1-38-2810

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LIMITED

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R E P O R T

on the impact on trees

of proposals for development

at

6, Branch Hill, Hampstead, NW3 7LT.

(2nd May, 2012)

Registered Consultant of the Arboricultural Association
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Arboricultural Association
REGISTERED CONSULTANT

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01
Introduction and Instructions

I am instructed by RCKa Architects on behalf of Alice Aveline to make an assessment of tree amenity value and condition of trees, at 6 Branch Hill, Hampstead, NW3 7LT, and of the impact of a proposal for development, an extension, on such trees. Accordingly, I visited the property on 10th April, 2012 in order to carry out an inspection.

02
Copyright

02.01

03
Notes

03.01
PLANS

1-38-2810/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. Assessment of value in the TREE DETAILS table appended is, in accordance with British Standard 5837:2012 'Trees in relation to design, demolition and construction - Recommendations' 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. 'R' (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
1-38-2810/P2 is colour-coded to indicate where arboricentric methods are proposed during the construction processes. 1-38-2810/P3 shows proposed replacement tree location.

04
Sources and Documents

Ground level inspection.
Supplied plans refs:

- **1-51-3820 Feasibility Report**
- **1-51-3821 DWGs**
- **1-51-3822 plans in pdf**
  - **GAs existing**
  - **GAs proposed**
  - **Schedule of works**
- **1-51-3866 site investigation – existing plans and elevations**

05
Appraisal

05.01
AMENITY / SCREENING BY TREES AND SHRUBS
Certain trees are of some modest general public amenity value, as they are visible from Branch Hill. However, the trees are all of rather small size. Others are of moderate local amenity value to owners / users of the site, and to those of adjoining properties.

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. It should be noted that the premise behind the calculations that have been used to generate this figure is based partly on an assumption that conventional footings and site practices will be used. New materials and methods have been 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). 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.)

05.04

FOOTING DESIGN

Some encroachment on the RPA of retained trees 4 and 5 is entailed. A trial pit, adjacent to the proposed location of the contiguous pile wall, has proved that the dwarf concrete retaining wall does not extend appreciably below existing local ground level : the existing decking is almost at the same level as the base of the wall. The trial pit also showed that a number of roots have grown under the wall, as one would expect, and these are in the range 10mm – 15mm diameter with one root of 35mm diameter noted. Projected root loss is as analysed in the table below :

No.	Tree	RPA in sq.m.	Area sq.m affected	Percentage affected	Notes
4	lime	30.58	5.27	17.23	Contiguous pile wall
5	lime	30.58	8.99	29.40	
6	holly	6.51	0.20	3.07	

To put the above in arboricultural context, trials made by the Morton Arboretum found that up to 30% of the root system of mature trees could be cut without any difference in shoot elongation or vitality resulting.

05.05

The following should also be noted. The trees 2, 3, 4, & 5 are effectively a pleached hedge : the trees' trunks have been reduced to about 3m in height. Pollarding imposes an imperative to re-pollard periodically and indefinitely, for reasons of the safety of the crowns of the trees. The trees have been low-pollarded likely for a considerable period of time. Following the findings of arboricultural researcher Mattheck, (*Mattheck and Breloer*, 1994) the pollarding history will have reduced the static root plate (SRP) requirement – the area of anchorage roots around the trunk required to physically support a tree - drastically, from a need for an undisturbed radius if the trees had not been pollarded, of about 1.8m, to a fraction of this. Given that the trunks of the trees are about a quarter of the natural height of a typical lime tree of 260mm trunk diameter, it can reasonably be concluded that in this case the required SRP is probably less than a metre. In this case the proposed residual rooting zone is about 0.5m.

05.06

The trees are also part of a line of four lime trees, and root grafts between the trees will likely have formed (as is common) and will have resulted in, literally, a network of support for all the lime trees in the line. This means that trees 4 and 5 have the benefit of the support of a larger root system than their individual predictive RPAs indicate.

