1-38-4326/2

R E P O R T

on the impact on trees

of proposals for development

at

Barrie House,

29 St Edmunds Terrace,

London, NW8 7QH

(24th September 2018)

JOHN CROMAR'S
ARBORICULTURAL
COMPANY
LIMITED

The Old School
Titley
HR5 3RN
at Wheatley, Oxford
& Harpenden, Herts.

TEL 01582 80 80 20
FAX 01544 231 006
MOB 07860 453 072

admin@treescan.co.uk
www.treescan.co.uk

Registered Consultant of the Arboricultural Association
John Cromar, Dip. Arb. (RFS), F.Arbor A.

AA Registered CONSULTANT trees.org.uk

01
Introduction and Instructions

I am instructed by Marek Wojciechowski Architects Ltd on behalf of clients to make an assessment of tree amenity value and condition of trees at Barrie House, 29 St Edmunds Terrace, London, NW8 7QH and of the impact of a proposal for development (a residential apartment block) on such trees. Accordingly, I visited the property on 22nd November, 2017 in order to carry out an inspection.

02
Copyright

02.01

03
Notes

03.01
PLANS
1-38-4326/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 this British Standard 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
1-38-4326/P2 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 :
Office and OnSite Surveying Ltd DRG No.: 2067 - 01
Marek Wojciechowski Architects DRG. NO.: P_41

05
Appraisal

05.01
AMENITY / SCREENING BY TREES AND SHRUBS
Certain trees are of significant general public amenity value, as they are visible from St. Edmunds Terrace and Broxwood Way. Some trees are glimpse or partial / skyline features from slightly more distant public viewpoints. Certain trees are of considerable strictly local amenity value to owners / users of the site, and to those of adjoining properties. Certain of the above trees are the subject of Tree Preservation Orders, as detailed below. Some of the trees listed within the three TPOs believed to be in force according to L.B. Camden were found either to be in poor condition or not to be present, again as outlined below.

05.02
TREES AND LAYOUT - POTENTIAL FOR CONFLICT WITH ROOTS
(Details appear in the tree detail table appended.) The figures in columns 5 and 6 in the **Tree data** table appended indicate the root protection area ('RPA' below), 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 originally 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 such as location of structures, 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 several trees to be retained are affected by features of the site such as access roadways, retaining walls, etc.

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. Minor encroachment on the RPA of certain retained trees is entailed, as analysed in the table below :

No.	Tree	RPA in m^2	Area m^2 affected	% of RPA affected	Notes
1	ash	142.90	20.30	14.21	Proposed bin store and paving
5	ash	472.00	38.80	8.22	Proposed driveway

In the writer's now extensive experience gained over more than a third of a century in arboriculture, controlled, limited-extent, vertical root cutting is of little or no significance to 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 possibly 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, which has been practised successfully for centuries.

In view of the above I conclude that no special footings are needed from the arboricultural perspective. In this case all trees to be retained can be adequately protected by exclusion fencing and arboricentric methods as proposed below to reduce impacts on root systems of retained trees.

05.05
PERCEPTION OF TREES

Trees in relation sited mainly to	**Room use on relevant elevation(s)**	**Comments**
tree1 to west	Living rooms	Living room dual lit on ground floor.

The proposed basement will be partly artificially lit. In my view the internal layout of the proposed dwelling has been designed so as to generate minimum shading inconvenience. 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 elevation drawings supplied that some minor encroachment on the crowns of retained trees G21 and 28 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 line. The minor pruning required is of no importance to the health or appearance of the retained items, and can easily be addressed by tree surgery in accordance with BS5837:2012 5.3.4 (c) NOTE 2, 7.7.3, etc., and is within the bounds of good arboricultural practice / British Standard 3998:2010 'Tree work – Recommendations'. A schedule for the use of a contractor appears below.

05.08
TREE REMOVAL APPRAISAL and REPLACEMENT PLANTING
Please see section **08** for comments on the individual trees proposed for removal. Overall, appropriate replacement tree planting will play an important role in providing for future public and local amenity. The British Geological Survey information for the area indicates that the underlying sub-soil is London clay. This places no significant constraint on species selection for tree and other planting. See plan for locations:

A= smooth-leafed holly (*Ilex aquifolium* 'JC van Tol') 2.2-5m 85L pot
B= mulberry (*Morus alba* 'Platanifolia') 14-16cm girth 85 L pot
C= *Quercus robur* 'Koster' 16-18cm girth 85L pot
D= holm oak (*Quercus ilex*) 20-25cm girth 150L pot

05.09
SUPERVISION
Supervision by and regular communication with an arboriculturist is a nigh-essential element of site management where trees are present and to be retained. 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 section 06.01 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.

