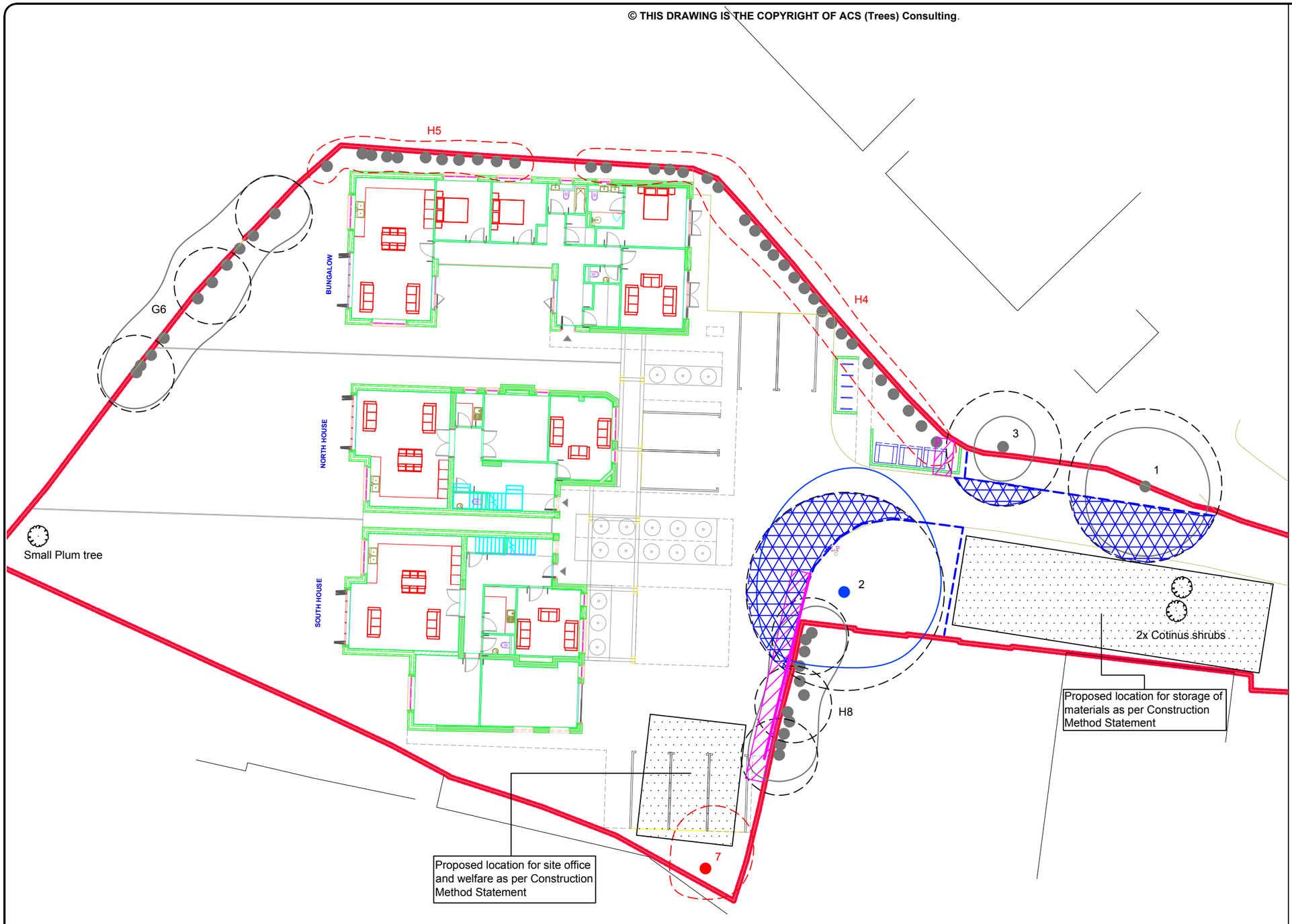

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Indicative

BS Root Protection Area, (RPA) shown uniform (above left) but site features such as roadways, retaining walls and foundations, may modify root patterns and therefore the RPA shape.

A grade trees

C grade trees

B grade trees

U grade trees

Recommended position for fixed tree protection fencing; denotes construction exclusion zone.

Portions of RPA's that will be afforded protection during construction by retention of existing hard surfacing.

