



John Lyon School Oldfield House Middle Road Harrow on the Hill

Phase II Arboricultural Impact Assessment (AIA)
(Ref. 101 607)

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For Local Planning Authorities that have previously seen our standard report format are directed to Sections 4-7 that contain the key relevant information for this planning application.

1.0 INSTRUCTIONS & TERMS OF REFERENCE

1.1 INSTRUCTIONS

Arbol Euro Consulting Ltd. is instructed to assess the on and off-site trees in regard to the proposed development. See section 6.1.2.

NB This report does not seek to authorise any tree works (see Section 4.1).

Please be advised that this is a Development Control – and not a Building Control – focused document. In regard to the latter, this deals with foundation depth and design in relation to trees using NHBC/Zurich national guidance. For advice, consult with the local council Building Control Officer or an approved NHBC inspector in order to gain Full Plans Approval or a Completion Certificate. The latter are governed by the Building Act 1984 and Building Regulations 2010. As such the above Building Control issues are outside the remit of a Consulting Arborist.

Our tree reporting is in-line with BS:5837 (2012) and our tree survey assessments are consistent with the LANTRA professional tree inspector criteria. However, please be advised* that this AIA does not necessarily provide any guarantees that the associated Local Planning Authority will agree with the opinion of the Consulting Arborist or grant planning consent based on the content and findings of this AIA report.

* As per our Terms & Conditions.

1.2 PHASE 1, 2 & 3: ARBORICULTURAL IMPLICATION ASSESSMENTS (AIA) IN CONTEXT

1.2.1 Phase 1 (AIA1). The initial stage for trees within the development process is a survey of those trees that should be retained and those that may/should be removed. Retention trees are allocated Root Protection Areas (RPAs) that are then detailed on a Tree Constraints Plan (TCP). The RPAs provide for sufficient rooting (soil) volume to ensure that trees are successfully retained during and after the completed development. The TCP represents Phase 1 of an Arboricultural Implications Assessment (AIA1). It indicates a notional development footprint for any given site but moreover, it ***may affect the value of land*** earmarked for development. The AIA1 is ***only*** a baseline survey. It is not intended to represent, in isolation, the supporting information for an LPA* application: to obtain full planning permission.

* Local Planning Authority

1.2.2 Phase 2 (AIA2). The next stage is for ‘site layout master planners’ to factor the tree constraints into draft layout proposals. This draft is then referred to the consulting Arborist for further implication assessment, to arrive at a ‘best fit’ scheme, which achieves site proposal viability whilst allowing for the retention of appropriate trees. This layout review represents Phase 2 of an Arboricultural Implications Assessment (AIA2). Once it has been agreed, the consulting Arborist can then prepare a supporting report to accompany the planning application. This report should demonstrate that the trees have been properly considered such that the site layout is defensible in arboricultural terms, both at the application stage and also, if necessary, at Appeal. As the proposal develops, the AIA2 also involves the consulting Arborist working as part of the development team to secure discharge of any initial (frequently pre-commencement) tree related LPA planning conditions. These will need to be formally discharged to avoid any breach of Condition and/or enforcement action.

1.2.3 Phase 3 (AIA3). All the effort put into the pre-application phases (AIA12) to protect retention trees is likely to fail without effective site supervision. Arboricultural Implications Assessment (AIA3) covers the ***on-site project implementation***, including arranging (LPA) approved tree

removal/ pruning, overseeing the installation of tree protection fencing, ground protection and any special engineering works through to periodic reporting on the retention of tree protection measures. Many if not all of the latter are usually specified as LPA planning conditions that need to be formally discharged. All personnel associated with the construction process must be familiar with the specified Tree Protection Plans (TPP) and Arboricultural Method Statements (AMS) that affect the site. The TPP and AMS should be retained on site at all times and they should be included in the site's Project Management Plan.

- 1.2.4 Phases 1–3 are in line with BS 5837; *Trees in relation to design, demolition and construction - Recommendations* (2012).

1.3 TREES & BUILDING SUBSIDENCE/HEAVE ISSUES

Assessing the potential influence of trees upon load-bearing soils beneath existing and proposed structures, resulting from water abstraction by trees on shrinkable soils, was not included in the contract brief and is not, therefore, considered in any detail in this report. **Arbol EuroConsulting** cannot be held responsible for damage arising from soil shrinkage or heave issues related to the retention or removal of trees on site.

1.4 TREE SAFETY MATTERS AND TREE RISK ASSESSMENT

The BS:5837 tree survey is carried out in sufficient detail to gather data for and to inform the current project. Our appraisal of the structural integrity of trees on the site is of a preliminary nature and sufficient only to inform the current project. The tree assessment is carried out from ground level – as is appropriate for this type of survey - without invasive investigation. The disclosure of hidden tree defects cannot therefore be expected. Whilst the survey is not specifically commissioned to report on matters of tree safety, we report obvious visual defects that are significant in relation to the existing and proposed land use.

Lastly and to further clarify, this BS:5837 survey does not constitute a full *Visual Tree Assessment* (= TRAM* Level 2 - *Basis Assessment*) that would ordinarily be carried out for Tree Risk Assessment reporting. In effect, this BS:5837 survey equates to a TRAM Level 1 *Limited Visual Assessment*.

* "Tree Risk Assessment Manual" Dunster, Julian A., E. Thomas Smiley, Nelda Matheny, and Sharon Lilly (2013) International Society of Arboriculture

1.5 SITE OBSERVATIONS

This report has been based on my site observations and in light of my experience. This along with my qualifications are appended to this report.

1.6 CAVEATS

The author does not have formal qualifications in the areas of structural engineering or law. However, making comment on such matters from an arboricultural perspective is both within the normal scope of our instructions and also within the range of the author's experience. Notwithstanding this, specialist professional advice should be sought to clarify/confirm any observations on engineering or legal matters that this report may contain.

2.0 INTRODUCTION

2.1 THE ASSESSMENT METHODOLOGY

The British Standard BS:5837 *Trees in relation to design, demolition, construction - Recommendations* (2012) provides "guidance on the principles to be applied to achieve a satisfactory juxtaposition of trees.....with structures". The Standard recommends that trees with categories A-C (where A is the highest quality) are a material consideration in the development process. Such trees may then become a constraint for a planning proposal. Category U trees are those that will not be expected to exist for long enough to justify their consideration in the planning process (i.e. no more than 10 years). Tree categories are used with the number 1, 2, or 3 to signify whether the category was made based on arboricultural, landscape or cultural (including conservation) values respectively. The tree categories are shown on plan by colour-coding:

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Category A (green colour-coded): Good examples of their species with an estimated life expectancy of at least 40 years.

Category B (blue colour-coded): Not suitable for an 'A' category due to impaired condition or a tree lacking special 'A' qualities: with an estimated life expectancy of at least 20 years.

Category C (grey colour-coded): Unremarkable trees of very limited merit or with a significant impaired condition not warranting an 'A' or 'B' category: with an estimated life expectancy of at least 10 years. See young trees below.

Category U (red colour-coded): See above.

Reasonably young trees below 150mm stem diameter would normally be given a C category (if they satisfy the retention quality criteria). However, as they are small they could be replaced/transplanted and as such they should not be regarded as a significant constraint on a development.

2.2 ARBORICURAL IMPACT ASSESSMENT (AIA)

We have considered - with access permitting for 3rd party trees - the following BS:5837 (2012) recommendations:

1. Tree Categories (Quality Assessment).
2. Crown Spread measured to the four cardinal compass points for single specimens only.
3. Tree Constraints.
4. Tree retention & protection

N.B. Trees and shrubs are living organisms whose health and condition can change rapidly, for this reason the BS 5837 grades along with any conclusions or tree management recommendations remain valid for a period of 12 months.

The specific tree report is documented in Section 7 of this report.

3.0 GENERAL DATA

3.1 GENERAL

The three phases of an Arboricultural Implication Assessment were outlined in Section 1.1.1-1.1.4. In addition, during the development process for retention trees, there may be three and even four constraints to consider - Construction Exclusion Zone (CEZs):

- CEZ 1: Root Protection Area (see 3.1.1).
- CEZ 2: Tree Crown Protection (see 3.1.2).
- CEZ 3: Tree Dominance (see 3.1.3).
- CEZ 4: New Tree Planting Zone (see 3.1.4).

