1-38-3868

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R E P O R T

on the impact on trees

of proposals for development

at

2A Belsize Lane, London, NW3 5AB

(28th January 2016)

Registered Consultant of the Arboricultural Association
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REGISTERED
CONSULTANT

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01
Introduction and Instructions

I am instructed by Xul Architecture on behalf of clients to make an assessment of tree amenity value and condition of trees at 2A Belsize Lane, London, NW3 5AB and of the impact of a proposal for development on such trees. Accordingly, I visited the property on 13th October, 2015 in order to carry out an inspection.

02
Copyright

02.01

03
Notes

03.01
PLANS

1-38-3868/P1 gives an approximate representation (in plan) of actual crown form, and is intended to indicate the relationship of neighbouring trees to each other, and should be read with the comments on crown shape and tree value in TREE DETAILS appended. The plan gives a quick reference assessment of value as per section 4, table 1, of BS 5837:2012 'Trees in relation to design, demolition and construction - Recommendations'. Assessment of value in the TREE DETAILS table appended is, in accordance with British Standard 5837:2012 related mainly but not exclusively to the criterion of *visual value to the general public*. The Standard recommends a way of classifying trees when assessing their potential value in relation to proposed development. Some surveys may not include any trees of one or more categories. Table 1 suggests categories 'U', 'C', 'B' and 'A' , in ascending merit. 'U' **(RED crown outline on plan)** category trees are dangerous \ low value trees that could require removal for safety or arboricultural reasons. 'C' **(GREY or black/uncoloured crown outline on plan)** category trees are of no particular merit, but in adequate condition for retention. 'A' category trees **(GREEN crown outline on plan)** are trees of high vitality or good form, or of particular visual importance: 'B' **(BLUE crown outline on plan)** category are good trees but may be of slightly poorer form or be not sited as importantly as 'A' category trees. See TREE DETAILS appended. Category Assessment appears in column 10. This standard also provides a way of determining an area (see TREE DETAILS column 7) – the **RPA** – root protection area - around the trunk of the tree in which protective measures should be used in order to prevent significant damage to trees. There are various ways of achieving this. A simple way is to use exclusion fencing, but other methods have been shown by established use to be very effective.

03.02
1-38-3868/P2A shows proposed retained trees and is colour-coded to indicate where arboricentric methods are proposed during the construction process.

04
Sources and Documents

Ground level inspection.
Supplied plans : Xul Architecture drgs.
1517-EX01 rev.00
1517-PA01 rev.00

05
Appraisal

05.01
AMENITY / SCREENING BY TREES AND SHRUBS
Certain trees are of some general public amenity value, as they are visible from adjoining properties : some only as glimpse / skyline features. One large shrub is of some strictly local amenity value to owners / users of the site, and to a very minor degree, to those of adjoining properties. The remaining shrubs in the rear garden are of no public amenity value.

05.02
TREES AND LAYOUT - POTENTIAL FOR CONFLICT WITH ROOTS
(Details appear in the tree detail table appended.) The figures in columns 6 and 7 in the tree details table appended indicate the root protection area ('RPA'), and typically the basic exclusion fence position. New materials and methods have been developed and continue to be developed that assist in promoting the successful retention of trees in association with constructed features. It should be noted that BS 5837:2012 (section 7.4.2) supports 'up and over' methods of construction where appropriate. The design principle of this method is outlined within Arboricultural Practice Note 12 (Through the Trees to Development, - a revision of APN 1, 1996, published by AAIS / Tree Advice Trust). This method has been used for many years on the recommendation of John Cromar's Arboricultural Co. Ltd. and has successfully allowed the retention of mature trees very close to construction activities.

05.03
An assessment as per BS5837:2012 section 4.6.2 has been carried out in connection with all trees to be retained. (This section requires that site conditions, tree mechanics, etc., are taken into account in determining the likely position of roots.) This is of particular relevance in connection with this site where trees outside the site are separated from it by a substantial retaining wall and garden wall.

