S87-J4-AMSCI-1

REPORT

inviting discharge of pre-commencement conditions relating to trees

at 42 Elsworthy Road, London, NW3 3DL

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Site visit, 10th August, with main contractor; setting out of tree protection. Tree 14, English yew

John Cromar, Dip. Arb. (RFS), F.Arbor A.

Arboricultural ASSOCIATION
Fellow Member

Company Registration No. 5195523. Registered in England and Wales. Registered Office: The Old School, Titley, HR5 3RN

Contents

1 Instructions

I am instructed by Wolff Architects on behalf of client Bella Mongia to prepare a document to invite discharge of the planning condition attached to a grant of consent ref: 2019/0149/P in respect of the above property.

10 Prior to the commencement of works on site, tree protection measures shall be installed and working practices adopted in accordance with the arboricultural report by John Cromar's Arboricultural Consultancy Limited ref. 1-38-4325/3 dated 19th August 2019. All trees on the site, or parts of trees growing from adjoining sites, unless shown on the permitted drawings as being removed, shall be retained and protected from damage in accordance with BS5837:2012 and with the approved protection details. The works shall be undertaken under the supervision of the project arboriculturalist.

Reason: To ensure that the development will not have an adverse effect on existing trees and in order to maintain the character and amenity of the area in accordance with the requirements of policies A2 and A3 of the Camden Local Plan.

2 Executive summary

After consultation with the appointed main contractor, Kutz Ltd., it is submitted that all retained trees will be easily protected from harm during the project via implementation of the tree-friendly methods proposed and adopted below.

3 Introduction

3.1 British Standard 5837:2012 'Trees in relation to design, demolition and construction - Recommendations'

BS 5837:2012 (the Standard, below) is the fourth version in a series, the first being in 1980. This Standard provides a framework for the valuation, in ornamental terms, of trees, and, *inter alia*, gives recommendations for their protection on building sites.

3.2 How the arboriculturist prepares tree protection methods

In practice, as advances in materials and techniques are rapid, the arboriculturist does not necessarily specify a precise commercial product, but defines the essential components of methods of demolition and construction which often make use of specialized materials. These may be termed 'tree-friendly' methods, meaning that they have as their focus the well-being of the tree. These appear on the tree protection plan appended 'Tree Retention and Tree Protection Measures', and within the text below.

3.3 Root protection area

This is abbreviated to RPA below. The RPA is a zone around the trunk of the tree, in which protective measures must be used in order to prevent significant damage to trees.

3.4 Use of appended plans

Plan reference no. S87-J4-P2, shows the spread of the crowns (the upper, leaf-bearing part of trees), and is intended to indicate the relationship of any neighbouring trees to each other. This plan gives a quick reference assessment of value as per section 4, table 1, page 9 of the Standard, and is the 'tree protection plan' referred to in the Standard (section 3.11). It is colour-coded to indicate where tree-friendly methods are proposed during the overall construction process, which may involve demolition, main construction and landscaping phases.

4 Observations

4.1 Site visit and background

I visited the property on 10th August 2022 in order to carry out inspections. Weather conditions were good; they permitted adequate inspection. I met Masoud Farahani, Director of Kutz Limited, Unit 3, Second Floor, Hawthorn Business Centre, 165 Granville Road, London, NW2 2AZ. Prior to my attendance on site, I was informed by London Borough of Camden of removal of a tree, this being not in harmony with consent 2019/0149/P. This document is intended to regularize the position and to form part of amelioration for this unfortunate occurrence. For the avoidance of doubt the removal of trees was reportedly carried out by Belderbos Landscapes on instruction by Wolff Architects and involved a mistake of supply of the wrong tree removal plan. It was nothing to do with Kurtz Ltd who were engaged after the operation during which certain trees were removed. Please see section 9.4 below for tree detail updates. For comparison, the schedule of trees as they were found in 2019 is included and 4.3.

4.2 Measurements on site

Tree heights estimated by scaling pole. Tree diameters measured as per the Standard, Annex C. Tree spreads on the plans attached are approximately to scale, determined on site, typically by laser rangefinder, direct measurement, pacing, sighting in relation to site features and architect-supplied plan data.

4.3 Tree data table

Tree data taken from report dated 19th August 2019, which was in support of the application granted as consent 2019/0149/P.

Tree number	Tree type	Approx. height (m)	Stem diameters	Radius of RPA if circle (mm)	RPA (m^2)	Comments	Life expectancy (years)	Assessed BS5837 value category
1	English yew	9	570	6840	147.0	Ivy infested. Branches pruned back on N side	40+	B1
2	*Gleditsia triacanthos*	10	245	2940	27.2	Reduced circa 2013 to about 7m in height. Some public view	40+	B1

Tree number	Tree type	Approx. height (m)	Stem diameters	Radius of RPA if circle (mm)	RPA (m^2)	Comments	Life expectancy (years)	Assessed BS5837 value category
3	common lime	10	403	4836	73.5	Outside site; tree under local authority control. Some screening value	40+	B1
4	London plane	19	1370	15000	706.9	Large tree noted to have been cut back on the building side.	40+	A2
5	false acacia	11–15	1000	12000	452.4	Badly decayed base. Repeatedly reduced and well below natural crown size. **Likely dangerous.** Remove; replace with suitable tree (see 05.07)	<10	U
6	snakebark maple	8	190	2280	16.3	Attractive locally; some screening function.	20+	C1
7	red beech (*Nothofagus fusca*)	6	140	1680	8.9	Small and unimportant	20+	C1
8	Himalayan birch	11	200	2400	18.1	One of group of three; locally attractive.	20+	B2
9	Himalayan birch	11	220	2640	21.9	One of group of three; locally attractive.	20+	B2
10	Himalayan birch	11	252	3024	28.7	One of group of three; locally attractive.	20+	B2
11	*Magnolia* spp.	5.5	200, 170	3149	31.2	Locally ornamental; shrub form	20+	C1
12	winter flowering cherry	4	90	1080	3.7	Strong lean	10+	C1
13	Scots pine	2.5	55	660	1.4	Tiny distorted tree	10+	C1
14	English yew	3	120	1440	6.5	Clipped as shrub	40+	C1
15	sycamore	12	300	3600	40.7	Outside site heavily reduced; a little screening value	10+	C1