The above CEZ's are explained further below.

3.1.1 CEZ 1: ROOT PROTECTION AREA (RPA)

The RPA, calculated in m², should be protected before and during any demolition/construction works. This ensures the effective retention of trees by preventing physical damage to (a) roots and (b) their rooting environment (typical problems - soil compaction; soil level changes and soil capping that can impede gaseous exchange to living roots*). The RPA is based on a radial measure from the centre of the tree stem, which is calculated by multiplying the stem diameter by a factor of twelve (or by a factor of ten when measuring basal diameter immediately above the root flare for multi-stemmed trees). With the AIA1, the RPA is only shown indicatively on the preliminary Tree Constraints Plan (TCP), as its shape may be subject to amendment as the design progresses. During the AIA2, the derived radial measure is converted by the consulting Arborist into the actual area to be protected, having due regard to prevailing site conditions and how these may have affected the tree(s).

The means of protecting the RPA will include the installation of Tree Protection Fencing prior to the start of any demolition or construction work on site, the prohibition of various harmful activities within the RPA (e.g. mechanical excavation, soil stripping & trenching, fire lighting, materials storage and creating excessive sealed surfacing), and may include the use of temporary ground protection and/or special engineering solutions where construction is proposed near to retention trees or within the RPA.

* Roots must have oxygen for survival, growth and effective functioning.

3.1.2 CEZ 2: TREE CROWN PROTECTION ZONE

This is the area above ground occupied by the tree crown (branches) and considers the required demolition/construction working space necessary for the development. The possibility of an acceptable quantum of pruning may be considered: subject to Council permission/consent (see Section 4.1.1).

Arising from the above, the means of protecting CEZ 2 is likely to include providing an adequate separation distance between retention trees and new buildings. This will relate to the CEZ 3: below.

3.1.3 CEZ 3: TREE DOMINANCE ZONE

This is the area above ground dominated by the tree in relation to issues of shading, seasonal debris and the safety apprehension by the site owner/occupier. This area is assessed by considering the height and spread of the tree (now and in the future) relative to the proposed buildings, cross-referenced with the intended end-use. As such, what is assessed is the likely psychological effect of the tree(s) on the end-user.

The purpose of identifying CEZ 3 is to protect trees from post-development pressure by the site's end-users, who may, if resentful of the trees, seek to procure excessive pruning treatments (i.e. the bad practice of topping & lopping) or even to have them removed. This is a common LPA concern, which may lead to application withdrawals, refusals and/or dismissed Appeals.

The means of protecting CEZ 3 is likely to include optimising the site layout and room type (especially in relation to new residential dwellings), such that any adverse impacts of trees are reduced to an acceptable minimum. The key principle is to ensure adequate separation distances between trees and new buildings: notably with habitable space & primary windows.

3.1.4 CEZ 4: NEW PLANTING ZONE

In some cases, it may be appropriate to identify and protect areas (see soil conservation below) intended for new landscape planting, which can fail to establish if the soil has been heavily compacted or contaminated during the demolition/construction process. The means of protecting CEZ 4 will either be by fencing prior to the start of construction/demolition works or by pre-planting soil remediation once construction has finished. Topsoil protection in areas destined for new planting is frequently an economic measure, saving on soil structure remediation and tree (failure) replacement costs.

NB Soil conservation is the process of protecting soil from degradation within a defined area. The physical, chemical and biological properties of a native soil can take hundreds of years to develop but can be destroyed in minutes (i.e. by demolition/construction traffic). Soil conservation is the most effective way to protect soil for future tree planting.

4.0 STATUTORY CONTROLS

4.1 PLANNING LEGISLATION (TREES)

4.1.1 STATUTORY TREE PROTECTION

Trees can be protected in law – via Tree Preservation Orders (TPOs) or by virtue of them growing in a Conservation Area – by the Government's Town & Country Planning Act 1990. (the

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Act). Trees may also be protected by Planning Conditions. If any of these apply, written LPA permission/consent is required before protected trees can be pruned or felled*. Contravention of the Act may carry a fine of up to £20,000 and a criminal record.

* Exceptions include those trees that are dead/hazardous or those that are causing an actionable nuisance to a third-party. In any event, evidence must be provided to defend the removal of such trees.

4.1.2 TREES ON/OFF SITE

The subject site is within a Conservation Area (CA). Additionally, some of the on-site trees are subject to a Harrow Council Tree Preservation Order (TPO)* that was confirmed in 1977. In March 2021, we were commissioned to undertake a ground-truth survey to assess how many of these trees/groups (some forty-four years) later are still present. This survey and its findings are appended to the Tree Survey. Therefore, no tree pruning or felling works (*if required*) should commence at this property until the necessary written permissions or *full* planning permission have been obtained from the LPA in respect of this CA.

* No. 2017: Crown Street (No. 1), Harrow

4.2 WILDLIFE LEGISLATION

All wild birds are protected during the nesting season by the Wildlife and Countryside Act 1981 as amended by the Countryside and Rights of Way Act 2000. It is not a defence to claim that harm was accidental in the course of carrying out work. There is therefore an onus on the operative to check cracks, splits, cavities, loose bark etc. for the presence of birds prior to carrying out work. The bird nesting season is considered to run from March to August, but due to the vagaries of climate change, nesting birds can be found outside of this core period. Work can be carried out in the nesting season, subject to the above checks. Bats and their roosts are afforded the highest protection in UK and European Law. The above advice as for nesting birds should be followed and Natural England informed if bats are found. Particular attention should be paid to splits in branches, before reducing end weight by pruning, causing splits to close which can squash residing bats.

5.0 WILDLIFE HABITATS

A cursory assessment of wildlife habitat values of trees and hedgerows on the site was carried out during the survey. No protected or exceptional habitats were identified and details were not recorded. However, trees and hedgerows of most species provide valuable nesting sites for a wide range of birds and it is likely that nesting birds will be present on the site during the period March to September. We have not been made aware of the presence of roosting bats and have not identified any obvious signs of roost sites. However, this does not mean that roost sites are absent.

6.0 John Lyon School Oldfield House: TREE REPORT (to be read in conjunction with the appended Tree Protection Plan [TPP] and Tree Survey)

6.1 THE PROPERTY AND THE DEVELOPMENT PROPOSAL

6.1.1 Site description: A large open site containing an educational block with a rear tarmac playground and surrounding grassed areas. The site is accessed off Middle Road via a tarmac driveway that opens out to provide a large car parking area at the side of the aforementioned block.

6.1.2 The proposal: Construction of new education block: New Oldfield House (NOH). There would be new extensive landscaping; please refer to the Planit Intelligent Environments LLP Tree Strategy (See Appendix 6) that plots the twenty-four replacement amenity trees that would be planted around the site.

Importantly, the existing education block (Oldfield House: OH) would be used during the construction of NOH **(Phase I)**: *as plotted on the appended TPP see the brown-hatched Site Hoarding running across the site*. Once completed, OH would be demolished to be replaced with a large play area **(Phase II)**.

The siting of the proposed new school block has been altered through the design process. Its position has been set more centrally within the plot and it has had to move slightly closer to the western boundary due to the topography in the eastern part which would require considerable earth removal and re-grading of that part of the site. Being closer to the western boundary also reduces the visual impact of the building when viewed from the nearby residential properties on Crown Street. The siting does have an impact on Trees T27, T28 and T29 which are all Category C trees. These will have to be removed: see replacement trees above.

This report deals only with Phase I of the proposed build of NOH.

The location and detail of the proposed development and the positioning and numbering of the trees to be retained can be found plotted on the Tree Protection Plan at Appendix 2. **NB** The original of this plan was produced in colour – a monochrome copy should not be relied upon.

6.2 TREES ON-SITE

6.2.1 North-East Boundary: The sycamore T18 is a B-grade tree with a well-balanced crown. In contrast, the willow T16 has been topped in the past and only merits a C-grade.