05.04
ROOTS and DESIGN
SRP is an acronym for *static root plate*, (after *Mattheck*, 1991, etc.) a radial dimension derived from trunk diameter based on studies of wind-thrown trees

and thus a guide to where structurally significant roots are likely to be located. RPA is an acronym used in BS5837:2012 and signifying the *root protection area*. The RPA is a guide to where systemically significant roots are likely to be located. No encroachment on the SRP of any retained tree is entailed.

Some encroachment on the RPA of one retained large multi-stemmed shrub is entailed :

No.	**Tree**	**RPA in sq.m.**	**Area sq.m affected**	**% affected**	**Notes**
1	Japanese maple	9.23	2.15	23.29	patio

In the writer's now extensive experience gained over nearly a third of a century in arboriculture, controlled, limited-extent, vertical root cutting of this kind is of little or no significance to shrub or tree health. The actually damaging operations are those that degrade or compact the ground surface within the RPA, for example by uncontrolled access by mechanical excavators, dumpers, etc. It should be noted that the very limited root cutting entailed in this proposal is, by an order of magnitude, far less than that entailed in the commercial moving of maturing and even mature trees and shrubs, which has been practised successfully for centuries.

In view of the above I conclude that all shrubs and trees to be retained can be adequately protected by exclusion fencing and other measures as indicated. Methods are proposed below to reduce impacts on root systems of retained trees.

05.05
PERCEPTION OF TREES
The majority of the significantly-sized retained trees are located mainly to the SE of the proposed extension to the dwelling. This is however in a closely similar position to the existing structure : the existing structure's position in relation to the existing trees has not generated any obvious or reported requirement to prune trees inappropriately. The extension is fully glazed. In view of the above I conclude that shading by and perception of trees has been considered (as sections 5.3.4 and 5.6.2.6 of BS 5837:2012 recommend) and appear not to be negative factors.

05.06
Processing by the LPA of any due application from future owners for permission to carry out tree work will no doubt be carried out with due regard for good arboricultural practice and according to British Standard 3998:2010 'Tree Work – Recommendations'. In any appeal that might arise against refusal of LPA consent to reduce inappropriately, or fell trees, common arboricultural criteria to those of the LPA would be used by any specialist tree inspectors of the Planning Inspectorate, and thus the trees would in my view be thus protected against inappropriate work. I consider that any such notional issues are very likely to be dealt with appropriately as no doubt in the past they have been within the Borough, as such tree/building juxtapositions are far from rare.

05.07
SUPERSTRUCTURE AND TREE APPRAISAL - TREE PRUNING
I note from the drawings supplied that no encroachment on the crowns of retained trees will occur. It is of note however that the form of the trees is such that the defining branch structure is well above or clear of the proposed building envelope.

05.08
SUPERVISION
Supervision by an arboriculturist is a nigh-essential element of site management where trees are present and to be retained. Good communication between site agent and arboriculturist can reduce the need for such a measure. I propose that this takes place at key points in the construction process, and additionally whenever required by the architect or LPA. These key stages are as per method 1 in section 06.02 below.

05.09
PUBLISHED GUIDANCE IN RELATION TO TREES AND DEVELOPMENT
In conserving trees on development sites, expected best practice is as in B.S. 5837 : 2012. Section 5.1.1 notes :

"Certain trees are of such importance and sensitivity as to be major constraints on development or to justify its substantial modification : attempts to retain too many or unsuitable trees on a site can result in excessive pressure on the trees during demolition or construction work, or post-completion demands for their removal."

05.10
The above advice appears to have been considered in formulating proposals for development.

05.11
CONCLUSION
I conclude that the construction proposed, subject to precautionary measures as outlined above and as per the recommendations outlined below, will not be injurious to trees to be retained, nor will require any trees to be removed.

