12th June 2015

Ref:eb/ms1/LR

Your Ref:

Ms Olga Vladic Weal
CARDEN & GODFREY Architects
33 Clerkenwell Close
London
EC1R 0AU

Dear Olga

Tree Protection and Management in relation to Construction at: 26 Lyndhurst Road, NW3

Further to my site visit, please find attached, my arboricultural report and method statement as requested to assist with the planning application.

I hope that this is clear and helpful but if I can be of any further assistance, please do not hesitate to contact me.

Yours sincerely

Edward Buckton
BSc (hons) Forestry, A.A. Tech Cert

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Arboricultural Assessment and Protection Method Statement

Site: 26 Lyndhurst Road, NW3

Date: 12th June 2015

Prepared by: Edward Buckton BSc (hons) Forestry, A.A. Tech Cert

Ref: eb/ms1/LR

Appendices:

1. Tree Survey Schedule (BS5837:2012)
2. Tree Protection Plan TPP
3. Recommended example of tree protection fencing
4. Example of site monitoring record

1.0 Introduction and Scope

1.1 A planning application for an extension and alteration to the existing property is to be submitted to the Local Planning Authority. The scheme involves internal modifications, an additional lightwell at the front and swimming pool to the rear.

1.2 The proposed construction is to be undertaken in the vicinity of trees. The implications upon the trees and the methods for tree protection and preservation during construction work are set out in this report and which includes a requisite a 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 the 10th of June 2015. 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 an existing detached residential property. The building currently has a light well to lower ground floor and the intention to construct another on the opposite side of the property to mirror this layout. Development at the rear of the property is to construct a swimming pool.

2.2 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 at included at Appendix 2.

2.3 The trees in the rear garden are two Apples (T1 and T2) and are sufficiently remote rom construction pressure. Two Cypress trees (T3 and T4), are located in the neighbouring property, and have RPA's which overlap slightly into the garden; These are however also beyond the proposed footprint. Typical tree protection measures can be employed to ensure their safe retention and I do not predict any adverse impacts.

2.4 The three trees at the front of the property comprise a mature Robinia (T5) and two Yew trees (T6 and T7) flanking the entrance footpath. Direct damage is evident to the footpath and boundary wall and I consider that this is a result of roots lighting these structures. The displacement of the footpath within the garden is quite pronounced throughout its length, but I consider that the damage within the structural root zone of T6 and T7 is a direct result of their growth.

Proposed Construction and associated works

2.5 It is the intension to remove both Yew trees so as to allow the repair of the wall and footpath. This will provide an opportunity to replace these with more suitable species, which will be chosen to be less likely to cause damage in the future. Although there will be short term loss in amenity, the replacement planting can mitigate this. My recommendation would be for either Amelanchier (lamarckii or laevis 'Cumulus') or a Field Maple variety such as Acer campestre 'Red Shine'. This detail can be effectively controlled by a suitable planning condition. A suitable planting specification is also included on the TPP at Appendix 2.

2.6 I consider that there is a low risk of root loss to T5, as a result of the excavation for the new light well. The first point of dig is 9m from the base of the tree and even with an offset RPA, (with the tree utilising more of the gardens area due to the hard surfacing to the North) only minor roots could in theory exploit this area. As an added precaution, I have recommended added ground protection in the area an offset RPA would encompass.

2.7 To further ensure that significant roots are not removed, a exploratory excavation shall precede the ground work. The following methodology will be applied;

Preliminary trial pit work and rooting area treatment.

i) First mark out the area to be manually excavated with marker spray paint
ii) Using hand tools remove the existing surfaces e.g. paving, turf
iii) Using the hand tools and compressed air (Air Spade) if necessary, remove the soil from the trial trench to a depth of min. 800mm. The width of the pit should be sufficient to for one person work in safely. All roots over 10mm diameter should be retained for inspection.
iv) Place the spoil beyond the RPA of the tree in question.
v) Arboricultural supervisor will inspect the roots/soil and advise upon root pruning. Any root pruning will carried out using sharp and specialised pruning tools (not spades or mattocks).
vi) The exposed face of the trench (tree side) is to be covered with a sacking-type material, which can be dampened with water and fixed in position with small stakes or weighted down along the upper ridge of the trial trench.
vii) The soil within the immediate area of the trunk and within the remaining RPA or any tree protection fencing, is to be dressed in a depth of rotted wood chip mulch, and regularly irrigated during the course of the construction period, sufficient to retain moist but not water-logged soil.
viii) The tree in question is to be monitored for condition and any changes are to be noted and acted upon where appropriate.