6.2.2 North-West Boundary Side: The cypress group G2 provides some useful boundary screening.

6.2.3 South-East Boundary: The trees of note with good crown form include the cedar T4-T5 and the false acacia T9. The remaining trees T6-T8 and T14 are either insignificant, suppressed by adjacent trees or are at a size that they could be replaced elsewhere on site. Importantly, the horse chestnut T3 is a potential hazard tree that should be inspected within the next 1-2 months. May 2021 update: T3 has now been removed and is to be replaced with a Liquidambar styr. 'Worplesdon'

6.2.4 South-West Boundary: The horse chestnut T2, sycamore T30 and the lime T24 and T25 are all B-grade trees. In contrast, T1, G3, T26-T29 and T31 have suppressed crown form or could be replaced elsewhere on site. Correspondingly these only merit a C-grade.

6.3 TREES OFF-SITE

6.3.1 No. 60 Middle Lane: The frontage silver birch T10 and rear hornbeam T15 have good well-balanced crown form and clearly merit a B-grade. In contrast, the rear trees (T11-T12) have C-grade competing crowns. Both G1 and T17 contain/are average trees.

6.3.2 Harrow School: Both the sycamore and lime T19 & T20, including the mixed line of trees T21-T23, have B-grade crown form.

6.4 IMPACT PROPOSAL ON TREES (to be read in conjunction with the Tree Protection Plan - TPP - at Appendix 2 and the Arboricultural Method Statement at Appendix 3)

6.4.1 Underground Utilities: Locations of proposed underground services were not identified on the provided plans, although these **would not** be sited within the Root Protection Area (RPA) of any retention tree without prior discussion and approval from the LPA and/or a Consulting Arborist. See section 6.5. These could, however, be taken-off the underground utilities for the existing education block.

6.4.2 CEZ 1: Root Protection Areas (RPAs)

6.4.2.1 Footprint of the Proposed Build

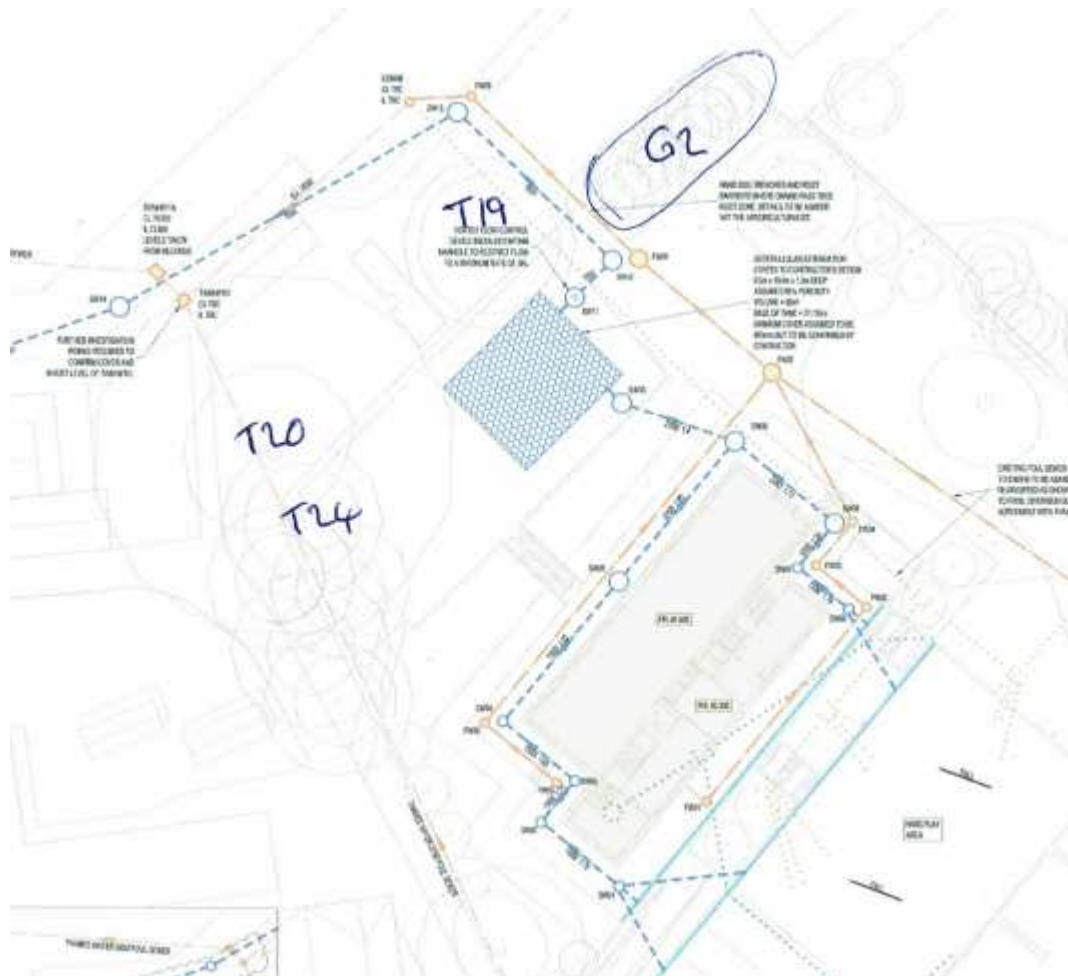
There would be no (main-block) RPA issues with any on/off-site trees. However, trees T1, T27-T29 and T31, G3 and the end cypress trees within G2 would have to be removed to (a) install the side access path, (b) provide a 3m wide service trench run and (c) provide temporary storage space. Of these, the only trees of note are the end cypress trees within group G2, with the remaining trees having low-grade suppressed/topped crown form.

6.4.2.2. Attenuation Tank

This 1.0m deep tank would be installed at the rear of the site. See extract below. This would however, be outside the RPAs of any on/off-site trees.

Trench Runs for Surface Water & Foul Water Drains: As plotted on the appended TPP - and with the removal of G2 end trees - a 3m wide zone would allow these to run past and out the RPA of T19. See ElliotWood Drain Layout plan extract below (project no. 2170727 drawing no. 1000). **NB** The staked Tree Protection Barriers would be 6m from trunk centre of T19: see as marked-up on the appended TPP.

Blue line = Surface Water (blue box is the attenuation tank)
Brown line = Foul Water



6.4.2.2 Construction Activity

Pupil Access to Oldfield House: During the build the existing tarmac footpath would be used. Importantly, materials from the frontage storage area (alongside Middle Road) would have to be brought across (in front of) this footpath. However, we are advised by The JTS Partnership LLP (project Planning Consultants) that “the safety of the students has been considered by School at great length and they have organised deliveries and movement of materials around the School timetable”. A detailed construction management plan has been prepared and submitted and will be agreed with the Council.

Tree Protection Barriers (TPBs): As per the appended Tree Protection Plan, if *temporary* staked TPBs are installed – to establish Construction Exclusion Zones - this would afford adequate RPA protection for all retention and off-site trees. See appendix 4. **NB** Due to restricted space for angular staking the landscape bed/grass verge area surrounding T2, the TPBs would be booted with sections *clamped together* so they cannot be moved. See Note 2 on the appended TPP.

Temporary Site Office: Part of Oldfield House could be used for this purpose.

Temporary Storage of Machinery and/or Materials: There would be two on-site areas as marked-up appended TPP including a distal site on the large car parking area at the John Lyon Sudbury Fields sports facility.

Temporary Ground Protection (TGP): This would be installed to protect the existing tarmac play-area surface and the *underlying* RPA incursion into the build site from T16 and T20. In general, for wheeled or track construction traffic within retention tree Root Protection Areas (RPA's), ideally the TGP would be specified by an engineer to accommodate the likely vehicular loading. We recommend the use of Durabase (<http://terrafirma.gb.com/>), Ground Guards (www.greentek.org.uk) or Eve-Trackway (<http://www.evetrakway.co.uk/>) due to their recognised *anti-soil compaction* properties (i.e. to protect underlying tree roots).

Note 1: If other similar TGP systems are used they must also have recognised *anti-soil compaction* properties (i.e. to protect underlying [RPA] tree roots)

Note 2: It is vital that the TGP is in place before any construction works begin on site.

Note 3: On no account - referring to leakage - would there be any mixing/preparation of noxious substances (e.g. wet mortar or concrete) on the TGP: unless prepared on top of thick heavy-duty polythene sheeting.

Note 4: To prevent leakage into the soil area under the TGP, any diesel would be carried in a portable bunded bowser and petrol would be stored in a ventilated tool box.