Tree number	Tree type	Approx. height (m)	Stem diameters	Radius of RPA if circle (mm)	RPA (m^2)	Comments	Life expectancy (years)	Assessed BS5837 value category
16	sycamore	10	435	5220	85.6	Outside site; tree under local authority control. Rather heavily reduced; a little screening value	20+	C1
17	variegated holly	2	25	300	0.3	Very close to front boundary wall and unsuitably sited for growth to maturity. Tiny survivor of understorey of false acacia removed by reason of consent 2017/2568/T.	40+	C1

4.4 Photo

Site visit, 10th August, setting out of tree protection. Tree 4, London plane

5 Root protection area comments

5.1 RPAs – modifications to shape

I carried out an assessment as per the Standard (section 4.6.2) in connection with the plotting of the RPAs of all trees. This section requires that site conditions such as location of various structures, the internal support mechanisms of various trees, etc., are taken into account in determining the likely position of roots. Where applicable, the modified-shape RPA, of equivalent area, has been plotted on the plans appended (shown as shapes bounded by an orange line).

The RPAs of various trees have been shown modified in plan, to take into account site features such as the built form of the house, garden walls, other trees, etc. The shapes of the root systems of trees have probably not been affected by the subsoil type. None of the above has any particular negative significance in connection with ease of proposed tree protection.

6 Conclusion

6.1 Summary

I conclude that the construction, subject to implementation of the arboricultural method statement's contents, will, overall have a negligible effect on the public amenity currently provided by the trees retained on site.

7 Sources and relevant documents used

- Ground-level inspection
- Supplied plan:
    - Marek Wojciechowski Architects drg. ref.: 16092 P_01 rev. B Proposed Ground Floor Plan
    - Wolff Architects drg. ref.: 2164 TD 202 0

8 Copyright

9 Arboricultural method statement (AMS)

This document submitted in invitation of discharge of Pre-commencement condition 10 of 2019/0149/P

9.1 Overview

The methods required involve not only physical arrangements on site but effective administration prior to implementation. Trees that have been the recipients of careful handling during construction add considerably to the appeal and value of the finished development. If conflicts between any part of a tree and the building(s) arise in the course of building works these can often be resolved quickly and at little cost if an arboriculturist is consulted promptly. Lack of such care is often apparent quickly and decline and death of such trees can wreck design aims. It can of course also affect saleability, and reflects poorly on the construction and design personnel involved.

I propose that arboricultural administration takes place as outlined below.

9.2 Administration

A. Identification of key personnel in order of responsibility for tree protection on site

Role	*Name*	*Company*	*E-mail*	*Mobile*	*Landline*
site manager	Yiannis Babos		Yiannis.babos@kutzlimited.com	078058 17742	
main contractor		Kutz Ltd.	Info@kutzlimited.com		0208 905 5637
project manager	Masoud Farahani			079732 56462	
architect	Nick Pritchett	Wolff Architects	npritchett@wolffarchitects.co.uk		01844 203310
arboriculturist	John Cromar	JCAC Ltd.	johncromar@treescan.co.uk	07860 453072	01582 808020

B. Induction and personnel awareness of arboricultural matters

Prior to commencement a meeting will be held on site between the arboriculturist and the site manager (who will be required to sign the awareness document) and during which meeting all the tree protection methods, materials, order and integration with the build programme will be considered. This document, confirming awareness on the part of personnel of the various items, will be retained for the LPA.

C. Inspection of and supervision schedule for tree protection measures, frequency and methods of site visiting and record keeping

At site possession, the tree protection measures applicable to the works, as detailed in this report will be inspected by the arboriculturist and signed off if compliant. An initial inspection will take place; a monthly inspection will take place routinely; unannounced site inspection may also be carried out. Additionally, the arboriculturist shall attend site as required by architect, or site agent, or the LPA. *All reports on site visits will be copied to the LPA within 5 days of site visit.* These reports will be compiled

and an end of project summary produced, together with any recommendations for future action.

D. Procedures for dealing with variations and incidents

As C above. Additionally, the architect shall inform the arboriculturist of any design variations or variation intention of tree protection; also, the site manager shall inform the arboriculturist if he intends to vary or deviate from the agreed tree protection methods or timing. Action in response to incidents will be commensurate with and appropriate to the nature of any such incident.

E. The order of work on the site, including demolition, clearance and building

As per tree protection methods below

F. How problems will be reported and solved

Any breaches of tree protection measures shall constitute a Tree-Related Incident ('TRI'), a report on which will be copied to architect, client and LPA. A remedial action notice will be served by the arboriculturist, copied to all parties and timescales for remediation completion monitored. *All reports on site visits will be copied to the LPA within 5 days of site visit.* Action in response to incidents will be commensurate with and appropriate to the nature of any such incident. Any breach of the stipulated timescale for remediation will trigger a further TRI report.

G. How accidents and emergencies involving trees will be dealt with

Dependent on nature of incident; as above; an e-mail with photographic inclusion will be sent by the site agent. The arboriculturist or staff will attend site to appraise the situation and determine remedial action. A TRI report will be issued, as above.

9.3 Implementation on site

It is proposed that the methods specified below are followed in their entirety. Please note that the methods are referenced by various colours, lines and hatches on the tree protection plans appended. The scale of the plans is dependent on the paper size on which any hardcopy is produced.