05.12
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 unreasonable numbers of trees of public amenity value to be removed. Any tree losses will be satisfactorily addressed by proposed planting.

06
TREE PROTECTION

06.01

OVERVIEW

It is highly important to tree health and vitality that construction activities are carried out strictly in accordance with the tree protection methods specified below. It is widely not understood that a **single** traverse of a root protection area by a mechanical excavator can cause SIGNIFICANT and PERMANENT (albeit temporarily invisible) damage to trees.

Any such machinery, including, for example, tracked piling rigs, shall be kept at ALL times outside the root protection areas (RPAs) as indicated in the **Tree data** table appended, and/or shall be subject to ARBORICENTRIC 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.

Supervision by an arboriculturist appointed directly by the client (not the main contractor) should take place at key points in the construction process, and additionally whenever required by the architect, client, main contractor 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.**
2) **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. Ensure any site cabins, mixing sites for mortars, disposal-to-skip sites, etc., are located appropriately, and sign off.**
3) **Supervise lifting of hard surfacing near trees.**
4) **Supervise laying of temporary or permanent geotextile combination ground protection and sign off.**
5) **Attend as required to supervise digging for and the laying of lighting cable ducts or services.**
6) **Approve any removal or adjustment of protective fencing and sign off.**

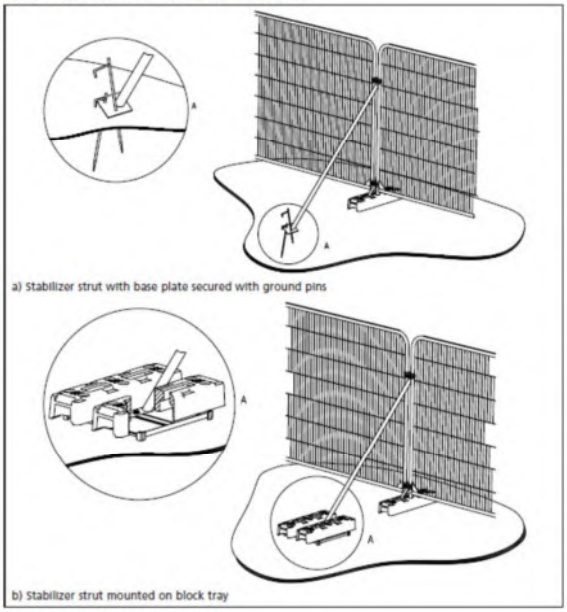
PREPARATION / DEMOLITION

PLEASE READ WITH PLAN REFERENCE 1-38-4326/P2, APPENDED.
The Methods shall be implemented in the order given unless it is stated to the contrary.

Method 1 : TREE WORK
Tree work shall be in accordance with the provided specification and good arboricultural practice, and to BS 3998:2010 'Tree Work - Recommendations', and in accord with spread lines marked on plan. The stumps of certain trees (see SCHEDULE appended) shall be removed by mechanical stump grinder, not by mechanical excavator

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; that is, pinned to the substrate with re-bar. 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. The fencing shall include, as indicated on plan, the protection of areas where planting is proposed.

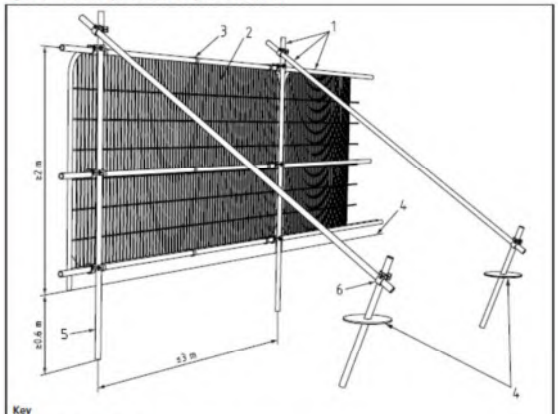
Figure 3 **Examples of above-ground stabilizing systems**



a) Stabilizer strut with base plate secured with ground pins

b) Stabilizer strut mounted on block tray

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

6.2.2.2., Figure 2 : (above left)

Method 3 : TREE PROTECTION FENCING
This method shall apply where indicated by double pink lines. Tree protection fencing shall be erected, in accordance with the heavy-duty specification - BS5837:2012 section

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

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 'Treetex T300' type 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

If loads exceed that of pedestrians, a 2D geotextile membrane, such as 'Treetex T300' type shall be laid; 150mm of green-source woodchip; continuously abutted scaffold boards and a layer of manufactured board at least 25mm thick screwed to the underlying scaffold board so as to completely cover this area This area may be used for pedestrian-operated plant up to 2 tonnes in weight.