Area identified for hand excavations prior to alteration/ extension of driveway. All work to be supervised by an arborist to advise upon root treatment where necessary.

Area identified for low-invasive edging detail

Tree Management Methods to be adopted on site.

1. Undertake pre-commencement site meeting to agree tree protection methods and timings.
2. Carry out any permitted tree works - ask before beginning.
3. Install all tree and ground protection (see Appendix 3).
4. Undertake demolition and ground works.
5. Construction phase.
6. Remove tree protection and carry out landscaping.

0 5 m 10 m 25 m

Scale: 1:250

Client : SPV Buxted	
Project : 36 Lesser Foxholes, Shoreham, West Sussex.	
Title : Tree Protection Plan	
Scale : 1: 250 A3	Dwg No : TPP1_36LF Rev : -
Date : Sept. 2017	

Do not scale from this drawing. Any discrepancies are to be reported to ACS (Trees) Consulting.
This drawing is to be used when printed to scale & in colour.

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ACS (TREES) Consulting
Urban & rural tree management

APPENDIX 3

ACS (Trees) Consulting
Tree Management Consultants
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Tree Protection Fencing

Specifications (specifically identified by outline box)

2.4m Hoarding

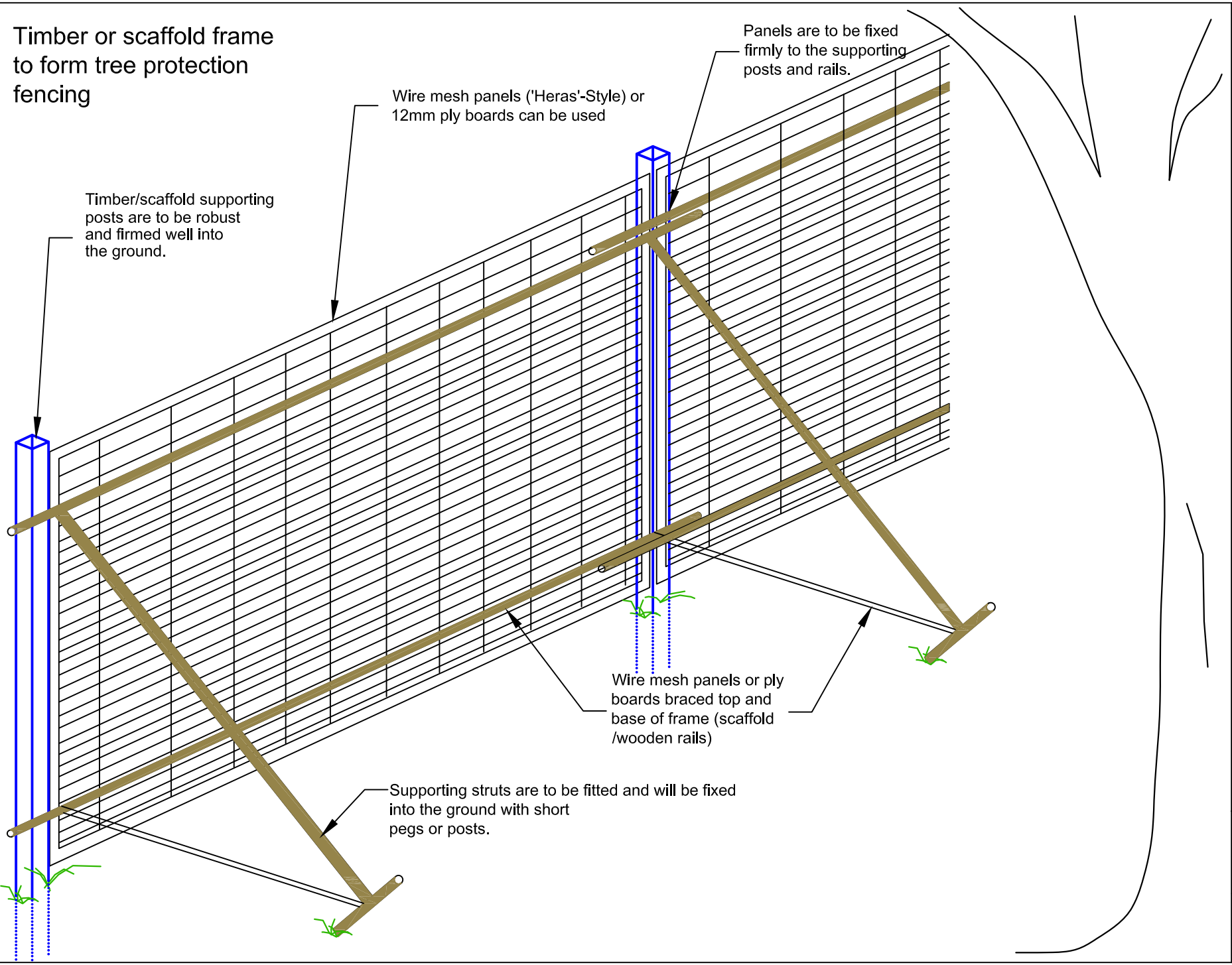
3.0m 100 X 100mm square wooden posts
3 X 38 X 87mm wooden rails affixed to posts
2.4m X 1200 outside grade ply panels (12mm) affixed to rails.
50 X 100mm angled supporting struts affixed internally (quantity as required).