Table 1 **Proposed Tree Works**

Tree Works (Spec.)	Tree Nos	Visual Landscape Impact of Works*	Available Replacement Planting(Y/N)	Comments
Fell	T6 & T7	Medium	Y	Replanting to mitigate for the loss
Total		Medium		

*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.

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.

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.

3.0 Recommended Construction Precautions (trees)

3.1 In order to afford protection from general construction processes associated with the building, 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_LR). A recommended example of the type BS grade tree protection fencing is included at **Appendix 3**.

3.2 Following erection of the tree protection fencing, I recommend installing some ground protection (refer to TPP1_LR) to ensure that roots under the surface are not damaged by compaction during regular passing by operatives and light machinery. I have included recommended examples of ground protection at **Appendix 3** also.

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 and ground protection
ii) The root assessment process

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:
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 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.

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 fencing and ground protection*	*Y*	*PRIOR to ground/demolition works*

***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.**

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.

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.

Liability Limitation

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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.

Edward Buckton
June 2015

APPENDIX 1

ACS Consulting (London)
Tree Management Consultants
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ACS Consulting (London)
Tel: 020 8687 1214

Tree Survey Schedule

Site: 26 Lyndhurst Road, NW3

Surveyor:E.B

Date: 10 June 2015

Ref:ts1/LR

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	Apple, Orchard	5	1 1 1 1	1/1n	Mature	220	12	2.6	Normal	Fair	Low	C	1	10-20	Reduced in past
T2	Apple, Orchard	5	2 2 2 2	1/1e	Mature	330	12	4.0	Normal	Fair	Low	C	2	10-20	Reduced in past
T3	Cypress, Lawson	9	2 2 2 2	4/4n	Mature	250e	12	3.0	Normal	Good	Low	B	1	20-40	Garden ornamental Off-site tree
T4	Cypress, Lawson	8	1 1 1 1	3/3w	Middle Aged	150e	12	1.8	Normal	Good	Low	C	2	20-40	Garden ornamental Off-site tree
T5	Robinia	18	6 6 5 6	6/6e	Mature	520	12	6.2	Normal	Fair	High	B	1,2	20-40	Forks 5m with week union decay in pruning wounds, Ivy
T6	Yew	7	2 3 3 3	3/4E	Mature	400	12	4.8	Normal	Good	Medium	B	1,2	20-40	Multi stem
T7	Yew	7	2 3 3 3	3/4E	Mature	400	12	4.8	Normal	Good	Medium	B	2	20-40	Multi stem

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.

APPENDIX 2

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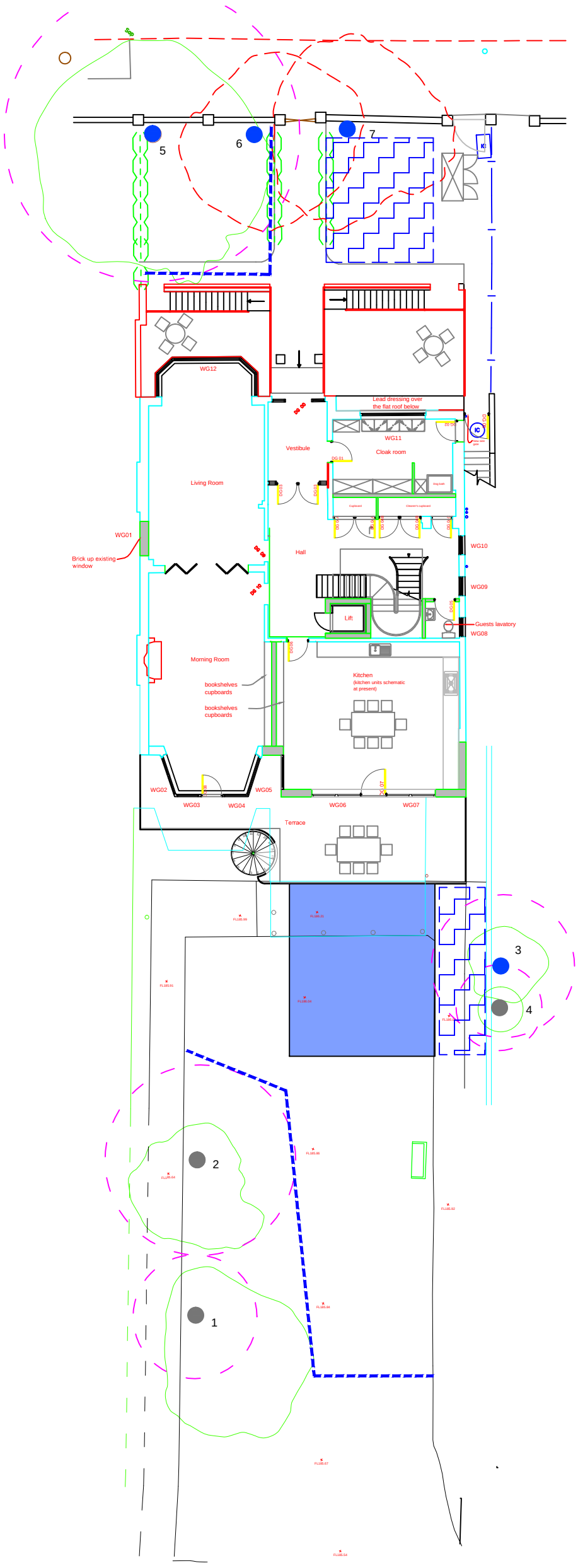