OR

If loads exceed 2 tonnes the ground surface shall be protected with Zigma Ground Solutions Euromat Ground Guards. The temporary trackways shall be fixed together with manufacturers' approved fixings. On completion of build phase the Zigma GS Euromat Ground Guards or similar appropriate temporary trackway sections shall be lifted by hand or by plant standing outside the zone.

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

These protective layers shall not be modified without reference to an arboriculturist.

Method 5 : 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. Any subsequent works in this zone shall be carried out as per Method 11.

Method 6 : DEMOLITION
This method shall apply generally in the zones outlined orange on plan. Demolition shall be carried out with hand tools or hand-held power tools only. Arisings shall be removed for disposal off site. Any contaminated soil shall be removed with hand tools only and removed from site.

Method 7 : EXISTING HARD SURFACES TO BE SUPERCEDED BY REPLACEMENT HARD SURFACING
This method shall apply in the magenta honeycomb zone (tree 1) on plan. 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 sub-base shall remain intact during demolition phase. 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.

Edge restraint shall be formed only within the existing subbase, or shall be formed of permanent tanalised timber such as modern railway sleepers pegged or pinned - e.g. with re-bar - to the substrate. The re-bar shall be driven below the upper face of the timber and the hole sealed with a hardwood peg and glued and trimmed flush. Any such excavation in the existing sub-base shall be by hand tools or hand-held power tools only.

Method 8 : EXISTING HARD SURFACES TO BE SUPERCEDED BY SOFT LANDSCAPING
This method shall apply in the magenta hatch zone on plan. The existing hard surface shall be lifted by hand tools or hand-held power tools only. No 'scraping up' with a mechanical excavator shall be carried out. No excavation below the underside of the existing sub-base shall take place. De-compaction measures shall consist of lightly hand-forking over to 250mm depth, or using a pinch bar to loosen the ground surface. The ground surface once exposed shall immediately be protected as per Method 4 above.

CONSTRUCTION

Method 9 : 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).

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 10 : ROOT PRUNING
This method shall apply within the RPA (orange shapes) of trees 4, 31 and G24. 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 : TRANSITION FROM TEMPORARY ACCESS TO PERMANENT POROUS DRIVEWAY /CAR PARKING
This method shall apply in zone gridded green on plan. On completion of construction phase or when all need for construction-related access to the zone has ceased, the formwork shall be removed and edge restraint shall be formed of permanent tanalised timber such as modern railway sleepers pegged or pinned - e.g. with re-bar - to the substrate. The re-bar shall be driven below the upper face of the timber and the hole sealed with a hardwood peg and glued and trimmed flush. (If edge restraints are required to be flush with adjacent ground levels, topsoil shall be loose-tipped and graded by hand to slope to existing levels. Peg holes shall be sealed with timber pegs and cut flush).

On completion of construction phase or when all need for construction-related access to the zone has ceased, the temporary slab / sand /membrane shall be removed using only hand-held tools or hand-held power tools. No excavation below the underside of the membrane shall take place. A 2D geotextile such as 'Treetex T300' type, shall be laid directly on the ground surface, overlaid by a 3D 'CellWeb' type 100 or 150mm deep (available from e.g., Geosynthetics Ltd. 01455 617139), depending on envisaged loads backfilled with 40-60mm CLEAN STONE – NO FINES (typically sold as 'track ballast') , and may also be augmented where required to function as a SUDS feature. A further 2D geotextile shall be laid. Levels can be finely corrected by use of granite chippings - NO FINES. Slabs or paviours shall be laid open-jointed and the joints rammed with granite chippings, or the surface dressed with shingle. For

a resin-bound open-pore gravel finish a further 2D geotextile should be laid over the level-correction layer.

LATE CONSTRUCTION / LANDSCAPING PHASE

Method 12 : BIN STORE
This method shall apply in the zone of yellow fill on plan. 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' 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 2D geotextile such as 'Treetex T300' type. A coarse shingle layer can be placed directly over this, or for a slab finish, a blinding of lime-free bedding sand or granite chippings may be laid to correct levels, then the slabs. The slabs shall not be bedded on mortar or lean mix.

The 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.

The 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.

Method 13 : FOOTPATHS (various finishes possible)
This method shall apply in RPAs (orange shapes) on plan. 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.