(Supporting posts fixed into position using concrete. All post holes to be hand excavated. Post holes to be no larger than 300 X 300mm.)

Heras Fencing

Heras fencing describes the 2.4m galvanised steel mesh panelled fencing normally supplied with pre-cast concrete bases. **Bases are to be replaced with a fixed frame to which panels are clamped/ firmly fixed.** For extra stability, scaffold poles/4x4 wooden posts are to be firmed into the ground as supporting posts and supporting struts are to be attached at a 45 degree angle on the 'tree-side' of the fencing and fixed into the ground. Supporting posts will be braced at the top and base for added support.

Timber or scaffold frame to form tree protection fencing



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Title:

Example of Tree Protection Fencing

Note:

Steel scaffold or timber can be used to support boards or wire mesh panels

Date: Jan. 07

Ref:

Note: Sketch Plan Only - Not to Scale

Tree Protection Fencing

Scaffold Framework supporting ‘Heras’ type panels with signs attached.



Wooden Framework with ‘Heras’ type panels attached.



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APPENDIX 4

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Arboricultural Site Supervision

ACS CONSULTING

Site: 1 Hyde Park, London
Inspected By: H .Appleyard
Client: RPC
Site Agent: Shaun Clark

Date of Inspection: 15/02/2007
Time of Inspection: 3:30pm

Tree Protective Fencing

Tree protection in correct location

Comments/Action
No action at this time



Effective fencing in position

Agreed Construction Exclusion Zone

No debris within construction exclusion zone

Comments/Action
No action at this time

Amendments to Documentation Required

No amendments required

Comments/Action
Building works outside scope of Method Statement



Fencing with signs

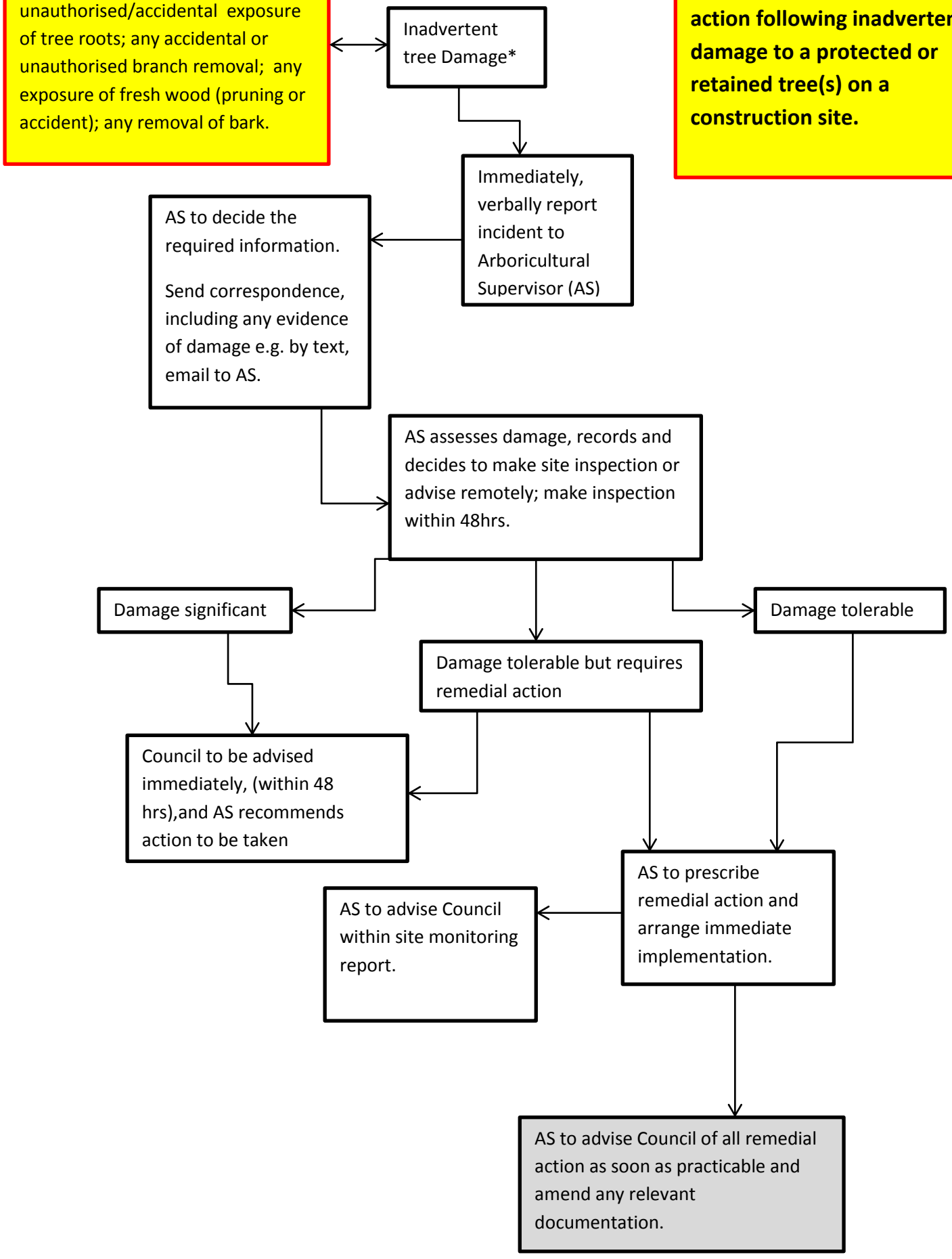
Remedial Works

General Comments

Tree protection and on-site supervsion effective and understood.

Procedure for reporting and action following inadvertent damage to a protected or retained tree(s) on a construction site.

*Tree Damage is defined as: any unauthorised/accidental exposure of tree roots; any accidental or unauthorised branch removal; any exposure of fresh wood (pruning or accident); any removal of bark.