It is highly important to tree health and vitality that construction activities are carried out strictly in accordance with the tree-friendly construction methods below. It is widely not understood outside the arboricultural profession, for example, that a single traverse of a root protection area by a mechanical excavator can cause significant and permanent damage to trees, even if this is not visible immediately afterward.

N.b. The methods below are intended to be read not only by the instructing client, but also by all others concerned with processing and determining of the application. Following planning approval, the methods are finally intended for full implementation on site by the main contractor or in some cases by a DIY builder. A degree of familiarity with the language of basic building techniques is assumed. I will of course explain any unfamiliar term – see contact details on cover page, and at the end of the report.

9.4 Tree-friendly construction methods and awareness document

(To be read and duly completed.) I the undersigned main contractor Kutz Limited have been given a copy of the tree protection measures reproduced below and the plan S87-J4-P2 v1 with which they are to be read. I discussed these tree protection measures on site 10th August 2022, with the arboriculturist John Cromar of John Cromar's Arboricultural Co Ltd., and subsequently. I have asked questions if I have been unsure about the practicability or safety of any measure. Any queries arising have been resolved. I see no reason why the tree protection should not be implemented as outlined below and undertake to take all reasonable steps within my remit to promote their installation and retention for the duration required, as outlined below. Section 9.4 including all the methods below will be printed out; the plans to full scale, and will be kept readily to hand on site.

There are 19no. methods in this set, to be implemented in the order given unless stated otherwise.

PREPARATION / DEMOLITION

Please read with tree protection plan reference S87-J4-P2, appended.

Method 1: ***COMMENTS ON CERTAIN ITEMS- SCHEDULE OF WORK***
Tree work shall be in accordance with the schedule below, and to BS 3998:2010 'Tree Work - Recommendations', and in accord with spread line marked on plan. (**Bolded** text: proposed works. *Italics*: works carried out.)

Tree number	Tree type	Approx. height (m)	Stem diameters (mm)	Comments
1	English yew	9	570	**Prune to make clearance above ground level of 3m immediately north of trunk only. This involves pruning only branches less than 40mm diameter.**
2	*Gleditsia triacanthos*	10	245	*(Removed)*
5	false acacia	11–15	1000	RETAINED: During site visit 10.08.2022, this item was found to have had ivy removed extensively from the stem and base and although the base of what must be viewed as the original tree is decayed, there are two vigorous basal shoots from which now arise almost all of the current crown. With the benefit of this inspection the writer concludes that this tree can be retained. This tree contributes positively to the streetscene. It is suggested that this tree be retained in landscaping scheme to follow. **Crown clean.**

Tree number	Tree type	Approx. height (m)	Stem diameters (mm)	Comments
10	Himalayan birch	11	252	*(Removed)*
11	common walnut	5.5	200, 170	*(Removed)*
12	winter flowering cherry	4	90	*(Removed)*
13	Scots pine	2.5	55	*(Removed)*
14	English yew	3	120	RETAINED: this item is somewhat larger in spread than as shown in 2019 and contributes positively to the street scene. It is suggested that this tree will be retained in landscaping scheme to follow.
17	variegated holly	2	25	*(Removed)*

NOTES:

- In Conservation Areas, in accordance with TCP Act 1990 Section 211, a formal notification to the LPA is required of intention to prune or remove any trees, the removal of which is not strictly required for the construction proposed to take place. 42 days after formal notification should be allowed before proceeding with the notified work, during which time (and after) the LPA may place a Tree Preservation Order (TPO) on the tree, thus requiring a formal application for any works to living wood.
- If a tree is the subject of a TPO a formal application must be made to the LPA for consent for any work to the living wood of trees, if that work is not strictly required for the construction proposed to take place.
- 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.
- 'Crown cleaning' – an umbrella term now covered by several separate sections in BS3998:2010 – should be understood to mean: removal of foreign objects (section 7.13); removal of ivy to the extent needed to facilitate inspection (section 7.12),

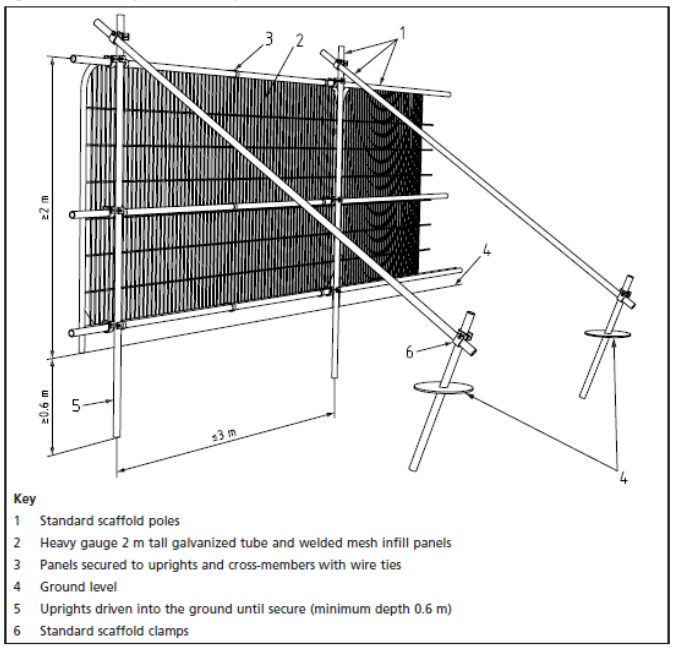
typically trimming back (e.g. with a hedge cutter or secateurs) to near the line of the trunk or branches; and/or removing selected stems so that the structure of the tree can be seen sufficiently. Dead wood can be an important ecological feature. Treatment of dead wood under 'crown cleaning' shall mean (section 7.3.2) shorten and retain if safe to do so, thus retaining some resource for invertebrates, etc.