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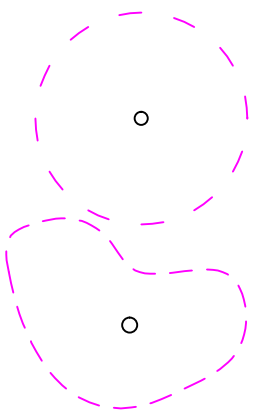
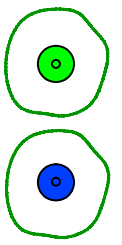
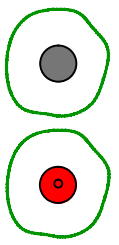
Indicative



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 (left).



A grade trees

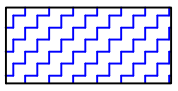


C grade trees (clear)

B grade trees

U grade trees

Recommended position for fixed tree protection fencing



Recommended area for effective ground protection

0 5 m 10 m 20 m

Scale: 1:200

Client :	-		
Project :	27 Lyndhurst Road, London		
Title :	????		
Scale :	1:200A3	Dwg No : TPP01_LR	Rev : A
Date :	June 2015		

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

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TREE MANAGEMENT

APPENDIX 3

ACS Consulting (London)
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Tree Protection Fencing

Specifications (specifically identified by outline box)

2.4m Hoarding

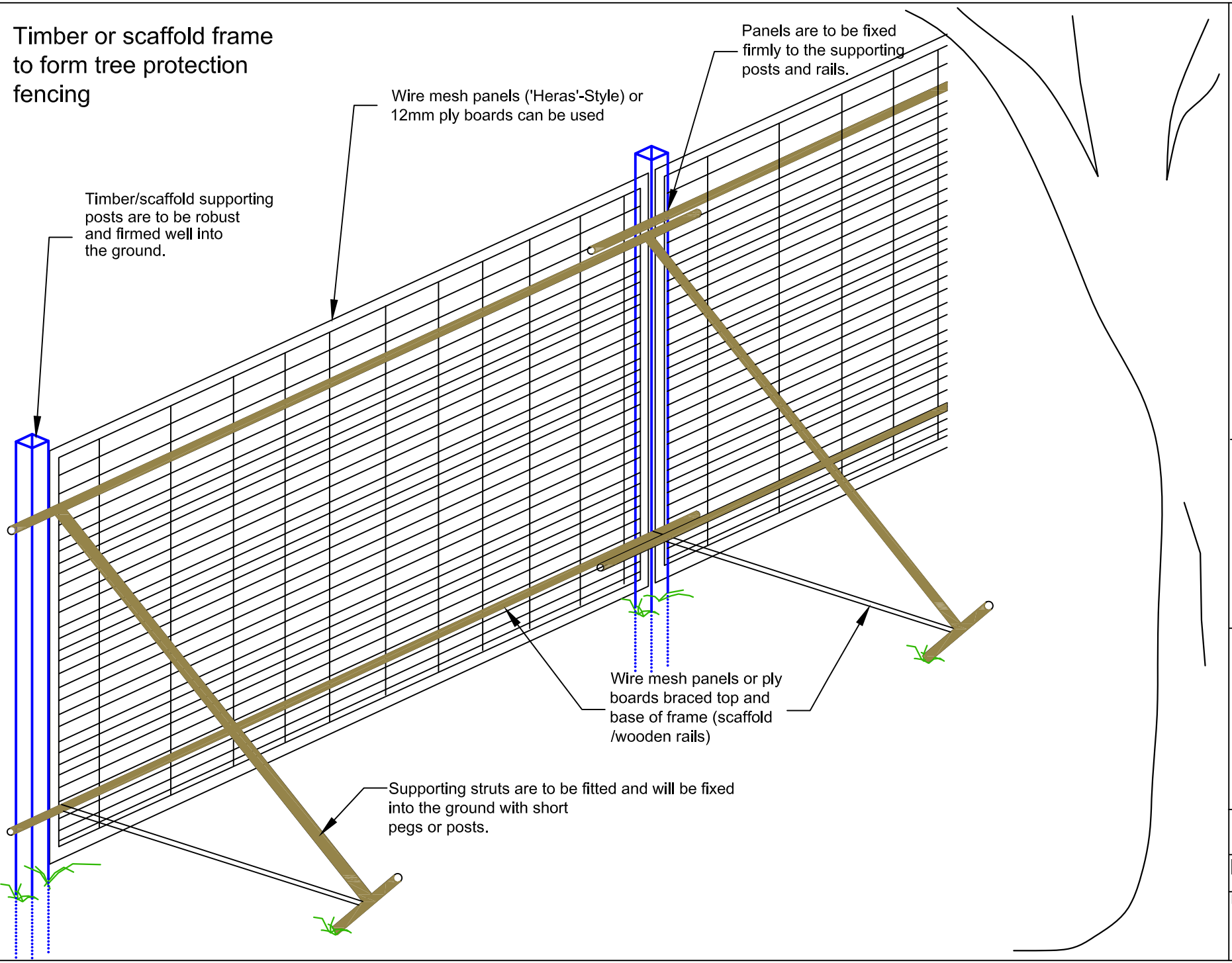
3.0m 100 X 100mm square wooden posts
3 X 38 X 87mm wooden rails affixed to posts
2.4m X 1200 outside grade ply panels (12mm) affixed to rails.
50 X 100mm angled supporting struts affixed internally (quantity as required).