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APPENDIX 5

ACS (Trees) Consulting
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Hand Digging In the Vicinity of Trees
Method Statement

1.0 Introduction

1.1 Within and adjacent to areas of construction, trees valued as important landscape assets may exist. It is possible such trees are protected by legislation in the form of a Tree Preservation Order, conservation area or by planning conditions. In either case, disregard of the tree's well being by causing damage to the roots, trunk or branches may be an offence. Consent from the Local Planning Authority may be required to undertake works that may have an impact on the tree prior to commencement.

1.2 Whilst the trunk and branches of a tree can be seen and therefore more easily avoided, tree roots are concealed beneath the ground. Their hidden nature can lead to inadvertent damage from construction processes. Dependant upon the extent of any root damage, the whole tree can be adversely affected. It is for this reason that it is necessary to ensure adequate precautions are adopted when considering construction in the vicinity of trees.

1.3 Hand digging rather than excavation by mechanical means has proved to be an effective way of limiting the effects of construction on nearby trees. It is often considered impractical, time consuming and costly to excavate by hand when machinery exists specifically for the purpose of digging. However, avoidance of unsustainable damage being caused to important trees through hand digging may far out weigh subsequent costs associated with legal penalties and loss of amenity.

1.4 Below are detailed the basic principles to acknowledge in respect of tree roots and the practical steps that can be taken to effectively avoid causing unsustainable damage to trees.

1.5 It is assumed that all operations are commenced only AFTER having undertaken and recorded appropriate risk assessments in line with current and relevant Health & Safety legislation, common industry practice and guidance.

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2.0 Tree/Root Damage – How it can occur

2.1 The majority of tree roots exist in the upper **600mm to 1000mm** of soil. Excavations of the soil in the vicinity of trees, to this depth, can be harmful to tree roots and consequently the tree.