05.07

In view of all the above, I conclude that the proposals probably preserve sufficient rooting zone for the trees to continue to function normally, and that the overall impact on the trees is likely to be insignificant. Additional screening could be provided via planting within the planting area formed by the proposed contiguous piles. A proposed trellis supporting climbing plants atop the existing or refurbished fence, will provide screening to a similar height to that of the

existing trees. In this case all trees to be retained can be adequately protected by exclusion fencing and other measures as indicated below (section 06.02).

05.08
PERCEPTION OF TREES
The retained trees are in a precisely similar relationship to the existing structure, and the proposed extension is below proposed local ground level. In view of the above I conclude that shading by trees has been considered (as section 5.6.2.6 of BS 5837:2012 recommends) and appears not significant.

05.09
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. As noted above, pollarding of the lime trees 2, 3, 4 and 5 will be necessary indefinitely whether development takes place or not.

05.10
SUPERSTRUCTURE AND TREE APPRAISAL - TREE PRUNING
I note from the elevation drawings supplied that no conflict with the crown of retained trees will occur.

05.11
TREE PLANTING
Appropriate replacement tree planting will play some role in providing for future public local amenity. The British Geological Survey information for the area indicates that the underlying sub-soils is the Bagshot sand formation. This places no significant constraint on species selection for tree and other planting. At location A on plan (within planter 2.75m^3), a white mulberry, *Morus alba* 'Platanifolia' is proposed, 14-16cm girth, 85L pot size. This small, architectural tree has a rounded habit and is suited to an urban location.

05.12
SUPERVISION
Supervision by an arboriculturist is a desirable (but not always essential) element of site development 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.

05.10
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."

05.11
The above advice appears to have been considered in formulating proposals for development.

05.13
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 of significant public amenity value and longevity 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 1-6

PLEASE READ WITH PLAN REFERENCE 1-38-2810/P2, APPENDED.

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 remedial tree work including any minor accommodatory tree work required for erection of scaffolding near trees is carried out to**

specification and sign off. Ensure protective fencing is erected and completed as proposed.

2) Approve timing of removal of protective fencing (post main phase) and sign off.

Method 2 : 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). The standard rubber supports ('elephant's feet') shall not be used. 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 1.5m above ground level.

Method 3 : Tree work shall be in accordance with good arboricultural practice, to BS 3998:2010 'Tree Work - Recommendations'. Branches shall be pruned to clear 5m above ground level. Dead wood shall be removed where overhanging the site.

Method 4 : CONTIGUOUS PILE WALL
This method shall apply in zone solid blue on plan. The upper 3m of piles shall be sleeved within root protection areas.

POST-CONSTRUCTION PHASE
PLEASE READ WITH PLAN REFERENCE 1-38-2810/P3, APPENDED

Method 5 : PLANTER FOR TREE
This method shall apply after completion of main build only. Soil handling of any kind within the planter shall take place only after a minimum of 3 days after heavy rain, and shall where possible be carried out 7 days or more after such rainfall. Screened topsoil (to BS3882:2007- multi-purpose topsoil) shall be laid to a maximum depth of 100mm as required. A tree shall be supplied as follows : location A on plan = *Morus alba* 'Platanifolia' - 14-16cm girth, 85L pot size. The tree shall be supplied exactly as specified, shall be short-staked, tied with proprietary tree tie, and mulched to 100mm depth and 0.75m radius from trunk.

Method 6 : 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 pouring of fuels, oils, solvents, tar shall be made on any part of the site.

C) **No spillage or discharge of wet mortar or concrete shall be made on any part of the site.**

D) **No storage of materials shall be made within the protective fences.**

E) **No breaching or moving of the protective fences without the approval of an arboriculturist.**

F) **Services, if planned to be laid in the root protection areas, (and which notionally appears unnecessary in this case) shall be laid using trenchless 'no dig' methods or by hand dug trenches to avoid cutting major roots.**

G) **Alterations in levels within the tree protection fence areas shall be avoided.**

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.