6.4.3 CEZ 2: Tree Crown Protection Zones

Construction Vehicle Site Access (access facilitation pruning)

With the proposed removal of T1 and T31, there would be no such issue with construction vehicles entering the site.

6.4.4 CEZ 3: Tree Dominance Zones

There would be no such issues with this proposal.

6.4.5 CEZ 4: New Tree Planting

According to the Planit Intelligent Environments LLP Tree Strategy (See Appendix 6) twenty-four replacement amenity trees would be planted around the site (indicative location marked-up with a “T” on the appended TPP).

6.5 TREE PROTECTION DURING CONSTRUCTION

6.5.1 Tree Protection: The protection of retention trees is *paramount* to the granting of planning permission, the discharge of tree protection Planning Conditions, the design of the development and the future health, stability and success of the trees. It is widely recognised that mature trees add value to both land and property values.

6.5.2 The Root Protection Area (RPA): RPAs around retention trees should be maintained by the erection of a *temporary* tree protection barrier (TPB) as described at Appendix 4 to this report. The position and extent for the TPB will normally concur with the radius/squared area of the RPA. This staked-off area shall be known as the **Construction Exclusion Zone (CEZ)**. The integrity of the TPB to protect **CEZs** should be maintained for the duration of the entire development works. The **CEZs** are marked-up on the appended Tree Protection Plan.

6.6 ARBORICULTURAL METHOD STATEMENT

6.6.1 Purpose & Use

In consideration of the above issues, we have included an Arboricultural Method Statement (AMS) at Appendix 3, which details working methods in relation to trees. This AMS lays down the methodology for any demolition and/or construction works that may have an effect upon trees on and adjacent to this site. It is essential within the scope of any contracts - related to this development - that this AMS is observed and adhered to. It is recommended that this document forms part of the work schedule and that specifications are issued to the building contractor(s) and these should be used to form part of their contract.

6.6.2 Site Supervision

An individual – ideally the Site Agent - must be nominated to be responsible for all arboricultural matters on site (specific responsibilities in section 7 of the appended Arboricultural Method Statement). This person must:

- be present on site for the majority of the time;
- be aware of (a) the Tree Protection Plan and (b) the tree protection measures to be installed and maintained throughout the build;
- have the authority to stop any work that is causing, or has the potential to cause, harm to any retention trees;
- be responsible for ensuring that all site operatives are aware of their responsibilities toward on/off site trees and the consequences of the failure to observe these responsibilities;
- make immediate contact with the designated Consulting Arborist (contact number listed on the appended AMS) in the event of any tree related problems occurring, whether actual or potential.

6.6.3 AMS Adoption

If conflicts between any part of a tree and the build arise in the course of the development these can – and should be – resolved quickly and at little costs if a qualified and experienced Consulting Arborist is contacted promptly. Lack of such care will likely lead to the decline and even death of affected trees: often with legal ramifications. The loss or damage to retention trees can spoil design, affect site sale ability and reflects badly on the construction and design personnel involved.

Conversely, trees that have received careful handling during construction add considerably to the appeal and value of the finished development.

7.0 CONCLUSIONS

7.1 DEVELOPMENT PROPOSAL & POTENTIAL IMPACT ON TREES

7.1.1 The development proposal would require the removal of trees T1, T27-T29 and T31, G3 and (end) part of G2: see wildlife legislation/considerations in section 4.2 and 8.3. However, with the exception of G2 (in part), these are all low-grade trees. Importantly, twenty-four replacement amenity trees would be planted around the site.

7.1.2 As plotted on the Tree Protection Plan at Appendix 2, with the implementation (in a timely manner) of the tree protection measures specified in this report there should be no CEZ 1 (RPA) impact on the retention trees.

7.1.3 There would be no CEZ 2 or CEZ 3 issues with this application.

7.1.4 See Arboricultural Method Statement at Appendix 3. Active random monitoring by a Consulting Arborist throughout the development process is strongly recommended (AIA3: Phase 3).

8.0 RECOMMENDATIONS

8.1 EXECUTION OF CONTRACT

It is recommended that the Architect specifies in writing to the building contractor that tree care conditions apply to the execution of the contract. Lack of care frequently results in the damage, decline and eventual death of trees. This can adversely affect design aims & site sale-ability, and reflects poorly on the contractors and design personnel involved. Trees that have been the recipients of careful handling during construction add considerably to the appeal and value of finished developments.

8.2 PROPOSED REVISIONS TO THE SCHEME

We advise that all proposed revisions in respect of external layout, orientation of primary windows, location of underground services, external surfacing and/or landscaping; having implications for retention trees should be referred to us for review.

8.3 WILDLIFE CONSIDERATIONS

Trees and hedgerows should be carefully inspected for birds' nests prior to tree pruning or removal and any work likely to destroy or disturb active nests should be avoided until the young birds have fledged, unless however, the trees pose an immediate danger (advice should be sought from the relevant wildlife authorities).

All personnel working with or in trees should be vigilant and mindful of the possible presence of roosting bats. A competent ecologist should investigate any indication that trees on the site are used as bat roosts.

9.0 OCCUPIERS LIABILITY ACTS

Attention is drawn to the provisions of the Occupiers liability Acts (England & Wales - 1957 & 1984), which place a responsibility upon landowners to ensure the safety of others entering their land whether by invitation or permission: inclusive of trespassers. There is a special responsibility to ensure the safety of children, who may be unaware of hazards. Annual inspections of trees by a competent person, or following storm events, together with implementation of any remedial tree work recommendations, should ensure compliance with the legislation regarding the above legislation.

10.0 REFERENCES

- BS 5837; 2012 *'Trees in relation to design, demolition and construction - Recommendations'* British Standards Institute, London
- BS 3998; 2010 *'Tree Work Recommendations'* British Standards Institute, London
- NJUG *Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees'* 2007 National Joint Utilities Group (NJUG) Volume No. 4: No. 1.
- Arboricultural Practice Note 12; 2007 – AAIS
- *'Availability of Sunshine'* BRE - CP 75/75
- *'Tree Roots in the Built Environment'* 2006 - Dept. for Communities & Local Government (DCLG).
- *'Up by Roots: healthy soils & trees in the built environment'* 2008 James Urban, International Society of Arboriculture.
- *'Arboriculture'*; 1999 3rd edition R. Harris, J. Clarke & N. Matheny. Prentice Hall.
- *'Soil Management for Urban Trees'* 2014 International Society of Arboriculture, Best Management Practice series.

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APPENDIX 1

TREE SURVEY SCHEDULE
(see appended at end of report)
5 pages

TREE NO.	REFERENCE NUMBER. REFER TO PLAN OR NUMBERED TAGS WHERE APPLICABLE
SPECIES:	COMMON NAME (LATIN NAMES AVAILABLE ON REQUEST)
AGE RANGE/LIFE STAGE:	Y = YOUNG, SM = SEMI MATURE, EM = EARLY MATURE, M = MATURE, PM = POST MATURE
HEIGHT:	ESTIMATED AND RECORDED IN METRES. APPROXIMATELY 1 IN 10 TREES ARE MEASURED USING A CLINOMETER AND THE REMAINDER ESTIMATED AGAINST THE MEASURED TREES
CROWN SPREAD:	MAXIMUM CROWN RADIUS MEASURED TO THE FOUR CARDINAL COMPASS POINTS FOR SINGLE SPECIMENS ONLY (MEASUREMENT FOR TREE GROUPS - MAXIMUM RADIUS OF THE GROUP)
CROWN CLEARANCE &DIRECTION OF GROWTH:	HEIGHT IN METERS OF CROWN CLEARANCE ABOVE ADJACENT GROUND LEVEL (TO INFORM ON GROUND CLEARANCE, CROWN/STEM RATIO AND SHADING)
STEM DIA/MULTI-STEM DIA:	STEM DIAMETER - MEASURED AT APPROXIMATELY 1.5 METRES ABOVE GROUND LEVEL OR A COMBINATION OF STEMS FOR MULTI-STEMMED TREES
VITALITY:	A MEASURE OF PHYSIOLOGICAL CONDITION. D = DEAD, MD = MORIBUND, P = POOR, M = MODERATE, G = GOOD
ESTIMATED REMAINING CONTRIBUTION:	RELATIVE USEFUL LIFE EXPECTANCY (YEARS)
BS 5837CATEGORY & SUB-CATEGORY GRADING:	A = HIGH QUALITY AND VALUE, B = MODERATE QUALITY AND VALUE, C = LOW QUALITY AND VALUE, U = UNSUITABLE FOR RETENTION: SUB-CATEGORY REFERS TO ARBORICULTURAL (1), LANDSCAPE (2) & CULTURAL/CONSERVATION VALUES (3).
BS 5837 RPA:	ROOT PROTECTION AREA - BS 5837 (2012) ANNEX D (THE RECOMMENDATIONS STATE THAT THE RPA SHOULD BE CAPPED AT 707 M ²)
BS 5837 RADIUS:	PROTECTIVE DISTANCE - RADIUS FROM THE CENTRE OF THE STEM TO THE LINE OF TREE PROTECTION (CONSTRUCTION EXCLUSION ZONE - CEZ) AND PROTECTIVE BARRIER