2.2.1 Tree root systems comprise two main root types, those that **anchor** the tree in the ground and those that **supply** the tree with water and elements. Roots that support the tree are woody and those that are involved with the **conduction** of water and nutrients are non-woody or fibrous. Both types of roots can be damaged directly by severing or crushing. Fibrous roots can die from asphyxiation by **soil compaction** and/or soil contamination. Trees differ in their tolerance of root loss or disturbance, according to their species and condition or both.

2.3 The larger the root damaged, the greater the impact on the tree.

3.0 Hand Digging in the Vicinity of Trees – The Process

3.1 First it is necessary to consider all available options to construct beyond the likely range of influence on the tree's condition – normally beyond 1m from the tree's trunk and within an area below the tree's canopy or by referring to an area calculated using the formulae at para 4.6.1 of BS 5837:2012 'Trees in relation to design, demolition and construction - Recommendations'. This area is called the Precautionary Zone or Root Protection Area. **When it is established that no options are available other than to construct within this zone, hand digging will be needed.** When considering hand digging, an appointed specialist supervisor/consultant will be able to advise during construction and must be on site at the commencement of works.

3.2 Before beginning to dig, mark out the tree's precautionary area with ground marker paint, clearly on the ground. This will identify the area within which hand digging must take place. **For safety and before beginning to dig, ensure there are no underground services or objects that may cause injury if damaged**. Any existing protection fencing is to be located to the nearest position of construction and fixed in place, between the tree and area of construction. It will be clearly visible to operators thereafter where hand digging will need to be undertaken. The use of mechanical digging equipment to remove the top surface layer (50-100mm) is to be avoided and hand tools are required for this exercise too.

3.3 When hand digging, using typical hand tools, carefully work around roots, retaining as many as possible. Using a brush or compressed air will expose roots cleanly before deciding whether it will be necessary to prune. Care must be taken not to damage roots including the roots' bark.

3.4 Retain all roots with a diameter greater than 25mm. Where such roots must be removed, after consulting a trained arboriculturalist (e.g. Local Authority Tree Officer or the

appointed Arboricultural Consultant), these roots must be pruned with sharp cutting tools such as a handsaw, secateurs or pruners. The cut must leave the smallest wound possible and the root must be left as long as practicably possible. Roots in excess of 50mm diameter are to be retained and protected by surrounding the root with uncompacted sharp sand, void-formers or other compressible materials.

3.5 Where roots do not exist, e.g. beyond the depth of the rooting area, mechanical excavation should not be considered without specialist supervision.

3.6 All spoil is to be deposited beyond the precautionary zone. Soil build-up can cause roots to die.

3.7 As soon as practicable, exposed roots are to be covered with loose backfill material such as soil/sand mix or a hessian-type material to offer immediate protection from drying winds and desiccation. When excavating for the introduction of posts, pads or piles, the sides of the pits should be lined with a geotextile material to prevent the potential for lime scorching of small diameter roots.

3.8 Where it is impossible to avoid completing the construction in one day for example, any exposed roots or their cut ends are to be covered with sacking material over night to prevent drying out and to add protection. This is particularly important in winter months, where frost can cause further damage to roots.

3.9 Upon completion of the hand digging, where appropriate protection fences are to be re-located and fixed in their original position.

Attached is an extract from the National Joint Utilities Group publication V4 2007, ‘Guidelines for the planning installation and maintenance of utility services in proximity to trees’.

Before considering hand digging and determining precautionary zones or root protection areas, specialist arboricultural advice should be sought.