2nd May 2012
Signed:

John C. M. Cromar, **Dip.Arb.(RFS) F.Arbor A.** **01582 808020 / 07860 453072**

APPENDICES

08
Tree details

TREE ASSESSMENT AND ROOT PROTECTION ZONES

No.	Tree	Height range (m)	(M) Multi-stem?	Trunk / stem count dia. (mm)	Radius of RPA if circle	Root Protection Area (RPA) (m^2)	Comments	Life Expectancy	Assessed BS 5837 Value Cat.
1	2	3	4	5	6	7	8	9	10
1	hornbeam	6		200	2.40	18.10	estimated diameter: no access: pollarded	20+	C2
2	lime	5		260	3.12	30.58	estimated diameter: no access: pollarded	20+	C2
3	lime	5		260	3.12	30.58	estimated diameter: no access: pollarded	20+	C2
4	lime	5		260	3.12	30.58	estimated diameter: no access: pollarded. Prune to clear 5m above site.	20+	C2
5	lime	5		260	3.12	30.58	estimated diameter: no access: pollarded. Prune to clear 5m above site.	20+	C2
6	holly	5		120	1.44	6.51	estimated diameter: no access: pollarded	40+	C2
7	sycamore	8		340	4.08	52.30	decayed trunk NOT RETAINED	<10	U
8	apple	5		100	1.20	4.52	Cankered NOT RETAINED	10+	C2
9	sumach	6	M	150	1.50	7.07	2 stems NOT RETAINED	10+	C2

09
Schedule

Trees at 6 Branch Hill, Hampstead, NW3 7LT.

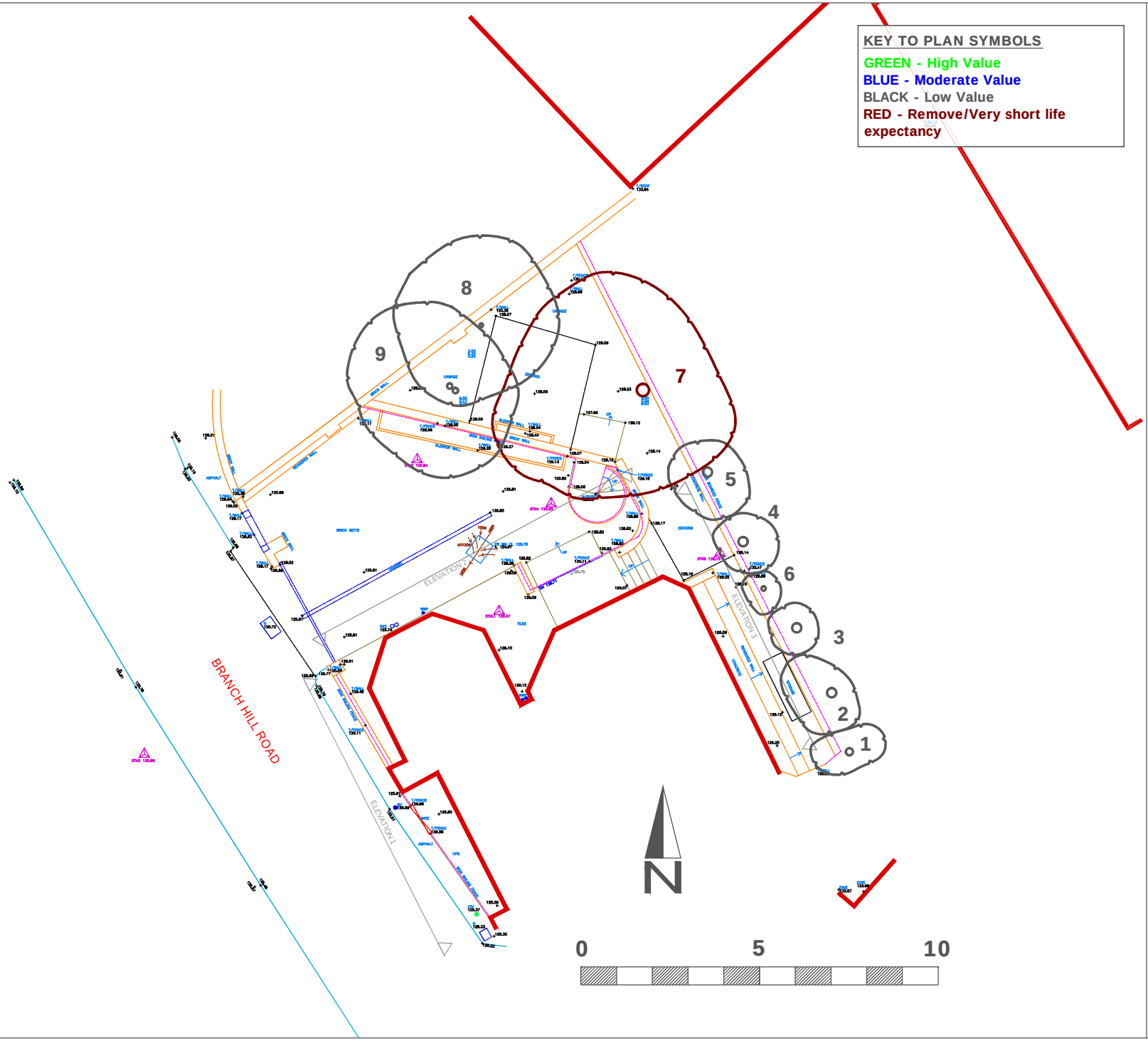
Please read in conjunction with plan 1-38-2810/P2. Trees outside the curtilage of the property may be included. Boundaries where marked should always be treated as notional, and no statement either implied or explicit as to the ownership of trees should be taken as definitive or precise. As applicable, the consent to, or acquiescence to, and communication of the timing of the recommended remedial works, as far as the relevant owner is concerned, should be checked before any such trees are actually treated.