06
<u>Tree Protection Proposals</u>

06.01
TREE PROTECTION - GENERAL
It is highly important to tree health and vitality that construction activities are carried out strictly in accordance with the tree protection methods specified. A single traverse of a root protection area by a mechanical excavator can cause SIGNIFICANT and PERMANENT (albeit temporarily invisible) damage to trees. Such machinery, including piling rigs, shall be kept at ALL times outside the root protection areas as indicated in the tree details table appended, and/or shall be subject to SPECIAL METHODS below. Fences to protect trees shall be respected as TOTAL EXCLUSION fences. Hence, before any site activity, including

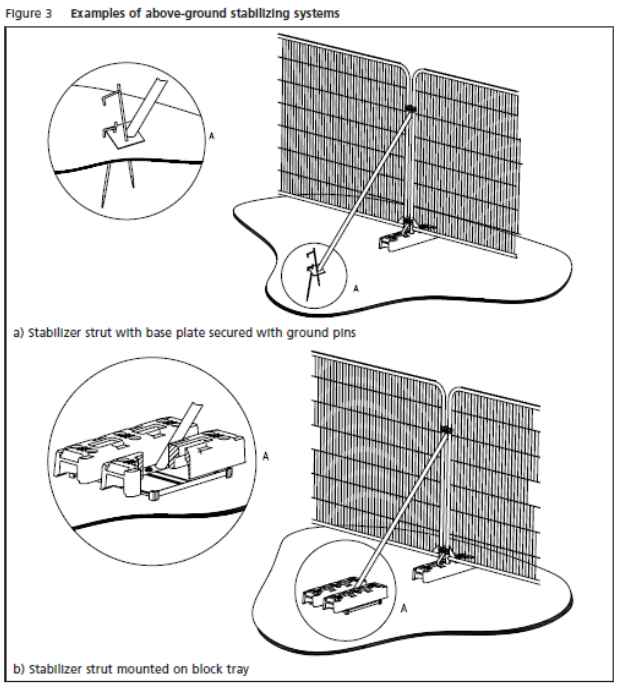
demolition, the fence lines shall be complete. Protective fencing and any temporary protection of ground surfaces will have to be removed in due course to allow finishing of landscaping, paving, etc., but this shall not take place until all need for vehicular access to the site has passed, and shall be agreed with arboriculturist / planners on site during progress of works.

06.02
TREE PROTECTION – SPECIAL METHODS 1 - 8
PLEASE READ WITH PLAN REFERENCE 1-38-3868/P2A, APPENDED.
The Methods shall be implemented in the order given unless it is stated to the contrary.

Method 1 : Supervision by an arboriculturist shall take place at key points in the construction process, and additionally whenever required by the architect or LPA. These key stages are :

1) **At site possession by contractor, outline all tree protection measures with site agent and resolve any issues arising. Ensure protective fencing is erected and completed as proposed. Ensure any site cabins, mixing sites for mortars, disposal-to-skip sites, etc., are located appropriately, and sign off.**
2) **Approve timing of removal of protective fencing (post main phase) and sign off.**

Method 2 : TREE PROTECTION FENCING
Tree protection fencing shall be erected, consisting of 'Heras' type fencing (weld-mesh panels), each section securely attached to uprights driven at least 0.6m into ground, as per the layout as shown on the plan (pink lines). No ground levels reduction or excavation shall take place within (=the tree side of) the fence lines. The standard rubber supports ('elephant's feet') shall if used, be as per BS 5837:2012 section 6, figure 3, left. Below the crowns of trees with branches extending to less than 2m above ground level, in order to avoid unnecessary pruning, it is permissible to replace sections with manufactured boards at least 11mm thick (hoarding), attached securely to timber uprights driven at least 0.6m into the ground, providing the finished fence stands at least 1.2m above ground level.



Method 3 : LEVEL PRESERVATION–AS-EXISTING
This method shall apply in zone of magenta crosses. No soil levels reduction whatever shall take place.

Method 4 : REMEDIAL ROOT TREATMENT METHOD
This method shall apply in zone of green crosses. No soil levels reduction whatever shall take place. Holes in the ground shall made on a 1m x 1m spacing with a pinch bar to a depth of 20 cm and width of 40mm. 75g (exactly) of sucrose (sugar) shall be dissolved in 1.5 litre of water and poured into the holes Treatments should be applied as soon as possible after root cutting but only once in one growing season (March to October). The solution shall be applied gradually to prevent overflow.