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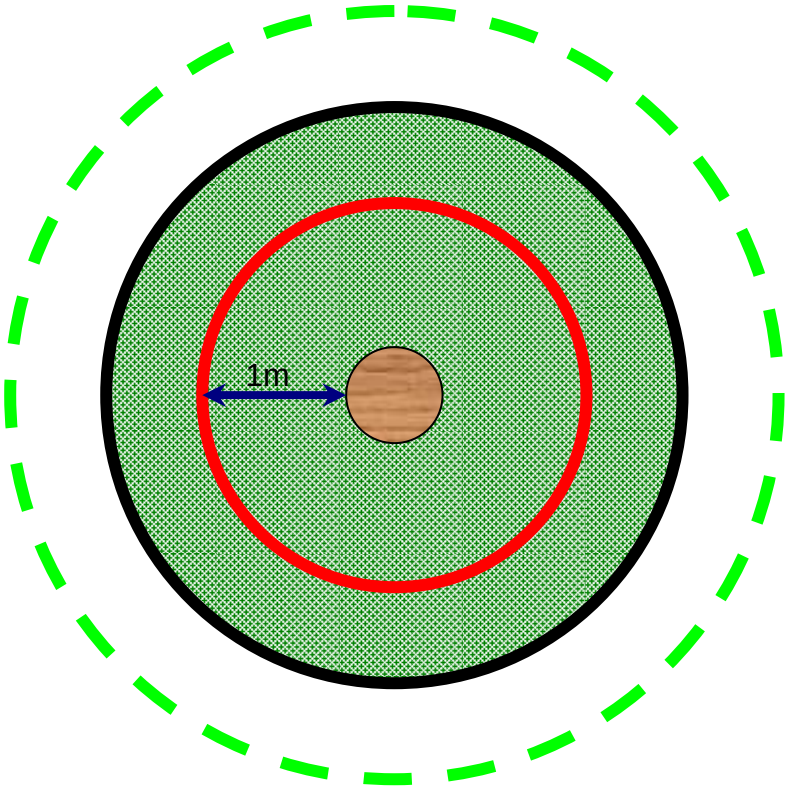

TREE PROTECTION ZONE

Key to Diagram

Trunk of Tree

Spread of canopy or branches

PROHIBITED ZONE – 1m from trunk. Excavations of any kind must not be undertaken within this zone unless full consultation with Local Authority Tree Officer is undertaken. Materials, plant and spoil must not be stored within this zone.

PRECAUTIONARY ZONE – beneath canopy or branch spread. Where excavations must be undertaken within this zone the use of mechanical excavation plant should be prohibited. Precautions should be undertaken to protect any exposed roots. Materials, plant and spoil should not be stored within this zone. Consult with Local Authority Tree Officer if in any doubt.

PERMITTED ZONE – outside of precautionary zone. Excavation works may be undertaken within this zone however caution must be applied and the use of mechanical plant limited. Any exposed roots should be protected.

DAMAGE TO TREES

Tree roots keep a tree healthy and upright. Most roots are found in the top 600mm of soil and often grow out further than the tree's height. The majority of these roots are very fine; even close to a tree few will be thicker than a pencil. Most street tree roots grow under the footway but may also extend under the carriageway. If roots are damaged the tree may suffer irreversible harm and eventually die.

PROTECTING ROOTS - DO'S and DON'TS

There are three designated zones around a tree each of which has its own criteria for working practices.

THE PROHIBITED ZONE

Don't excavate within this zone.

Don't use any form of mechanical plant within this zone

Don't store materials, plant or equipment within this zone.

Don't move plant or vehicles within this zone.

Don't lean materials against, or chain plant to, the trunk.

Do contact the local authority tree officer or owner of the tree if excavation within this zone is unavoidable.

Do protect any exposed roots uncovered within this zone with dry sacking.

Do backfill with a suitable inert granular and top soil material mix as soon as possible on completion of works.

Do notify the local authority tree officer or the tree's owner of any damage.

THE PRECAUTIONARY ZONE

Don't excavate with machinery. Where excavation is unavoidable within this zone excavate only by hand or use trenchless techniques.

Don't cut roots over 25mm in diameter, unless advice has been sought from the local authority tree officer.

Don't repeatedly move / use heavy mechanical plant except on hard standing.

Don't store spoil or building material, including chemicals and fuels, within this zone.

Do prune roots which have to be removed using a sharp tool (e.g. secateurs or handsaw). Make a clean cut and leave as small a wound as possible.

Do backfill the trench with an inert granular material and top soil mix. Compact the backfill with care around the retained roots. On non highway sites backfill only with excavated soil.

Do protect any exposed roots with dry sacking ensuring this is removed before backfilling.

Do notify the local authority tree officer or the tree's owner of any damage.

THE PERMITTED ZONE

Don't cut roots over 25mm in diameter, unless advice has been sought from the local authority tree officer.

Do use caution if it is absolutely necessary to operate mechanical plant within this zone.

Do prune roots which have to be removed using a sharp tool (e.g. secateurs or handsaw). Make a clean cut and leave as small a wound as possible.

Do protect any exposed roots with dry sacking ensuring this is removed before backfilling.

Do notify the local authority tree officer or the tree's owner of any damage.