Arisings shall be chipped and removed from site, or stockpiled outside RPAs for possible later use as mulch at landscape phase. No vehicles shall stand or operate in any of the RPAs of retained trees. Any traversing of RPAs shall be preceded by laying of temporary trackway, such as TuffTrak® Euromat ground guards or similar appropriate temporary trackway sections. The temporary trackways shall be fixed together with manufacturers' approved fixings. This protective layer shall stay in place throughout arboricultural site preparation phase.

Method 2: *TREE PROTECTION FENCING*

This method shall apply where indicated by pink lines. Tree protection fencing shall be erected, in accordance with the heavy-duty specification - BS5837:2012 section 6.2.2., Figure 2.

Figure 2 **Default specification for protective barrier**



Key
1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6 m)
6 Standard scaffold clamps

No ground levels reduction or excavation shall take place within (=the tree side of) the fence lines.

No fires shall be made on any part of the site, or within 20m of any tree to be retained. No storage of any materials whatever shall be made within the protective fences.

The fencing shall include, as indicated on plan, the protection of an area where planting (to be agreed) is proposed.

Method 3: *TEMPORARY ACCESS – INTENSIVE SITE*

This method shall apply in zone gridded green on plan. No reduction of levels shall take place. No wheeled or tracked machinery shall be used, except if standing on completed formation as outlined below. An HDPE impermeable membrane shall be laid over the surface; 100mm depth sharp sand shall be laid over membrane; edge restraint shall be of timber formwork around the entire perimeter of the zone; such edge restraint shall stand 50mm above finished concrete-pour level to prevent concrete leaching into the soil; concrete shall be poured to a depth of 100mm over sharp sand layer. On completion of construction phase or when all need for vehicular access to the zone has ceased, slab / sand / membrane shall be removed using only hand-held tools or hand-held power tools.

Method 4: *GROUND SURFACE HANDLING and PROTECTION*

This method shall apply in the zone hatched blue on plan. NO levels reduction shall take place. This includes no 'scraping up' with a mechanical excavator or otherwise. Any existing hard surfacing, any existing surface debris, light vegetation, etc., that lies within the zone shall be removed using hand tools only. A 2D geotextile membrane, such as 'Ekotex' shall be laid;

100mm of green-source woodchip; continuously abutted scaffold boards or manufactured boards so as to completely cover this area. This area shall be used for pedestrian access only.

OR

To handle loads imposed by pedestrian-operated plant up to 1 tonne gross weight, a 2D geotextile membrane, such as 'Ekotex' shall be laid, and in sequence; 100mm of green-source woodchip; continuously abutted scaffold boards and a layer of manufactured board at least 25mm thick screwed to the underlying scaffold boards.

Materials storage in this zone shall be restricted to dry timber, plastic goods. No liquids or powders shall be stored in this zone.

Method 5: *HEAVY DUTY GROUND SURFACE HANDLING and PROTECTION*
This method shall apply in the zone cross-hatched blue on plan. NO levels reduction shall take place. This includes no 'scraping up' with a mechanical excavator or otherwise. To handle loads exceeding 2 tonnes the ground surface shall be covered (in sequence) by a 2D geotextile membrane, such as 'Ekotex'; 100mm of green-source woodchip; TuffTrak® Euromat ground guards or similar appropriate temporary trackway sections. The temporary trackways shall be fixed together with manufacturers' approved fixings. On completion of build-phase the ground guards shall be lifted by hand or by plant standing outside the zone.

Materials storage in this zone shall be restricted to dry timber, plastic goods. Where liquids or powders are stored an impermeable bunded zone shall be formed and used above the ground guards build-up as specified above.

Any scaffold erection shall take its bearing directly off the ground surface via spreader plates/scaffold boards.

Method 6: *WELFARE FACILITIES*
This method shall apply in the red cross zones. Timber baulks such as railway sleepers shall be laid to support temporary modular structures. This operation shall be carried out under the supervision of an arboriculturist. Any craneage shall be from outside RPAs, or the Method 6 zone, or construction shall be carried out by foot operatives. No below-ground service connections shall be made, e.g. to toilets: all such piping / ducting / cables shall lie above ground. Rainwater collected from the roofs shall be piped back to the exclusion zone to the south and west.

Method 7: *DEMOLITION*
This method shall apply generally. Demolition, which shall be by 'top down, sides in' method, shall be carried out with hand tools or hand-held power tools only. Arisings shall be removed for disposal off site. None shall be spread in root protection areas (orange shapes/circles).

CONSTRUCTION

Method 8: *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 shapes/circles).

1) The trench shall be opened with an air-spade to required depth. 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. Services shall be worked under/over/around/between roots so as not to cut or damage any larger than 20mm diameter.
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. Services shall be worked under/over/around/between roots so as not to cut or damage any larger than 20mm diameter.
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 9: *CONTIGUOUS PILE WALL – FACILITATION TRENCH*

This method shall apply in the zone of cyan fill on plan. An access trench shall be opened with hand tools only (in the position indicated on plan), to a depth of 600mm below ground level. Roots shall be trimmed to the side of the trench closest to the trees with a sharp edge tool or sharp hand saw. Chainsaws shall not be used. The roots shall be trimmed at right angles to the long axis of the root. No paint or other treatment shall be applied to the cut ends. An HDPE membrane shall be applied vertically to the exposed soil face closest to the tree, retained in position by vertically placed manufactured board extending the full depth and width of the vertical face of the trench. The boards shall be 22mm thickness and shall be retained in position during the piling operations by timber pegs or held with wing nuts on tie rods passed diagonally through the sheeting into the soil face.

Method 10: *ROOT PRUNING*

This method shall apply within the magenta honeycomb zones on plan. 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 / taping as required. Concrete casting shall take place without disturbing this protective layer.