TREE SURVEY SCHEDULE

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SITE:	John Lyon School, Oldfield House, Middle Road, Harrow on the Hill
CLIENT:	John Lyon School
BRIEF:	CARRY OUT A PHASE I ARBORICULTURAL IMPACT (<i>TREE CONSTRAINT</i>) ASSESSMENT ON THE PROPOSED DEVELOPMENT AT THE ABOVE SITE.

SURVEYOR:	R. BALL
ASSESSMENT DATE:	31/07/2018
VIEWING CONDITIONS:	SUNNY – CLEAR
JOB REFERENCE:	101 259

PAGE: 1 of 5

Trees that are subject to Harrow Council Tree Preservation Order (TPO) no. 217 are yellow-highlighted in the survey below. See the TPO no. 217 (March 2021) Ground-Truth Survey appended at the end of this Tree Survey

Tree to be removed for the proposed development are coloured red and underlined. Please note update on T3.

TREE HEDGE GROUP NO.	SPECIES (COMMON NAME)	AGE RANGE/ LIFE STAGE	HEIGHT (m)	RADIAL CROWN SPREAD (m)				CROWN CLEARANCE & DIRECTION OF GROWTH (m)	STEM/ MULTI- STEM* DIA. (mm)	VITALITY	COMMENTS/STRUCTURAL MORPHOLOGY	PRELIMINARY MANAGEMENT	CATEGORY & SUB- CATEGORY GRADING BS 5837	BS 5837 RPA RADIUS (m)	BS 5837 RPA (m ²)
				N	E	S	W								
<u>T1</u>	<u>Yew</u> T3 on TPO No. 217	<u>EM</u>	<u>11</u>	<u>7</u>	<u>3</u>	<u>2.5</u>	<u>3</u>	<u>2.5</u>	<u>* 335; 375</u>	<u>normal</u>	<u>• Low branches lopped back on main trunk leaving stubs – tree has suppressed leaning form</u>	<u>None at time of survey (NATS)</u>	<u>C2</u>	<u>6.1</u>	<u>114.3</u>
T2	Horse Chestnut	EM	12	5.5	5.5	5.5	5.5	3.0	540	normal	• Well-balanced crown form but on trunk SW there is delaminated bark and a strip of (slow spreading) fungal <i>Bleeding Canker</i> (not significant at this time)	NATS	B2	6.4	131.9
T3	Horse Chestnut In G1 on TPO No. 217 Removed in April 2021	EM	22+	7	2.5	7	7	4.0	800	normal	• On trunk NW side there is a (recent) major scaffold split-out wound: has resulted in a large area of exposed heartwood that now has woodpecker hole. See photo no. 1.	Carry out a climbing inspection within 1-2 months using a probe and Sounding Hammer. Subsequently Removed in April 2021	?	-	-
T4	Ash	SM	23+	5	6	5	4	2.0	408	normal	• Topped in past – average crown form. In medium term, expanding basal root buttresses will likely begin to lift the base of the adjacent boundary wall. See photo no. 2.	NATS	C2	4.9	75.3
T5	Atlas Blue Cedar	EM	24+	4.5	4.5	4.5	4.5	2.5	543	normal	• Good well-balanced crown form	NATS	B2	6.5	133.3
T6	Rowan	SM	2.5	2.5	2.5	1.8	2.5	1.8	160	normal	• Recently established tree that could be replaced elsewhere on site	NATS	C2	1.9	11.5
T7	Silver Birch	SM	9.5	2	1.5	2	2	2.8	190	normal	• Suppressed by T9	NATS	C2	2.2	16.3
T8	Silver Birch	SM	9.5	1.8	1.8	1.8	1.8	3.0	140	normal	• Suppressed by T9	NATS	C2	1.6	8.8
T9	False Acacia	EM	12.5	5	5	6	5	3.8	445	normal	• Good dominate crown form	NATS	B2	5.3	89.5

SITE:	John Lyon School, Oldfield House, Middle Road, Harrow on the Hill
CLIENT:	John Lyon School
BRIEF:	CARRY OUT A PHASE I ARBORICULTURAL IMPACT (<i>TREE CONSTRAINT</i>) ASSESSMENT ON THE PROPOSED DEVELOPMENT AT THE ABOVE SITE.

SURVEYOR:	R. BALL
ASSESSMENT DATE:	31/07/2018
VIEWING CONDITIONS:	SUNNY –CLEAR
JOB REFERENCE:	101 259

PAGE: 2 of 5

TREE HEDGE GROUP NO.	SPECIES (COMMON NAME)	AGE RANGE/ LIFE STAGE	HEIGHT (m)	RADIAL CROWN SPREAD (m)				CROWN CLEARANCE & DIRECTION OF GROWTH (m)	STEM/ MULTI- STEM* DIA. (mm)	VITALITY	COMMENTS/STRUCTURAL MORPHOLOGY	PRELIMINARY MANAGEMENT	CATEGORY & SUB- CATEGORY GRADING BS 5837	BS 5837 RPA RADIUS (m)	BS 5837 RPA (m ²)
				N	E	S	W								
T10	Silver Birch <i>Third-party tree with no access to fully survey</i>	M	12	5	4	5	6	4.0	Est. 400	normal	• Good crown form	? See access	B2(?) See access	4.8	72.3
T11	Swedish Whitebeam <i>Third-party tree with no access to fully survey</i>	EM	14	2.5	1.5	2.5	3.5	4.0	Est. 280	normal	• Average group tree	? See access	C2(?) See access	3.3	35.4
T12	Rowan <i>Third-party tree with no access to fully survey</i>	EM	14	3.5	1.8	4.0	3.5	4.0	Est. 350	normal	• Average group tree	? See access	C2(?) See access	4.2	55.4
T13	Swedish Whitebeam <i>Third-party tree with no access to fully survey</i>	M	14	3.0	1.8	3.5	3.5	4.5	Est. 350	normal	• Average group tree	? See access	C2(?) See access	4.2	55.4
T14	False Acacia	SM	11	1.8	1.8	1.8	1.8	5.0	175	normal	• Insignificant tree	NATS	C2	2.1	13.8
T15	Hornbeam <i>Third-party tree with no access to fully survey</i>	EM	14	6.5	6.5	6.5	6.5	? See access	Est. 550	normal	• Good crown form	? See access	B2(?) See access	6.6	136.8
T16	Weeping Willow T2 on TPO No. 217	M	13	3.5	5	5.5	5	4.0	1185	normal	• Topped in past. On trunk east side at approx. 1.2m there is an old pruning wound – no significant hollowing detected below this wound with the Sounding Hammer	NATS	C2	14.2	635.2

SITE:	John Lyon School, Oldfield House, Middle Road, Harrow on the Hill
CLIENT:	John Lyon School
BRIEF:	CARRY OUT A PHASE I ARBORICULTURAL IMPACT (<i>TREE CONSTRAINT</i>) ASSESSMENT ON THE PROPOSED DEVELOPMENT AT THE ABOVE SITE.