Method 5 : ROOT PRUNING
This method shall apply within the brown fill zone (the proposed landscape retaining wall forming the reduced planter near shrub 1). The excavation shall be made with hand tools only. Any roots encountered shall be trimmed to the edge of excavation using a sharp edge tool such as handsaw or secateurs; the cuts shall be made at right angles to the long axis of the root, and in accordance with BS3998:2010, 8.6. An HDPE membrane shall be placed between any root-bearing soil and any wet concrete to be poured. Impermeable sheeting (to exclude wet concrete) shall be laid and secured locally by temporary weighting as required. Any concrete casting shall take place without disturbing this protective layer.

Method 6 : SERVICE TRENCHES
N.B. -This applies to ALL services : Electricity, gas, water, etc. Existing services shall be utilised wherever possible.

These methods shall apply generally within any RPA (orange circles).

1) The trench shall be opened with an air-spade to required depth.
OR
2) The trench shall be dug with hand tools only. Probes such as screwdrivers or steel rod <10mm diameter to determine root presence ahead of digging shall be used. The work shall proceed cautiously. No roots over 20mm diameter shall be cut. Roots 20mm or more in diameter unearthed shall be temporarily protected with bubble-wrap and insulating or gaffer tape while rest of trench is dug.
OR
3) Services shall be thrust-bored using trenchless techniques (compressed air-driven 'mole') at a depth of 700mm or more below ground level, entailing no surface excavation. Starter pits for rams shall be outside any RPA, or reception/starter pits shall be opened according to 1) or 2) above.

Method 7 : PLANTER EDGING REFURBISHMENT/CONSTRUCTION
This method shall apply in zones of cyan fill on plan. Formation shall be timber baulks (e.g. modern railway sleepers, stone lintels) pinned to substrate with 25mm dia. re-bar or similar and the holes sealed with hardwood pegs, or works shall consist of a surface-only paving detail.

Method 8 : In addition to the above, careful general operation and site handling shall be observed as outlined at 06.03 below.

06.03
GENERAL TREE PROTECTION METHODS

A) No fires shall be made on any part of the site, or within 20m of any tree to be retained.

B) No spilling or free discharge of wet mortar, concrete, fuels, oils, solvents, or tar shall be made on any part of the site.

C) No storage of wet materials shall be made within the protective fences.

D) No breaching or moving of the protective fences shall take place without the approval of an arboriculturist.

06.04
It is recommended that acceptance of the recommendations in this report is demonstrated by, for example, the architect specifying in writing to the building contractor that tree care conditions apply in execution of the contract, and by an estimate or written undertaking from the contractor to the architect demonstrating that the practical aspects of observation of such recommendations have been priced in.

07
General

If conflicts between any part of a tree and the building(s) arise in the course of development these can often be resolved quickly and at little cost if a qualified arboriculturist is consulted promptly. Lack of such care is often apparent quickly and decline and death of such trees can spoil design aims and can of course affect saleability, and reflect poorly on the construction and design personnel involved. Trees that have been the recipients of careful handling during construction add considerably to the appeal and value of the finished development.

28th January 2016
Signed:

[redacted]

John C. M. Cromar, Dip.Arb.(RFS) F.Arbor A. [redacted]

APPENDICES

08
Tree Data

Tree number	Tree type	Height	Stem diameters	Radius of RPA if circle (mm)	RPA (m^2)	Comments	Life expectancy (years)	Assessed BS5837 value category
1	Japanese maple	3.5	70,60, 60,60, 60,40	1714	9	Shrub : multi-stemmed	20+	C1
2	*Betula pendula* 'Laciniata'	8	90	1080	4	Probably planted less than 10 years.	40+	C1
3	lime	12	350	4200	55	Substantial tree outside site.	40+	B1
H4	Leyland cypress	6	<120	1440	7	Neglected hedge; some screening value between site and adjoining properties	40+	B2