Method 11: *REMEDIAL ROOT TREATMENT (implementation to follow immediately Methods 11 and 12)*

This method shall apply in the zone of green roundels. Holes in the ground shall be made on a 1m x 1m spacing with a 50mm auger to a depth of 600mm BGL. Screened topsoil (to BS3882:2015 topsoil) mixed with biochar (such as https://www.soilfixer.co.uk/biochar-article) - 5% of the topsoil volume (this equates to about 20 kgs of product per cubic metre of topsoil) shall be backfilled into the augered holes. Earthworm Inoculation Units shall be placed 150mm below ground level at 3m intervals.

LANDSCAPING PHASE

A full landscaping scheme is yet to be submitted and approved. The following shall apply to anticipated elements of that design to follow.

Method 12: ***EXISTING HARD SURFACES TO BE SUPERCEDED BY REPLACEMENT HARD SURFACING***
This method shall apply in zone of purple crosses on plan. NO levels reduction below the underside of the existing sub-base shall take place. No 'scraping up' with a mechanical excavator shall be carried out. The existing hard surface shall be lifted by hand tools or hand-held power tools only. The underlying sub-base shall be left undisturbed if levels allow and if the sub-base is competent to support the loads envisaged. Otherwise no excavation below the underside of the existing sub-base shall take place. Any such excavation in the existing sub-base shall be by hand tools or hand-held power tools only.

Method 13: ***FOOTPATHS (various finishes possible)***
This method shall apply in any RPA. No reduction of levels shall take place. No wheeled or tracked machinery shall be used: construction shall be by means of hand tools. NO reduction in existing ground levels shall take place – no 'scraping up' with or without a mechanical excavator. Edge restraint shall be formed from tanalised timber pinned to substrate with tanalised timber pegs or similar.

'NIDAGRAVEL' allows a gravel finish where a firm walkover experience is required

Levels can be corrected by use of granite chippings NO FINES. A 3D pocket geotextile system, such as the 'Nidagravel' tray system 40mm deep backfilled with 40mm+, clean stone or gravel – NO FINES can be laid directly over the level correction layer. This system provides a wheelchair-friendly finish.

OR

SLABS

A fine-mesh geogrid such as Tensar 'TriAx' shall be laid. The grid size shall be sufficiently small to retain the level correction/bedding layer stone to be laid: granite chippings, NO FINES. Paving shall be laid open-jointed and the joints rammed with granite chippings.

Method 14: ***AIR SOURCE HEAT-PUMP / CONDENSER UNIT / CYCLE SHED / BIN STORE***
Edge restraint shall be formed from timber baulks (e.g. modern railway sleepers) or lighter section tanalised timber pegged or pinned to substrate with 25mm dia. re-bar or similar. A geogrid such as Tensar 'TriAx' type, with a grid size sufficient to retain the size of aggregate shall be laid directly on the ground surface within the timber edges, then a sub-base 75mm deep of 20-40mm clean stone -NO FINES- (typically sold as 'track ballast'), then a further fine-mesh geogrid such as Tensar 'TriAx' shall be laid. The grid size shall be sufficiently small to retain the layer above, such as coarse shingle; or for a slab finish, granite chippings, no fines shall be laid to correct levels, then the slabs. The slabs shall not be bedded on mortar or lean mix. Any enclosure shall be of timber and uprights. Post holes 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. Roots 20mm or more in diameter unearthed shall be temporarily protected with bubble-wrap and insulating or gaffer tape while rest of hole is dug. It should be borne in mind that the presence of large numbers of roots >20mm in diameter may effectively prevent the completion of the post

hole, and typically shall require terminating the dig and moving the post hole to a different location. Timber superstructure may be placed directly on and affixed to the timber edging or may alternatively be attached to posts placed according to the method outlined. Services to and from any air source heat-pump shall be clipped to boundary walls and shall only pass below ground level outside RPAs.

Method 15: ***EXISTING HARD SURFACES TO BE SUPERCEDED BY REPLACEMENT HARD SURFACING***

No 'scraping up' with a mechanical excavator shall be carried out. Existing hard surface shall be lifted by hand tools or hand-held power tools only. The underlying sub-base shall be left undisturbed if levels allow and if the sub-base is competent to support the loads envisaged. Otherwise no excavation below the underside of existing sub-bases shall take place. Any such excavation in existing sub-bases shall be by hand tools or hand-held power tools only. The sub-base shall remain intact during demolition phase.

Method 16: ***TREE PLANTING AREAS***

This method shall apply after completion of main build only. Ground preparation for tree planting areas shall entail removal of hard surfacing using hand tools or hand-held power tools only, the removal of degraded or compacted or contaminated soil to a depth of at least 0.45m below finished surrounding ground level. The base and sides of the pit shall be forked over to at least one hand fork's spit in depth. Screened topsoil (to BS3882: 2015 topsoil) with biochar (such as https://www.soilfixer.co.uk/biochar-article) - 5% of the topsoil volume shall be used as planting medium. This equates to about 20 kgs of product per cubic metre of topsoil (to BS3882: 2015 topsoil) to a maximum depth of 0.45m within 1.3m of the trunk location of each tree to be planted. Soil handling of any kind 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. Tree planting shall be in accordance with British Standard 8545:2014 'Trees: from nursery to independence in the landscape - Recommendations'. This enshrines good arboricultural practice: the tree shall be planted so that the root collar lies at finished ground level, shall be short-staked and tied with proprietary tree tie. Any whips shall similarly be planted so that the root collar lies at finished ground level, and shall be protected with proprietary growing tube (staked). The ground surface shall be mulched within 0.75m of the trunk location to a depth of 100mm with composted organic material or proprietary mulch mat.