(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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GreenTek
GUARANTEED TO DO WHAT IT SAYS
-OR YOUR MONEY BACK!
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Example of ground protection, which is best laid over 50mm of a compressible material such as woodchips or sharp sand for optimum tree root protection.

WALK TOP - Ideal for car parks and walk ways.

Ground plates can be useful for dissipating loads, at sensitive construction locations.

DOUBLE LINK JOINERS - lock Ground-Guards into one large working platform.

OSB boarding fixing scaffold Boards below can be very effective ground protection for lighter traffic such as pedestrians, wheel-barrow and occasional passes with light dumper vehicles for example.

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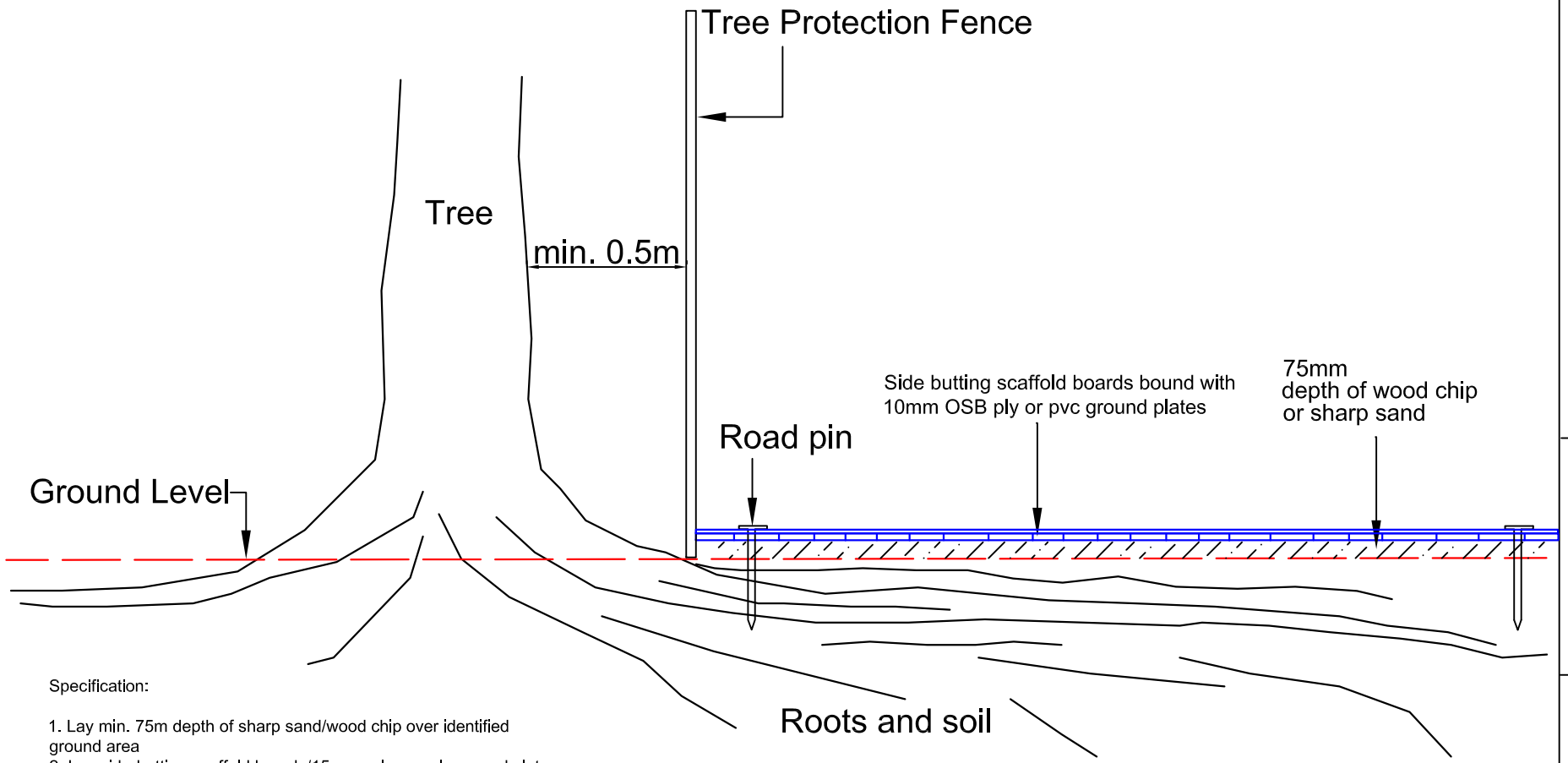

Specification:

1. Lay min. 75m depth of sharp sand/wood chip over identified ground area
2. Lay side-butting scaffold boards/15mm poly propylene road plate over sand/wood chip
3. Fix ground protection cover into place with pins/pegs
4. Erect protection fence (where feasible).
5. Erected scaffolding can act as protection fencing.
6. Remove ground protection upon completion/landscaping only.

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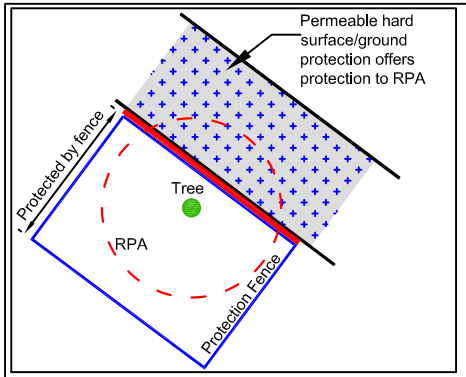
Ground Protection Example

Date:

Ref:

Note: Sketch Plan Only - Not to Scale
Not all site features shown



Protected tree

The red line denotes the position of lateral and vertical protection offered by robust fencing and properly installed low-invasive, permeable hard surfacing or ground protection, respectively.

Protection Fence

Tree tunk centre

Lateral or horizontal protection is offered to the tree by the erection of robust fencing.

The tree's rooting area beneath a low-invavise and porous hard-standing surface (or ground protection), is offered verticle protection by the surface itself.

y mtrs

x mtrs

Ground level

Rooting zone in need of protection

Area protected by fence

Area protected by surface

Note:

In this example, the BS RPA radius of the tree is calculated at x mtrs. A proportion (y mtrs), of the RPA, is covered by new permeable hard surface (or ground protection). Provided that hard standing is constructed in accordace with the principles of BS 5837:2005 para 11.8.1 and having been designed with specialist advice from an engineer and arboriculturalist, **the RPA of the tree is not reduced**.

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Title:

Tree/Root Protected Area

Date: Oct. 2010

Ref:

Note: Sketch Plan Only - Not to Scale
Not all site features shown

APPENDIX 4

ACS Consulting (London)
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ACS Consulting
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Arboricultural Site Supervision

ACS CONSULTING

Site: 1 Hyde Park, London
Inspected By: H .Applevard
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.