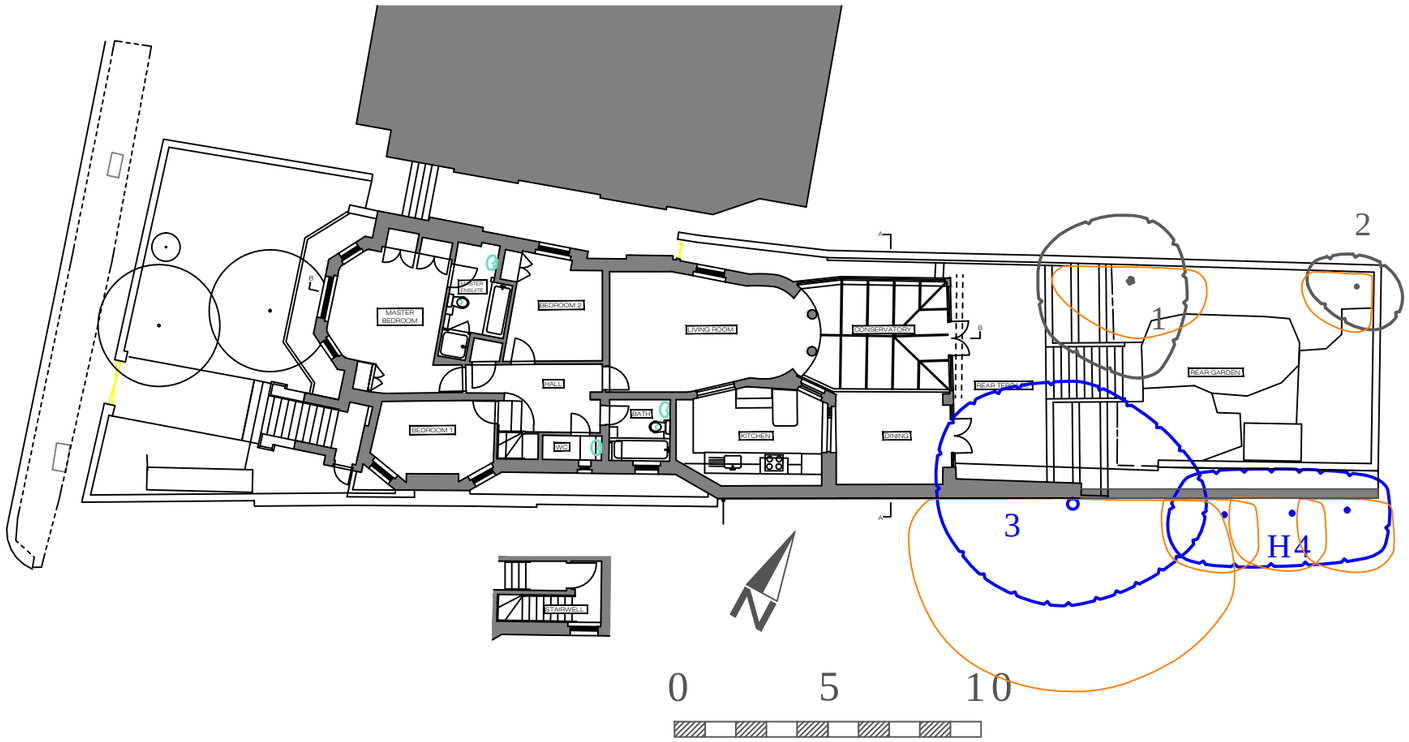
In all cases, in the absence of negative comment on vitality, normal physiological condition should be considered to apply.

09
Plans

1-38-3868/P1
1-38-3868/P2A

KEY TO PLAN SYMBOLS

GREEN - High Value
BLUE - Moderate Value
BLACK - Low Value
RED - Remove/Very short life expectancy
ORANGE SHAPES: Root Protection Areas