Method 17: ***LANDSCAPING PREPARATION IN ROOT PROTECTION AREAS***

This method shall apply after completion of main build only. Operations 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. Ground preparation within root protection areas shall entail use of hand tools only. The ground surface shall be thoroughly hand-forked over in vertical mode only to one spit's depth (250mm). Care shall be taken not to damage tree roots greater than 20mm diameter. Weed treatment if required shall be via BASIS qualified operatives. Surface debris shall be removed by hand to barrow and disposed of off-site. No wheeled or tracked plant shall be used: hand-held power tools may be used. (Outside root protection areas, mechanical cultivation shall be permitted.) The finishing soil horizon where additional planting medium is required shall be composed of biochar, see: https://www.soilfixer.co.uk/biochar-article mixed with topsoil (to BS3882:2015 topsoil) - 5% by volume (equating to 20 kgs of product per cubic metre of topsoil), which shall be laid by hand-barrow: no mechanical plant shall over-run the loose-tipped material. All handling of soils/soil-mix 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. The mix shall be laid to finish to required levels and allowed to settle via mist irrigation / watering-in / natural rainfall. The ground surface shall be worked to a fine tilth with hand tools prior to planting. No mechanical compaction whatever shall be used. Levelling and minimal consolidation shall be by hand tools / foot and board only, or naturally. Earthworm Inoculation Units, see: https://www.wormsdirectuk.co.uk/product/worm-colonies-lawn-areas/ shall be placed 150mm below ground level at 5m intervals in all soil build-up areas.

Method 18: *MAINTENANCE*
Maintenance shall consist of the regular moderate watering of any plant the subject of the planting proposal during the first season (April 15 to October 15) after planting and thereafter in the following four years if drought conditions occur. Mulch shall be kept topped up to a maximum depth of 100mm.

Method 19: *REPLACEMENT*
If within five years of issue of certificate of completion any plant the subject of the planting proposal dies or in the opinion of the LPA becomes seriously damaged or diseased, the same shall be replaced according to the above methods.

(All design subject to engineering approval, but used on other sites and known to be practicable and reliable).

Name [print]: Masoud Farahani

For construction company:

Date: 18/08/22

Signature.....M.farahani.....

End of section 9.4 document

End of main body of report – plans appended.

Dated: 18th August 2022

Signature (for John Cromar's Arboricultural Co. Ltd.)

John Cromar

Dip. Arb. (RFS), FArborA

John Cromar's
Arboricultural
Company Ltd.

admin@treescan.co.uk

01582 808020
07860453072

10 Plans

N.b. The scale of the plans is dependent on the paper size on which any hard copy is produced.

S87-J4-P2 v1

The methods below typically each have a unique colour code and hatch or other reference to the plan, for example, pink lines indicate where fences to protect trees should be positioned.

PREPARATION / DEMOLITION

Method 1: ***SCHEDULE OF TREE WORK***

Tree work shall be in accordance with the schedule within report S87-J4-AMSCI-1 and to BS 3998:2010 'Tree Work - Recommendations', and in accord with spread line(s) marked on plan.

Method 2: ***TREE PROTECTION FENCING***

This method shall apply where indicated by pink lines. Tree protection fencing shall be erected, in accordance with the heavy-duty specification - BS5837:2012 section 6.2.2., Figure 2.

No ground levels reduction or excavation shall take place within (=the tree side of) the fence lines.

No fires shall be made on any part of the site, or within 20m of any tree to be retained. No storage of any materials whatever shall be made within the protective fences.

The fencing shall include, as indicated on plan, the protection of an area where planting (to be agreed) is proposed.

Method 3: ***TEMPORARY ACCESS - INTENSIVE SITE***

This method shall apply in zone gridded green on plan. No reduction of levels shall take place. No wheeled or tracked machinery shall be used, except if standing on completed formation as outlined below. An HDPE impermeable membrane shall be laid over the surface; 100mm depth sharp sand shall be laid over membrane; edge restraint shall be of timber formwork around the entire perimeter of the zone; such edge restraint shall stand 50mm above finished concrete-pour level to prevent concrete leaching into the soil; concrete shall be poured to a depth of 100mm over sharp sand layer. On completion of construction phase or when all need for vehicular access to the zone has ceased, slab / sand / membrane shall be removed using only hand-held tools or hand-held power tools.

Method 4: ***GROUND SURFACE HANDLING and PROTECTION***

This method shall apply in the zone hatched blue on plan. NO levels reduction shall take place. This includes no 'scraping up' with a mechanical excavator or otherwise. Any existing hard surfacing, any existing surface debris, light vegetation, etc., that lies within the zone shall be removed using hand tools only. A 2D geotextile membrane, such as 'Ekotex' shall be laid; 100mm of green-source woodchip; continuously abutted scaffold boards or manufactured boards so as to completely cover this area. This area shall be used for pedestrian access only.

OR

To handle loads imposed by pedestrian-operated plant up to 1 tonne gross weight, a 2D geotextile membrane, such as 'Ekotex' shall be laid, and in sequence; 100mm of green-source woodchip; continuously abutted scaffold boards and a layer of manufactured board at least 25mm thick screwed to the underlying scaffold boards.

Materials storage in this zone shall be restricted to dry timber, plastic goods. No liquids or powders shall be stored in this zone.

Method 5: ***HEAVY DUTY GROUND SURFACE HANDLING and PROTECTION***

This method shall apply in the zone cross-hatched blue on plan. NO levels reduction shall take place. This includes no 'scraping up' with a mechanical excavator or otherwise. To handle loads exceeding 2 tonnes the ground surface shall be covered (in sequence) by a 2D geotextile membrane, such as 'Ekotex'; 100mm of green-source woodchip; TuffTrak® Euromat ground guards or similar appropriate temporary trackway sections. The temporary trackways shall be fixed together with manufacturers' approved fixings. On completion of build-phase the ground guards shall be lifted by hand or by plant standing outside the zone.