'NIDAGRAVEL'
Edge restraint shall be formed from tanalised timber pinned to substrate with tanalised timber pegs or similar. 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

POROUS TARMAC
A separating layer of non-woven geotextile such as 'Treetex' or similar (e.g. Wrekin 'NW8') shall be laid over the level correction layer, then a plain 3D pocket geotextile system such as 'CellWeb' type 75mm deep (available from e.g., Geosynthetics Ltd. 01455 617139), backfilled with 20-40mm (75mm depth CellWeb) CLEAN STONE – NO FINES (typically sold as 'track ballast'). A further non-woven geotextile such as 'Treetex' or similar (e.g. Wrekin 'NW8') shall be laid; the porous tarmac layer then applied. Total thickness over existing ground level can thus be as little as 100-120mm.

OR

SLABS
A 2D geotextile such as 'Treetex' type, shall be laid directly on the ground surface. Levels can be corrected by use of granite chippings NO FINES. Paving shall be laid open jointed and the joints rammed with granite chippings.

Method 14 : TREE GROWTH PROMOTION and SUPPORT

This method shall apply in the zone of brown crosses. Improvement of the substrate via a below-ground deep soil storage system such as 'SilvaCell' (see left and below). Existing levels within the zone shall be reduced to a depth approved by the retained engineer. Provision of adequate soil volume – e.g. at least 23 m^3 – required to sustain a 300-400mm ultimate trunk diameter tree shall be made. The precise configuration of the 'crates' is not critical, and depth of up to 2m below surrounding ground level is possible. If crates are laid to a depth greater than 500mm BGL subsoil shall be laid first in the 'crates' UP to 500mm of the surrounding ground level. 'Carbon Gold' shall be mixed with topsoil at 5% by volume - equates to 20 kgs of product per cubic metre of topsoil (to BS3882 : 2015 topsoil). The mix shall be laid to finish to required levels and allowed to settle via mist irrigation / watering-in / natural rainfall. Trees as specified on plan and in report shall be installed according to

British Standard 8545:2014 'Trees : from nursery to independence in the landscape - Recommendations' section F2.1.(g), for example using carbon fibre earth anchors and steel tendons.

Method 15 : GROUND PREPARATION FOR 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) shall be laid to replace soil volume removed and to a minimum 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. 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 16 : GROUND 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. Weed treatment if required shall be via BASIS qualified operatives. Ground preparation within root protection areas shall entail removal of perennial shrubs, climbers, ground covering plants to just above ground level. Surface debris shall be removed by hand to barrow and disposed of outside root protection areas. No wheeled or tracked plant shall be used : hand held power tools such as clearing saws and strimmers may be used. Any dressing with topsoil (to BS3882 : 2015 topsoil) shall be restricted to a maximum of 100mm in depth. Turfing or seeding may take place after levelling and minimal consolidation and which shall by hand tools / foot and board only, or naturally. No mechanical compaction whatever shall be used.

Method 17 : REPLACEMENT
If within five years 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).

Method 18 : In addition to the above, careful general operation and site handling shall be observed as outlined at 06.02 below.

06.02
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.

06.03
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.

06.04
Note to LPA : if the Authority is minded to grant consent, it is invited to consider the incorporation of the specific *order of implementation* of the arboricentric methods above into any Conditions applied. Such a measure is likely to maximise tree protection.

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.