SURVEYOR:	R. BALL
ASSESSMENT DATE:	31/07/2018
VIEWING CONDITIONS:	SUNNY –CLEAR
JOB REFERENCE:	101 259

PAGE: 3 of 5

TREE HEDGE GROUP NO.	SPECIES (COMMON NAME)	AGE RANGE/ LIFE STAGE	HEIGHT (m)	RADIAL CROWN SPREAD (m)				CROWN CLEARANCE & DIRECTION OF GROWTH (m)	STEM/ MULTI- STEM* DIA. (mm)	VITALITY	COMMENTS/STRUCTURAL MORPHOLOGY	PRELIMINARY MANAGEMENT	CATEGORY & SUB- CATEGORY GRADING BS 5837	BS 5837 RPA RADIUS (m)	BS 5837 RPA (m ²)
				N	E	S	W								
G1	Plum x 4 Sycamore x 1 Hazel x 1 <i>Third-party trees with no access to fully survey</i>	SM	4-8	1.9	1.9	1.9	1.9	1.5	Est. Av. 180 x 3	normal	• Average tree group	? See access	C2(?) See access	3.7	43.9
T17	Sycamore <i>Third-party tree with no access to fully survey</i>	EM	13	2.5	2.2	2.5	2.5	2.5	Est. 250	normal	• Average tree	? See access	C2(?) See access	3.0	28.2
T18	Sycamore	EM	11	4	4	4	4	3.5	Est. 270	normal	• Good crown form	NATS	B2	3.2	32.9
<u>G2</u> <u>End</u> <u>section</u>	<u>Lawson</u> <u>Cypress x</u> <u>12</u>	<u>EM</u>	<u>12-14</u>	<u>1.9</u>	<u>1.9</u>	<u>1.9</u>	<u>1.9</u>	<u>=</u>	<u>Est.</u> <u>Av.</u> <u>280</u>	<u>normal</u>	• <u>Provides useful screening</u>	<u>NATS</u>	<u>B2</u>	<u>3.3</u>	<u>35.4</u>
T19	Sycamore <i>Third-party tree with access to fully survey</i>	EM	14	5.5	5.5	5.5	5.5	4.0	550	normal	• Good well-balanced crown form	NATS	B2	6.6	136.8
T20	Common Lime <i>Third-party tree with access to fully survey</i>	M	18	7	5	7	7	3.5	* 800; 600; 600	normal	• Good well-balanced crown form	NATS	B2	13.9	615.2

SITE:	John Lyon School, Oldfield House, Middle Road, Harrow on the Hill ohn Lyon School Oldfield House
CLIENT:	John Lyon School
BRIEF:	CARRY OUT A PHASE I ARBORICULTURAL IMPACT (<i>TREE CONSTRAINT</i>) ASSESSMENT ON THE PROPOSED DEVELOPMENT AT THE ABOVE SITE.

SURVEYOR:	R. BALL
ASSESSMENT DATE:	31/07/2018
VIEWING CONDITIONS:	SUNNY –CLEAR
JOB REFERENCE:	101 259

PAGE: 4 of 5

TREE HEDGE GROUP NO.	SPECIES (COMMON NAME)	AGE RANGE/ LIFE STAGE	HEIGHT (m)	RADIAL CROWN SPREAD (m)				CROWN CLEARANCE & DIRECTION OF GROWTH (m)	STEM/ MULTI- STEM* DIA. (mm)	VITALITY	COMMENTS/STRUCTURAL MORPHOLOGY	PRELIMINARY MANAGEMENT	CATEGORY & SUB- CATEGORY GRADING BS 5837	BS 5837 RPA RADIUS (m)	BS 5837 RPA (m ²)
				N	E	S	W								
T21	Lime <i>Third-party tree with access to fully survey</i>	EM	16	3.5	3.5	3.5	3.5	4.0	470	normal	• Part of linear group with good companion tree form	NATS	B2	5.6	99.9
T22	Horse Chestnut <i>Third-party tree with access to fully survey</i>	EM	16	3.5	3.5	3.5	3.5	4.0	510	normal	• Part of linear group with good companion tree form	NATS	B2	6.1	117.6
T23	Horse Chestnut <i>Third-party tree with access to fully survey</i>	EM	16	3.5	3.5	3.5	3.5	4.0	480	normal	• Part of linear group with good companion tree form	NATS	B2	5.7	104.2
T24	Lime In G3 on TPO No. 217	M	18	4.5	4.5	4.5	4.5	1.0	* 400; 200; 250	normal	• Good crown form	NATS	B2	6.1	118.7
T25	Lime In G3 on TPO No. 217	M	18	4.5	4.5	4.5	4.5	1.0	455	normal	• Good crown form	NATS	B2	5.4	93.6
T26	Hornbeam	EM	5.5	4	4	5	4	1.8	335	normal	• Suppressed by T27	NATS	C2	4.2	57.1
T27	Hawthorn In G3 on TPO No. 217	EM	9.5	3.5	2.5	2.5	3.5	2.5	265	mod.	• <u>Average tree with declining vitality</u>	NATS	C2	3.1	31.7

SITE: John Lyon School, Oldfield House, Middle Road, Harrow on the Hill										SURVEYOR: R. BALL		PAGE: 5 of 5			
CLIENT: John Lyon School										ASSESSMENT DATE: 31/07/2018					
BRIEF: CARRY OUT A PHASE I ARBORICULTURAL IMPACT (TREE CONSTRAINT) ASSESSMENT ON THE PROPOSED DEVELOPMENT AT THE ABOVE SITE.										VIEWING CONDITIONS: SUNNY –CLEAR					
										JOB REFERENCE: 101 259					
TREE HEDGE GROUP NO.	SPECIES (COMMON NAME)	AGE RANGE/ LIFE STAGE	HEIGHT (m)	RADIAL CROWN SPREAD (m)				CROWN CLEARANCE & DIRECTION OF GROWTH (m)	STEM/ MULTI-STEM* DIA. (mm)	VITALITY	COMMENTS/STRUCTURAL MORPHOLOGY	PRELIMINARY MANAGEMENT	CATEGORY & SUB-CATEGORY GRADING BS 5837	BS 5837 RPA RADIUS (m)	BS 5837 RPA (m²)
				N	E	S	W								
<u>T28</u>	<u>Sycamore</u>	<u>M</u>	<u>12.5</u>	<u>3.8</u>	<u>3.8</u>	<u>3.8</u>	<u>3.8</u>	<u>6.0</u>	<u>680</u>	<u>normal</u>	• <u>Recently heavily reduced</u>	<u>NATS</u>	<u>C2</u>	<u>8.1</u>	<u>209.1</u>
<u>T29</u>	<u>Hawthorn</u> <u>In G3 on</u> <u>TPO No. 217</u>	<u>EM</u>	<u>9.5</u>	<u>3.5</u>	<u>2</u>	<u>2.5</u>	<u>2</u>	<u>1.8</u>	<u>270</u>	<u>mod.</u>	• <u>Average tree with declining vitality</u>	<u>NATS</u>	<u>C2</u>	<u>3.2</u>	<u>32.9</u>
T30	Sycamore	EM	14	3.5	3.5	3.5	5.5	4.5	* 375; 390	normal	• Dominate crown form	NATS	B2	6.4	132.4
<u>T31</u>	<u>Sycamore</u>	<u>EM</u>	<u>14</u>	<u>3.5</u>	<u>3.5</u>	<u>3.5</u>	<u>3.5</u>	<u>4.5</u>	<u>435</u>	<u>normal</u>	• <u>Suppressed by T30</u>	<u>NATS</u>	<u>C2</u>	<u>5.2</u>	<u>85.6</u>
<u>G3</u>	<u>Cherry x 4</u>	<u>Y</u>	<u>1.8-2.8</u>	<u>1.1</u>	<u>1.1</u>	<u>1.1</u>	<u>1.1</u>	<u>1.5</u>	<u>Est.</u> <u>Av.</u>	<u>normal</u> <u>(poor)</u>	• <u>Line of newly established young trees – the (eastern) end one of which is dead</u>	<u>NATS</u>	<u>C2</u>	<u>1.1</u>	<u>3.6</u>



Photo No. 2 to show root-collar buttresses close to base of the boundary wall
(pen included for scale)





**John Lyon School, Crown Street,
Harrow on the Hill, HA2 0HN**

TPO No. 217 Ground-Truth Survey

Date: 29/03/2021

Ref: 101 595

We visited the site on 29th March to cross-reference the existing TPO's trees with the TPO 217 Plan and schedule as provided by Harrow Council. See survey results in bold italics below for each tree/group. Results to be read in conjunction with the photo extract overleaf.