No.	Tree	Height range (m)	(M) Multi-stem?	Trunk / stem count dia. (mm)	Comments
4	lime	5		260	Prune to clear 5m above site.
5	lime	5		260	
7	sycamore	8		340	Remove including stumps
8	apple	5		100	
9	sumach	6	M	150	

NOTES:
All tree work should be carried out to BS 3998 : 2010 'Tree Work - Recommendations'. The Wildlife and Countryside Act 1981 protects with certain exceptions all birds and their nests. It is an offence to destroy such nests or take or injure such birds in the course of tree works operations. If a tree is a bat-roost, a licence to work on the tree must first be obtained from the relevant Statutory Nature Conservation Organization (in England : Natural England 0845 601 4523.) Acting without a licence is likely to be justifiable only in acute emergencies threatening human life and where all other legally available option such as footpath diversion, fencing and warning signs cannot be applied.

10
Plans

1-38-2810/P1
1-38-2810/P2
1-38-2810/P3



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TREE VALUE ASSESSMENT
as per BS5837:2005

for full details of tree value see report reference TC/1-38-2810

6, Branch Hill, Hampstead, NW3 7LT

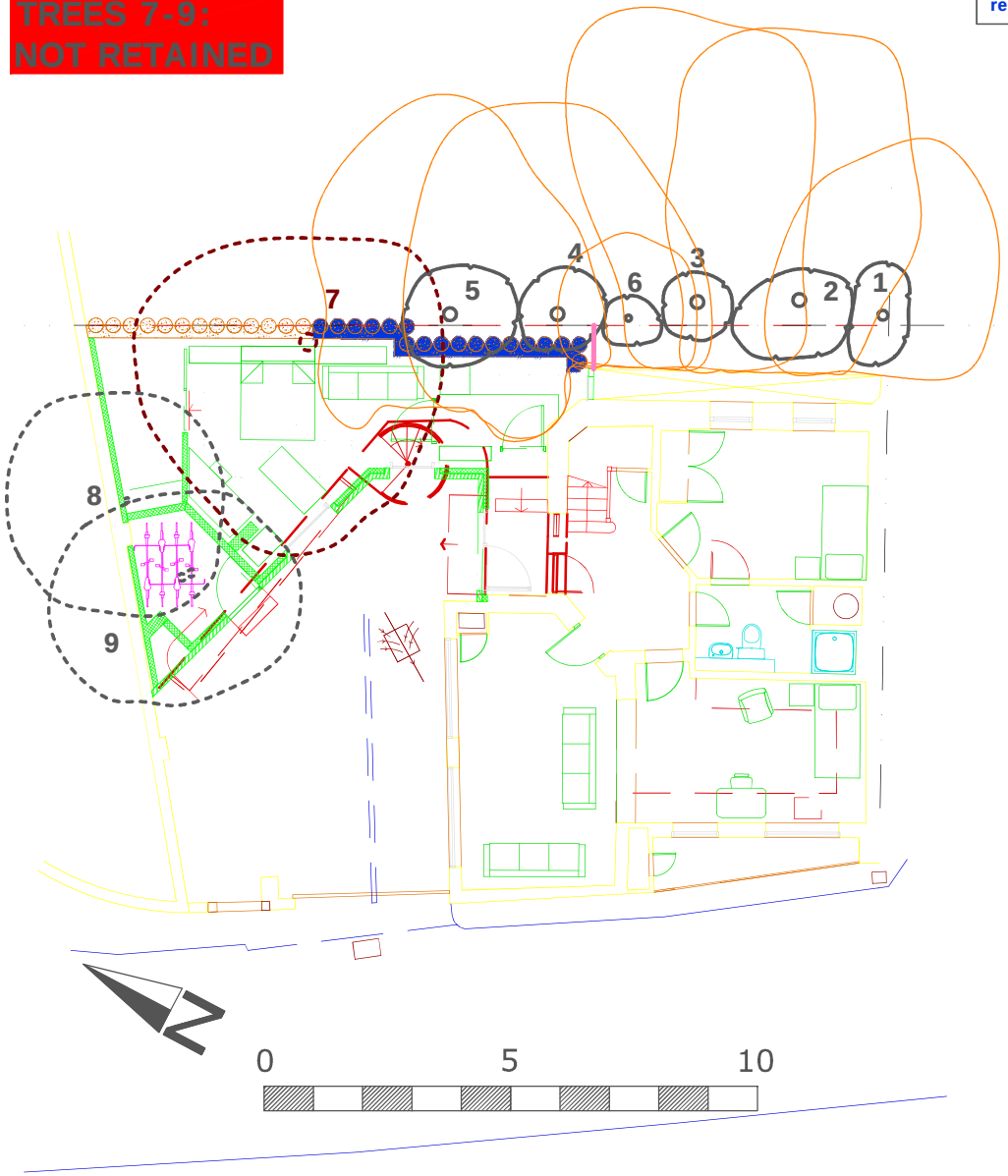
based on XYZ Land Surveys 2011223 6 BRANCH HILL SITE SURVEY_all supplied

ref: 1-38-2810/P1
1:100 scale @ A3
May 2012

KEY TO PLAN SYMBOLS

PINK LINES: Tree Protection Fencing
ORANGE AREAS: Root Protection Areas
DARK BLUE FILL: sheet piling method - see report ref. TC/1-38-2810

TREES 7-9: NOT RETAINED



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TREE RETENTION and TREE PROTECTION MEASURES

for fuller details of protection measures see report reference TC/1-38-2810

6, Branch Hill, Hampstead, NW3 7LT

based on RCKa drg. 1133-15-201_N_Ground ALT supplied

ref : 1-38-2810/P2
1:100 @ A3 scale
May 2012

KEY TO PLAN SYMBOLS

PURPLE CIRCLE: Proposed planter tree - see report ref. TC/1-38-2810

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TREE PLANTING PROPOSALS (Planter)

for fuller details of protection measures see report reference TC/1-38-2810

6, Branch Hill, Hampstead, NW3 7LT

based on RCKa drg. 1133-15-201_N_First ALT supplied

ref : 1-38-2810/P3
1:100 @ A3 scale
May 2012