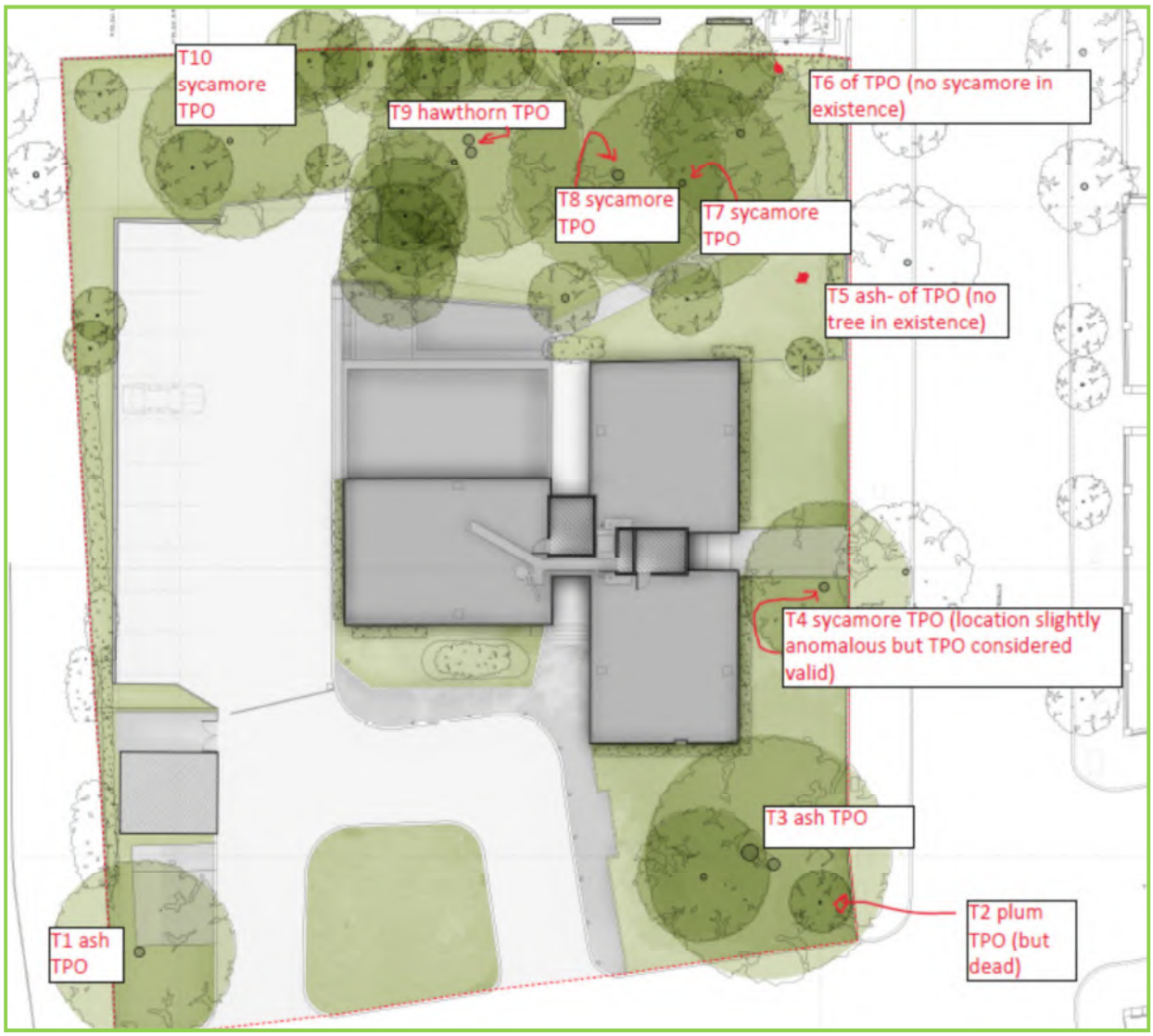
24th September 2018
Signed:

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

APPENDICES

08
Tree Data

Please read in conjunction with the mark-up below which applies information kindly provided by L.B.Camden as respects TPOs, to the state of the trees as found:



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 (TPO T1)	common ash	16	562	6744	142.9	Large ungainly tree. Much dead wood. Crown clean.	20+	B1
2	common ash	7	170	2040	13.1	Poorly sited	20+	C1
3	hawthorn	5	90, 80, 80, 80	1982	12.4	Poor form	40+	C1
4	wild plum	9	334	4008	50.5	Elderly tree	10+	C1
5 (TPO T3)	common ash	18	878, 522	12257	472.0	Base of the 878mm stem badly decayed : large axial cavity. Reduction required to around 12m for safety Potential bat roost. The 522mm stem has a strong lean over the road junction ; reduce to line of kerb of St Edmunds Tce, and to radius of about 10m over Broxwood Way. Basal junction normal. Very prominent.	10+	C1
6 (TPO T4)	sycamore	16	562	6744	142.9	Once pollarded to about 6m in height. Important screening function.	20+	B1
7	holm oak	6.5	100	1200	4.5	Screening potential	40+	C1
8	purple plum	7	130	1560	7.6	Strong lean. O/s site	10+	C1
9	whitebeam	9	330	3960	49.3	Strong lean bearing on fence, possibly unstable. O/s site	<10	U
10	Lawson cypress	10	130, 90, 80	2126	14.2	Softening value O/s site	40+	B1

Tree number	Tree type	Height	Stem diameters	Radius of RPA if circle (mm)	RPA (m^2)	Comments	Life expectancy (years)	Assessed BS5837 value category
11	common ash	19	485	5820	106.4	O/s site	<10	U
12 (TPO T7)	sycamore	19	485	5820	106.4	Good form; prominent; slightly hemmed in. O/s site	40+	B1
13	Japanese cherry	4	140	1680	8.9	Very poor form ; unthrifty	<10	U
14	bay	9	240, 150, 100, 70, 70	3792	45.2	Some local screening value.	20+	C1
15 (TPO T8)	sycamore	17	498	5976	112.2	Distorted by 12. O/s site	20+	B1
16	sycamore	6	90	1080	3.7	Very close to fence line. O/s site	40+	C1
17	whitebeam	6	130	1560	7.6	Strong lean bearing on fence, possibly unstable. O/s site	<10	U
18	purple plum	8	230	2760	23.9	Strong lean O/s site	10+	C1
19 (TPO T9)	hawthorn	9	422, 390	6895	149.4	Large and locally prominent : some screening value. O/s site	10+	C1
G20	wild plum sucker growth	5	<160, <110, <110	2677	22.5	O/s site	20+	C2
G21	bay	7		0	0.0	Mainly local screening value. (Diameters of individual stems used to generate RPA shown on plan)	20+	B2
22	wild plum	5.5	90, 50	1235	4.8	O/s site	10+	C1