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TREE VALUE ASSESSMENT
as per BS5837:2012
&
Root Protection Areas

for full details of tree value see report reference 1-38-3868

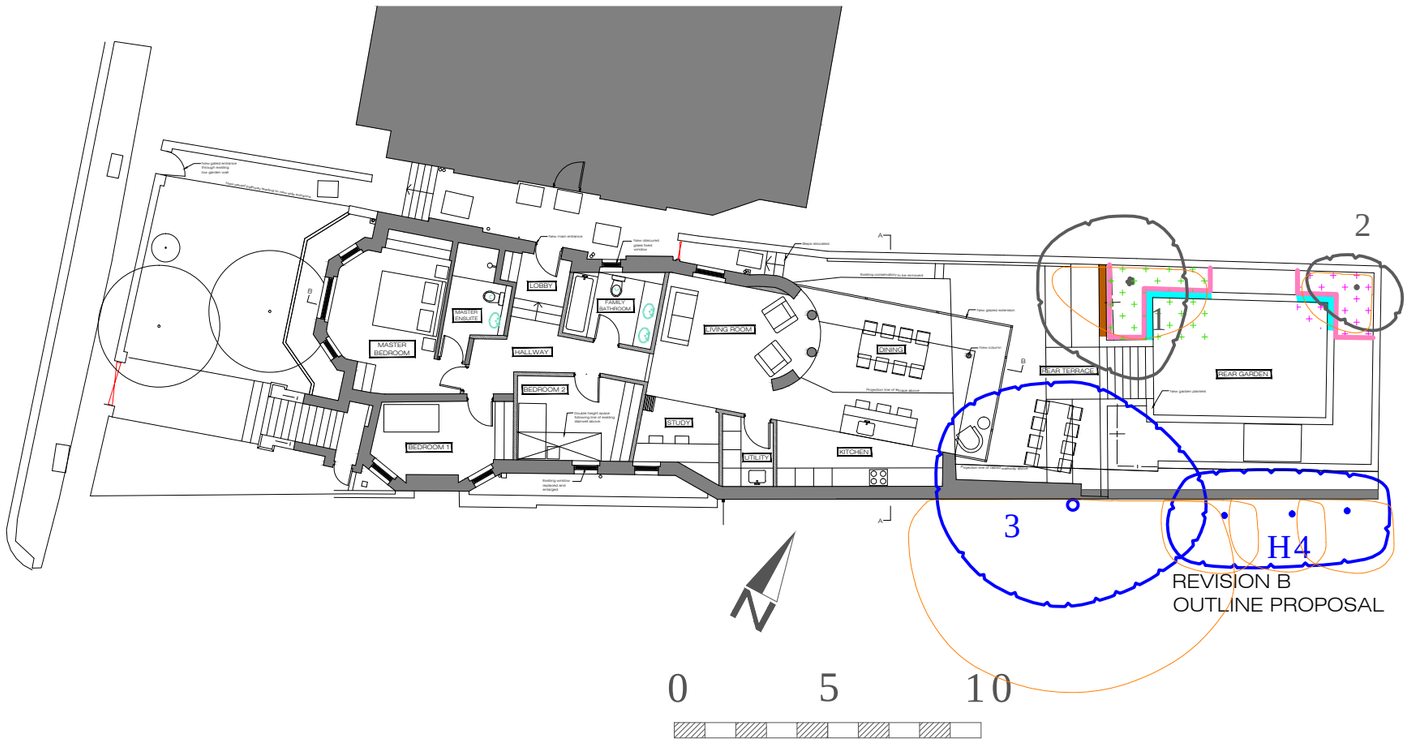
2A Belsize Lane, London, NW3 5AB

based on Xul Architecture drg. 1517-EX01 rev.00 supplied

ref: 1-38-3868/P1
rev. 26.10.15
1:200 scale @ A3

KEY TO PLAN SYMBOLS

PINK LINES: Tree Protection Fencing
ORANGE SHAPES: Root Protection Areas
CYAN FILL: method applies - see report ref. 1-38-3868
BROWN FILL: method applies - see report ref. 1-38-3868
MAGENTA CROSSES: method applies - see report ref. 1-38-3868
GREEN CROSSES: method applies - see report ref. 1-38-3868



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TREE RETENTION and TREE PROTECTION MEASURES

for fuller details of protection measures see report reference 1-38-3868

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1:200 @ A3 scale