Materials storage in this zone shall be restricted to dry timber, plastic goods. Where liquids or powders are stored an impermeable bunded zone shall be formed and used above the ground guards build-up as specified above.

Any scaffold erection shall take its bearing directly off the ground surface via spreader plates/scaffold boards.

Method 6: ***WELFARE FACILITIES***

This method shall apply in the red cross zones. Timber baulks such as railway sleepers shall be laid to support temporary modular structures. This operation shall be carried out under the supervision of an arboriculturist. Any craneage shall be from outside RPAs, or the Method 6 zone, or construction shall be carried out by foot operatives. No below-ground service connections shall be made, e.g. to toilets: all such piping / ducting / cables shall lie above ground. Rainwater collected from the roofs shall be piped back to the exclusion zone to the south and west.

Method 7: ***DEMOLITION***

This method shall apply generally. Demolition, which shall be by 'top down, sides in' method, shall be carried out with hand tools or hand-held power tools only. Arisings shall be removed for disposal off site. None shall be spread in root protection areas (orange shapes/circles).

CONSTRUCTION

Method 8: ***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 shapes/circles).

1) The trench shall be opened with an air-spade to required depth. 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. Services shall be worked under/over/around/between roots so as not to cut or damage any larger than 20mm diameter.

   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. Services shall be worked under/over/around/between roots so as not to cut or damage any larger than 20mm diameter.

   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 9: ***CONTIGUOUS PILE WALL - FACILITATION TRENCH***

This method shall apply in the zone of cyan fill on plan. An access trench shall be opened with hand tools only (in the position indicated on plan), to a depth of 600mm below ground level. Roots shall be trimmed to the side of the trench closest to the trees with a sharp edge tool or sharp hand saw. Chainsaws shall not be used. The roots shall be trimmed at right angles to the long axis of the root. No paint or other treatment shall be applied to the cut ends. An HDPE membrane shall be applied vertically to the exposed soil face closest to the tree, retained in position by vertically placed manufactured board extending the full depth and width of the vertical face of the trench. The boards shall be 22mm thickness and shall be retained in position during the piling operations by timber pegs or held with wing nuts on tie rods passed diagonally through the sheeting into the soil face.

Method 10: ***ROOT PRUNING***

This method shall apply within the magenta honeycomb zones on plan. 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 / taping as required. Concrete casting shall take place without disturbing this protective layer.

Method 11: ***REMEDIAL ROOT TREATMENT (implementation to follow immediately Methods 10 and 11)***

This method shall apply in the zone of green roundels. Holes in the ground shall be made on a 1m x 1m spacing with a 50mm auger to a depth of 600mm BGL. Screened topsoil (to BS3882:2015 topsoil) mixed with biochar (such as https://www.soilfixer.co.uk/biochar-article) - 5% of the topsoil volume (this equates to about 20 kgs of product per cubic metre of topsoil) shall be backfilled into the augered holes. Earthworm Inoculation Units shall be placed 150mm below ground level at 3m intervals.

LANDSCAPING PHASE

A full landscaping scheme is yet to be submitted and approved. The following shall apply to anticipated elements of that design to follow.

Method 12: ***EXISTING HARD SURFACES TO BE SUPERCEDED BY REPLACEMENT HARD SURFACING***

This method shall apply in zone of purple crosses on plan. NO levels reduction below the underside of the existing sub-base shall take place. No 'scraping up' with a mechanical excavator shall be carried out. The existing hard surface shall be lifted by hand tools or hand-held power tools only. The underlying sub-base shall be left undisturbed if levels allow and if the sub-base is competent to support the loads envisaged. Otherwise no excavation below the underside of the existing sub-base shall take place. Any such excavation in the existing sub-base shall be by hand tools or hand-held power tools only.

Method 13: ***FOOTPATHS (various finishes possible)***

This method shall apply in any RPA. No reduction of levels shall take place. No wheeled or tracked machinery shall be used: construction shall be by means of hand tools. NO reduction in existing ground levels shall take place - no 'scraping up' with or without a mechanical excavator. Edge restraint shall be formed from tanalised timber pinned to substrate with tanalised timber pegs or similar.

'NIDAGRAVEL' allows a gravel finish where a firm walkover experience is required

Levels can be corrected by use of granite chippings NO FINES. A 3D pocket geotextile system, such as the 'Nidagravel' tray system 40mm deep backfilled with 40mm+, clean stone or gravel - NO FINES can be laid directly over the level correction layer. This system provides a wheelchair-friendly finish.

OR

SLABS

A fine-mesh geogrid such as Tensar 'TriAx' shall be laid. The grid size shall be sufficiently small to retain the level correction/bedding layer stone to be laid: granite chippings, NO FINES. Paving shall be laid open-jointed and the joints rammed with granite chippings.

Method 14: ***AIR SOURCE HEAT-PUMP / CONDENSER UNIT / CYCLE SHED / BIN STORE***

Edge restraint shall be formed from timber baulks (e.g. modern railway sleepers) or lighter section tanalised timber pegged or pinned to substrate with 25mm dia. re-bar or similar. A geogrid such as Tensar 'TriAx' type, with a grid size sufficient to retain the size of aggregate shall be laid directly on the ground surface within the timber edges, then a sub-base 75mm deep of 20-40mm clean stone -NO FINES- (typically sold as 'track ballast'), then a further fine-mesh geogrid such as Tensar 'TriAx' shall be laid. The grid size shall be sufficiently small to retain the layer above, such as coarse shingle; or for a slab finish, granite chippings, no fines shall be laid to correct levels, then the slabs. The slabs shall not be bedded on mortar or lean mix. Any enclosure shall be of timber and uprights. Post holes 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. Roots 20mm or more in diameter unearthed shall be temporarily protected with bubble-wrap and insulating or gaffer tape while rest of hole is dug. It should be borne in mind that the presence of large numbers of roots >20mm in diameter may effectively prevent the completion of the post hole, and typically shall require terminating the dig and moving the post hole to a different location. Timber superstructure may be placed directly on and affixed to the timber edging or may alternatively be attached to posts placed according to the method outlined. Services to and from any air source heat-pump shall be clipped to boundary walls and shall only pass below ground level outside RPAs.