Tree number	Tree type	Height	Stem diameters	Radius of RPA if circle (mm)	RPA (m^2)	Comments	Life expectancy (years)	Assessed BS5837 value category
23	common ash	10	190	2280	16.3	Etiolated. Some softening value but no lower branches. O/s site	40+	C1
24	common ash	10	160	1920	11.6	Etiolated. Strong lean. Some softening value but no lower branches. O/s site	40+	C1
25	*Prunus* spp.	3	120	1440	6.5	Dead. O/s site	<10	U
26 (TPO T10)	sycamore	13	438	5256	86.8	Rather poor form, and low vitality. O/s site	<10	U
27	hawthorn	4	90	1080	3.7	Poor form. O/s site	40+	C1
28	tree of heaven	11	300	3600	40.7	Ivy infested ; outside the site. Some screening value and potential for more. O/s site	40+	B1
29(TPO T2)						dead	-	U

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

Dependent on time of year of survey, deciduous trees may not have been in leaf at the time of inspection. This may have limited precise identification.

09
Schedule

Trees at Barrie House, 29 St Edmunds Terrace, London, NW8 7QH

Please read in conjunction with plan 1-38-4326/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.**

Tree number	Tree type	Height	Stem diameters	Comments
1	common ash	16	562	Crown clean.
2	common ash	7	170	Remove ; grind stumps to 250mm below ground level.
3	hawthorn	5	90, 80, 80, 80	
4	wild plum	9	334	
5	common ash	18	878, 522	The base of the 878mm stem is badly decayed : large axial cavity. Reduce to around 12m (N.B. - potential bat roost). The 522mm stem (strongly leaning over the road junction): reduce to line of kerb of St. Edmunds Tce, and to radius of about 10m over Broxwood Way.
13	Japanese cherry	4	140	Remove ; grind stumps to 250mm below ground level or grub out.
G21	bay	7		Reduce (on NW side only) to spread of 2m
28	tree of heaven	11	300	Reduce (on SE side only) to spread of 2m.