It is important to note that (a) this is an old TPO (confirmed July 1977) and (b) all the on-site trees are within a Conservation Area and so are subject to statutory protection regardless of their TPO status.

TPO 217: Crown Street (No. 1), Harrow

TREES SPECIFIED INDIVIDUALLY

No. DESCRIPTION LOCATION

T1	Beech	<i>No longer present</i>
T2	Weeping Willow	<i>Present</i>
T3	Yew	<i>Present</i>
T4	Glastonbury Thorn	<i>No longer present</i>

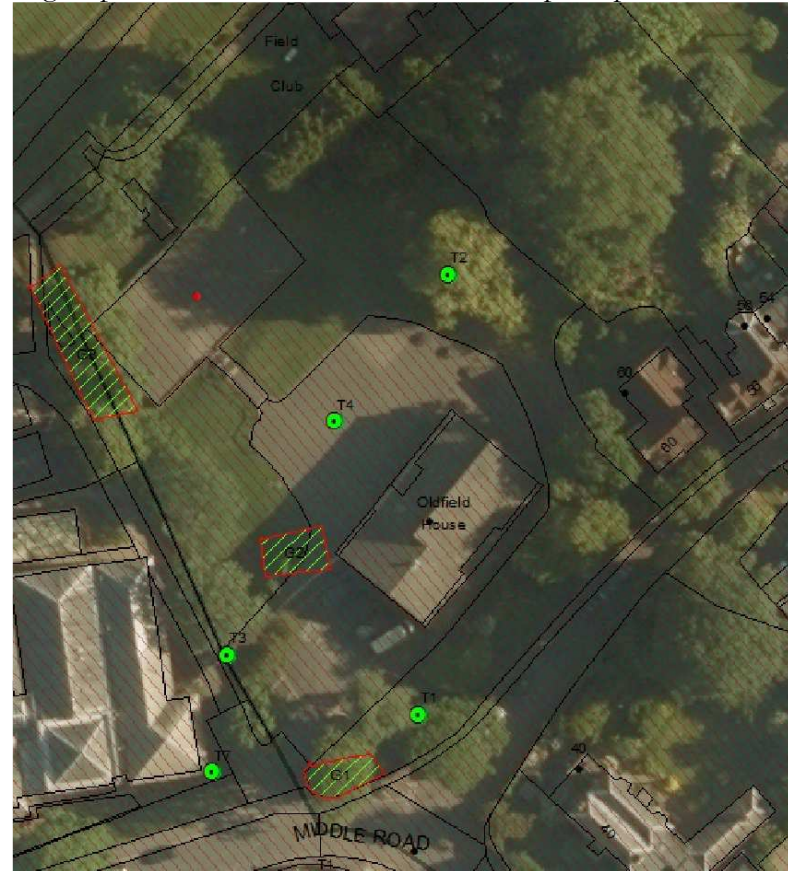
GROUPS OF TREES

G1	2 Horse Chestnut	<i>One horse chestnut remains that is due to be removed as it poses a significant hazard (see appended photo on Tree Survey)</i>
G2	2 Hornbeam	<i>No longer present</i>
G3	2 Hawthorn, 2 Lime	<i>Present (all four trees)</i>

TREES SPECIFIED BY REFERENCE TO AN AREA

None

Given the significant age of TPO 217 – and from my experience as the ex TPO Officer for Harrow Council - it is not surprising that over the intervening 44 years since this TPO was confirmed that some of the trees/group trees have been removed or were perhaps lost after wind events.



On the attached Tree Survey we have marked-up with yellow-highlights the TPO'd trees: to be read in conjunction with the appended Tree Constraints Plan. Again, it is important to note that all these surveyed trees are within a Conservation Area and so are subject to statutory protection regardless of their TPO status.

Prepared by:
Russell Ball BSc. (Hons.), P.G. Dip. LM, CBiol., MRSB
Royal Society of Biology *Chartered Biologist*
International Society of Arboriculture *Certified Arborist*
LANTRA Approved *Professional Tree Inspector*
International Society of Arboriculture *Qualified Tree Risk Assessor*

APPENDIX 2

TREE CONSTRAINT AND PROTECTION PLANS

(see appended to the report)

NB The original of this plan was produced in colour – a monochrome copy should not be relied upon.

Arbol EuroConsulting Ltd.

1 Landford Close Rickmansworth WD3 1NG
Mobile: 07884426671

John Lyon School Oldfield
Tree Constraints Plan

SCALE :
1:500 @ A3

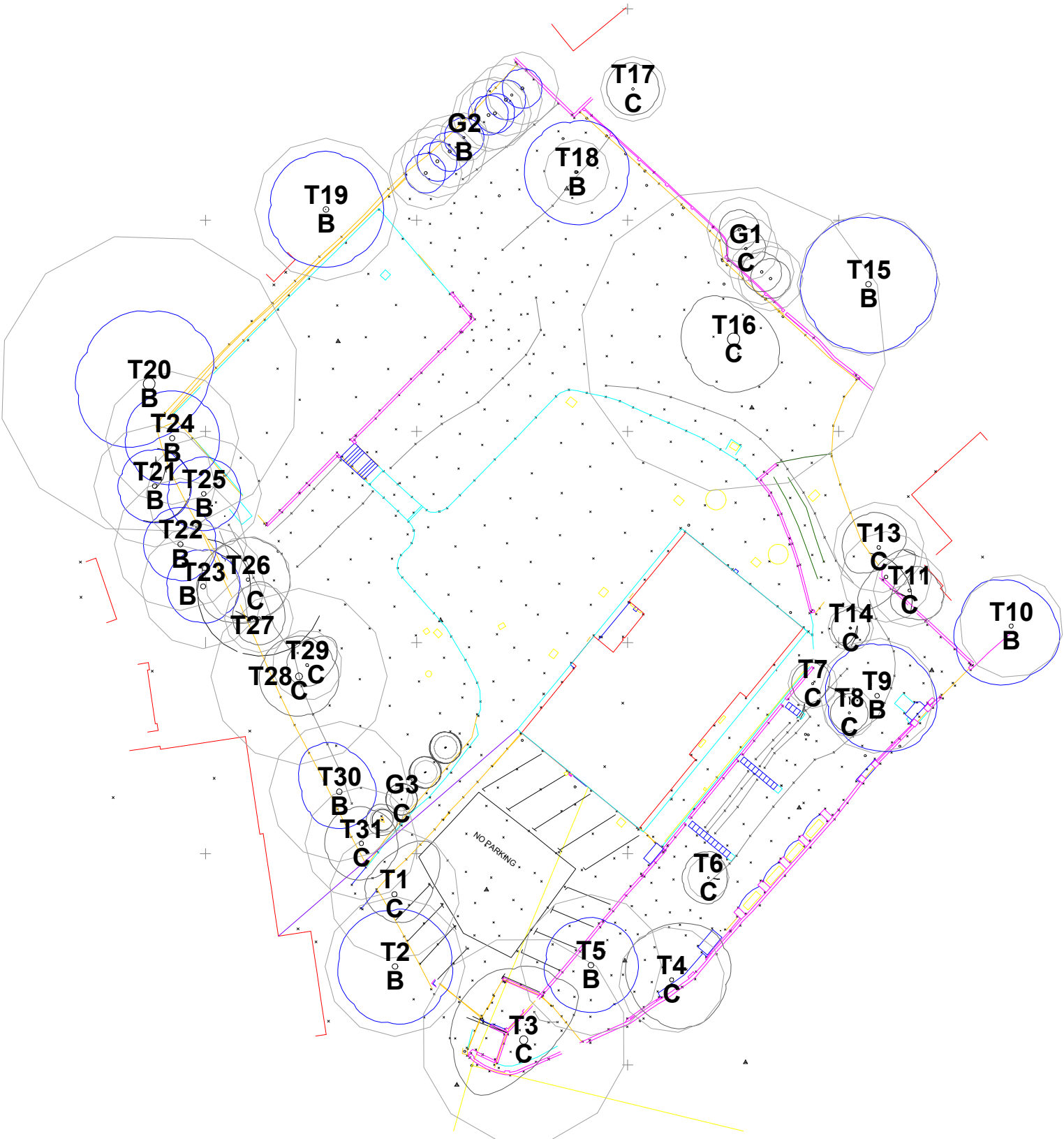
DATE :
8/3/2018

MAP FILENAME :
101 259




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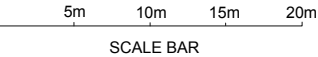


The original of this drawing was produced in
colour - a monochrome copy should not be
relied upon



KEY

-  Root Protection Area (RPA)
-  Crown Spread
-  BS. 5837 Retention Grade



Arbol EuroConsulting Ltd.