Method 15: ***EXISTING HARD SURFACES TO BE SUPERCEDED BY REPLACEMENT HARD SURFACING***

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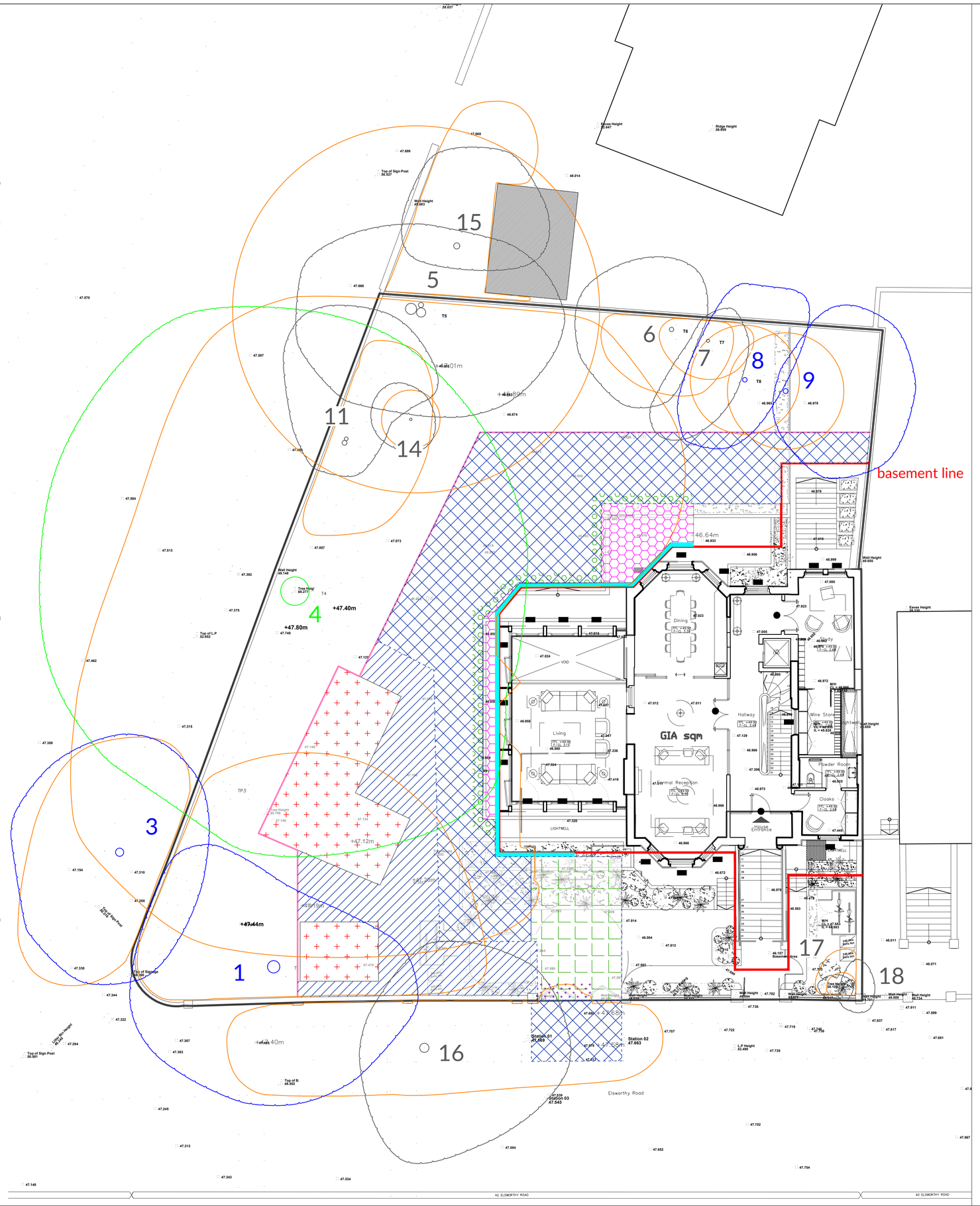

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KEY TO COLOURS / LINETYPES USED IN RELATION TO TREES

GREEN - High Value (A)
BLUE - Moderate Value (B)
BLACK - Low Value (C)
RED - Very short life expectancy (U)
ORANGE SHAPES: Root Protection Areas

Spread and trunk colours correspond directly to those used in British Standard 5837:2012, Table 2.

For planting key please see report.

DRG. NAME

TREE RETENTION & TREE PROTECTION MEASURES (Construction Phase)

NOTES

Do not use for setting out purposes.
All dimensions to be checked on site.

Any scale referenced below applies **ONLY** when plan **printed at ISO A1 size.**

The original of this drawing was produced in colour - a monochrome copy should not be relied upon.

TEXT
FOR FULL METHOD DETAILS PLEASE SEE REPORT

BASED ON
MAREK WOJCIECHOWSKI ARCHS.
DRG. NO.: 16092 P_01 rev. B Proposed Ground Floor Plan

SITE ADDRESS
42 Elsworthy Road, London, NW3 3DL

DRG. REF.	REV. NO.
S87-J4-P2	v1
SCALE & SIZE	DATE
1:100 @ A1	18-Aug-22

0 5