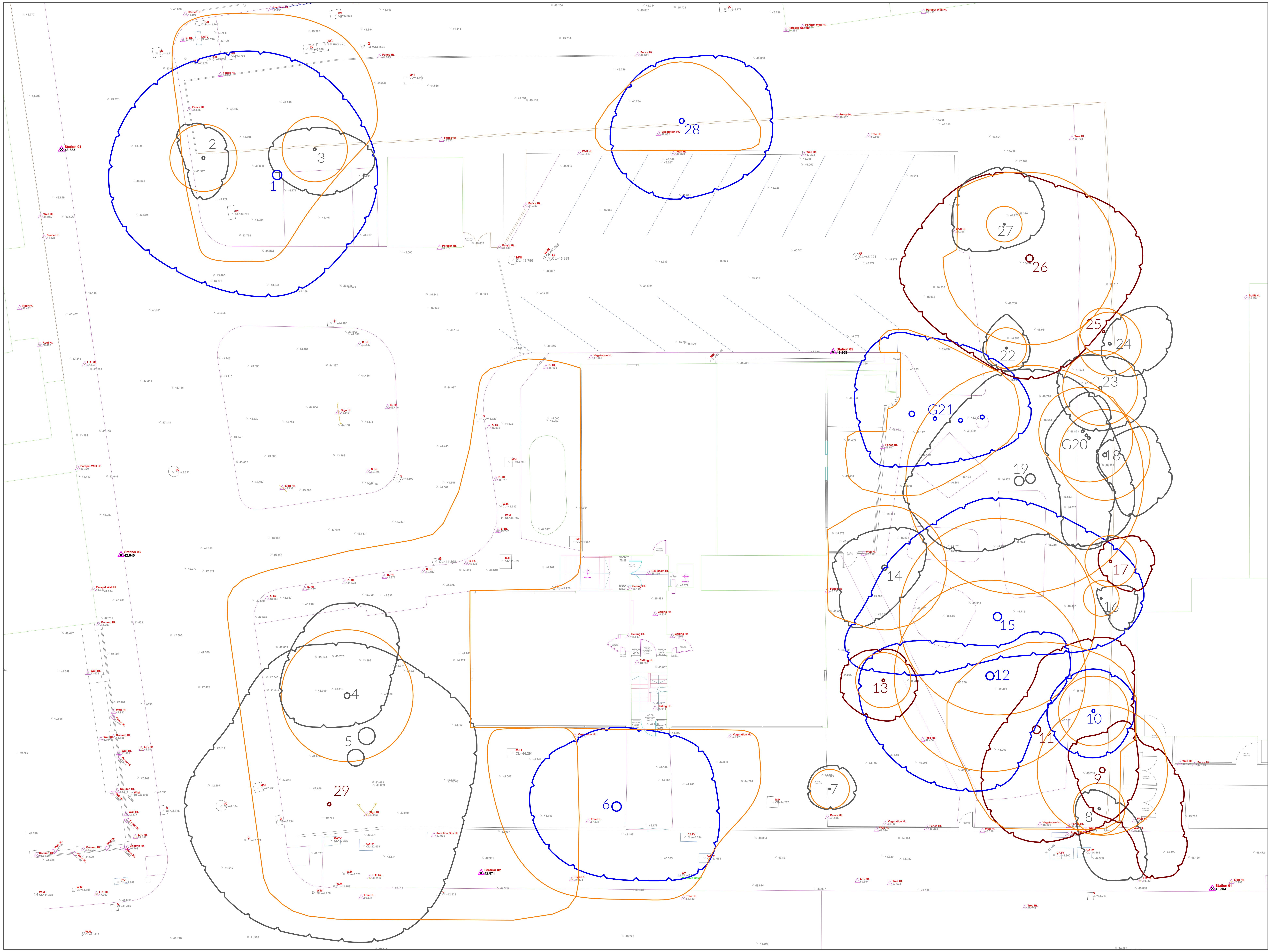
NOTES:
This schedule notifies the LPA, where such notification is required, of intention to prune or remove trees in accordance with TCP Act 1990 Section 211. 42 days after notification should be allowed before proceeding with the work, during which time (and after) the LPA may place a Tree Preservation Order on the tree(s), thus requiring a formal application for any works to living wood.

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.

Ivy and dead wood can be important ecological features. Ivy where specified in the work schedule should be treated as per BS3998 section 7.12. In summary this means 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 inspected. In practice this may need to be done outside the bird-nesting season. Treatment of dead wood shall be as per section 7.3.2 – essentially shorten if possible, thus retaining some resource for invertebrates, etc.

10
Plans

1-38-4326/P1 v5
1-38-4326/P2 v9



JOHN CROMAR'S ARBORICULTURAL COMPANY LIMITED

THE OLD SCHOOL, TITLEY, KINGTON, HR5 3RN.
At Jericho, Oxford & Harpenden, Herts.

TEL 01582 808020
FAX 01544 231006
MOB 07860 453072
admin@treescan.co.uk
www.treescan.co.uk

AA Registered CONSULTANT trees.org.uk

KEY TO COLOURS/LINETYPES USED IN RELATION TO TREES

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

TOOTHED LINE: Tree spread line
DASHED LINE: Understorey spread line
DOTTED LINE: Removed tree spread

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

DRG. NAME
TREE VALUE ASSESSMENT AS PER BS 5837:2012 & ROOT PROTECTION AREAS

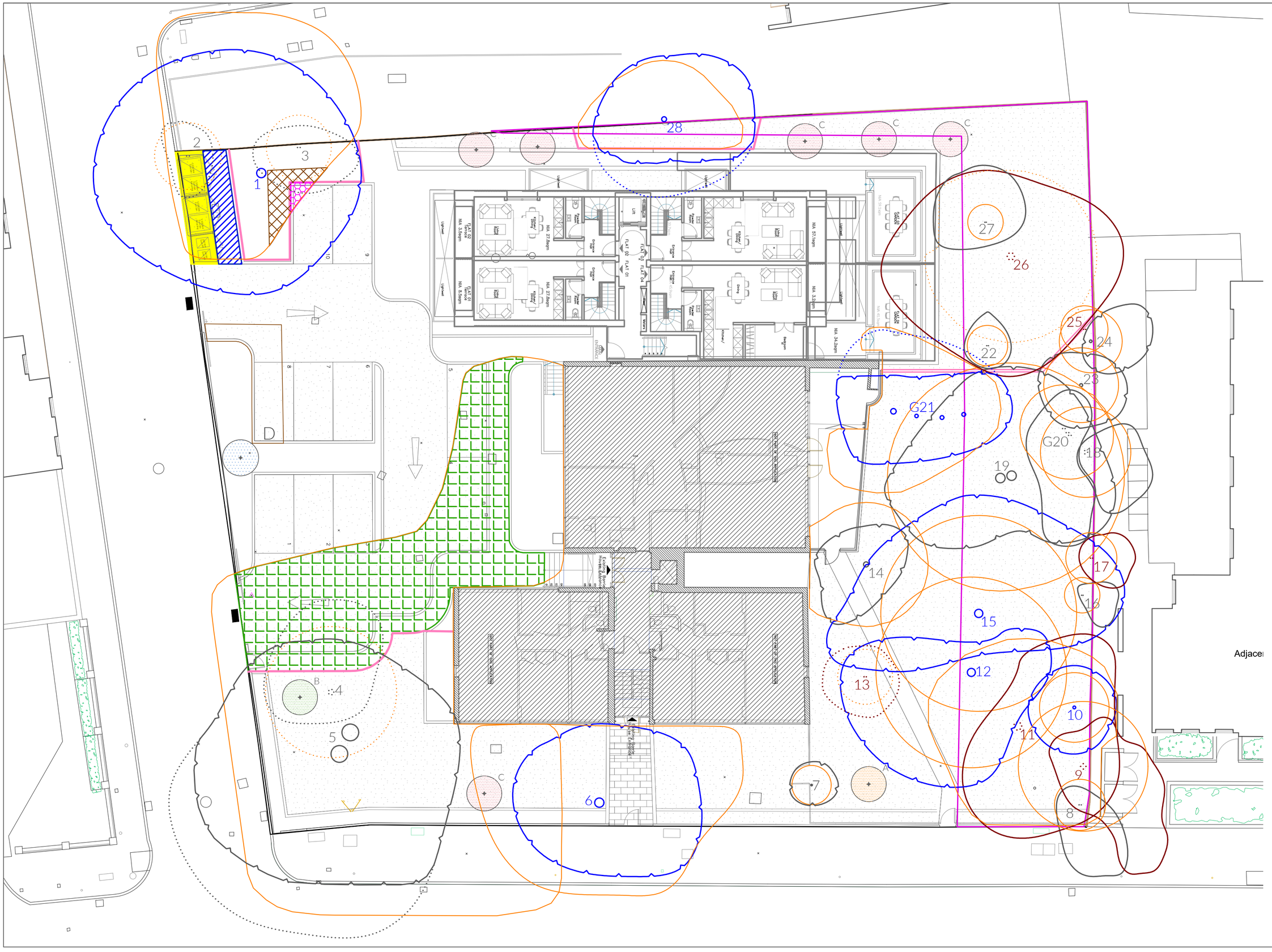
TEXT
FOR FULL DETAILS OF TREE VALUE PLEASE SEE REPORT REF. 1-38-4326

BASED ON
Office and OnSite Surveying Ltd DRG No.: 2067 - 01 SUPPLIED

SITE ADDRESS
Barrie House, 29 St Edmunds Terrace, London, NW8 7QH

DRG. REF.	REV. NO.
1-38-4326/P1	v5
SCALE & SIZE	DATE
1:150 @ A2	2-Jan-18

0 8m



JOHN CROMAR'S ARBORICULTURAL COMPANY LIMITED
THE OLD SCHOOL, TITLEY, KINGTON, HR5 3RN.
At Jericho, Oxford & Harpenden, Herts.

TEL 01582 808020
FAX 01544 231006
MOB 07860 453072
admin@treescan.co.uk
www.treescan.co.uk

AA Registered CONSULTANT trees.org.uk

KEY TO PLAN SYMBOLS/COLOURS USED IN RELATION TO TREES

- PINK LINES: Tree Protection Fencing
- ORANGE SHAPES: Root Protection Areas
- BROWN CROSSES: method applies
- BROWN HATCH: method applies
- GREEN HATCH: ground protection
- DARK BLUE HATCH: method applies
- MAGENTA HONEYCOMB: method applies
- YELLOW FILL: method applies
- 'A': Proposed replacement planting
- 'B': Proposed replacement planting
- 'C': Proposed replacement planting
- 'D': Proposed replacement planting

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

DRG. NAME
PROPOSED TREE PROTECTION MEASURES, TREE RETENTION AND TREE PLANTING

TEXT
FOR FULL METHOD DETAILS
PLEASE SEE REPORT REF. 1-38-4326

BASED ON
Marek Wojciechowski Architects DRG. NO.: P_41 SUPPLIED

SITE ADDRESS
Barrie House, 29 St Edmunds Terrace, London, NW8 7QH

DRG. REF.	REV. NO.
1-38-4326/P2	v9
SCALE & SIZE	DATE
1:200 @ A2	24-Sep-18

0 8m