1 Landford Close Rickmansworth WD3 1NG
Mobile: 07884426671

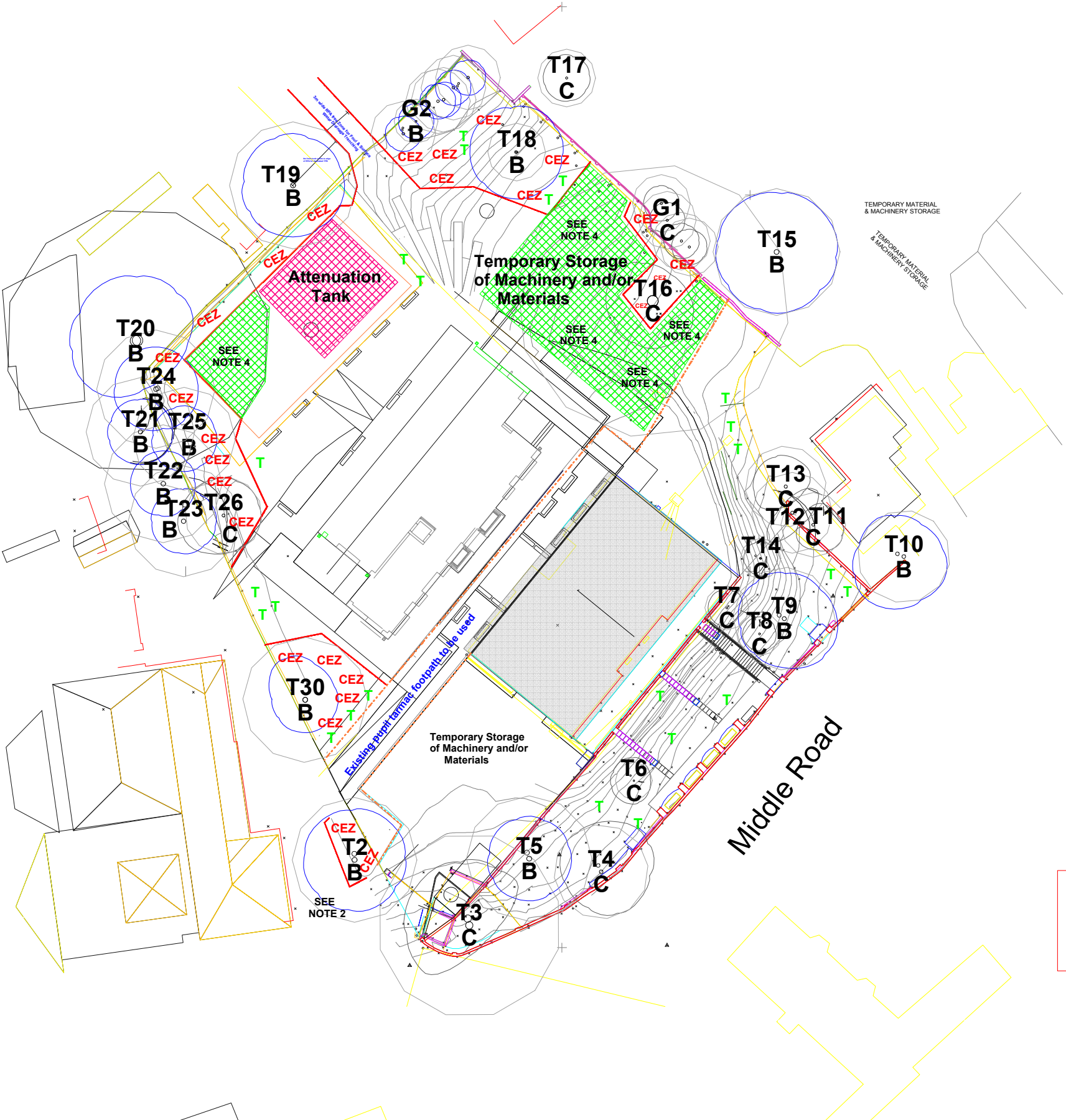
John Lyon School Oldfield
Tree Protection Plan

SCALE :	DATE :
1:500 @ A3	11/4/2019
MAP FILENAME :	
101 356	
<small>Pear Technology Services Ltd. Email: info@peartechnology.co.uk Maps based on Ordnance Survey MasterMap or 1:25000 M50 scale data with the permission of the Controller of HMSO. © Crown Copyright</small>	



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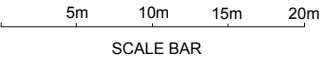
- NOTES
1. Trees T1, T16 and T27-T31 including G3 and end trees off G2 (for the Surface Water & Foul Water drains) have been removed off plan to facilitate development.
 2. Landscape bed/grass verge area surrounding T2 to be fenced-off using clamped and braced Tree Protection Barriers.
 3. Notional position of the site boundary hoarding.
 4. On no account - referring to leakage - shall there be any mixing/preparation of noxious substances (e.g. wet mortar or concrete) on the TGP: unless prepared on top of thick heavy-duty polythene sheeting.



KEY

- Root Protection Area (RPA)
- Crown Spread
- BS: 5837 Retention Grade
- Temporary Staked Tree Protection Barrier (TPB)
- CEZ = Construction Exclusion Zone**
- Temporary Ground Protection
- Temporary Site Hoarding
- Indicative Location for New Tree

THIS TREE PROTECTION PLAN MUST BE READ IN CONJUNCTION WITH THE ARBORICULTURAL METHOD STATEMENT THAT ACCOMPANIES THE TREE REPORT (IN APPENDIX 3)



APPENDIX 3
ARBORICULTURAL METHOD STATEMENT
5 pages

ARBORICULTURAL METHOD STATEMENT (AMS)

Site: John Lyon School - Oldfield House

To be read in conjunction with the Tree Report sections 6-8 and Tree Protection Plan at Appendix 2.

NB The original of this plan was produced in colour – a monochrome copy should not be relied upon. This AMS lays down the methodology for any demolition and/or construction works that may have an effect upon trees on and adjacent to this site. It is essential within the scope of any contracts - related to this development - that this AMS is observed and adhered to. It is recommended that this document forms part of the work schedule and that specifications are issued to the building contractor(s) and these must be used to form part of their contract.

Consulting Arborist contact details: Russell Ball – mob. No. 078844 26671

SEQUENCE OF WORKS

From commencement of the subject development, the following methodology will be implemented in the manner and sequence described:

1. Pre-commencement site meeting.
2. Arboricultural removal works: with written LPA permission for any protected trees.
3. Erect *temporary* staked Tree Protection Barriers (TPBs) to establish the fenced-off Construction Exclusion Zones (CEZ): **before** any construction works begin on-site.
4. Main construction works.
5. Install Drainage Runs
6. Site Supervision Responsibilities
7. Remove TGP and TPBs.
8. Replacement tree planting

1. PRE- COMMENCEMENT SITE MEETING

To outline on-site working methods in relation to trees prior to any demolition and/or construction activity, a site meeting of the following shall take place:

- Client
- Architect/Planning Consultant
- Structural Engineer
- Main Contractor
- LPA Arboricultural Officer (*optional*)
- Consulting Arborist
- Site Agent

2. ARBORICULTURAL REMOVAL WORKS

1. Before the erection of the *temporary* Tree Protection Barriers (see below) remove trees: T1, T27-T29 and T31 including G3 and (end) part of G2. These tree removals will be subject to written permission /full planning permission from the Local Planning Authority (Council) as they are sited in a Conservation Area. See also see wildlife legislation/considerations in sections 4.2 and 8.3 of the report narrative.
2. All possible efforts must be made to prevent damage to retained trees including potential root incursion or compaction caused by vehicle access. If required, temporary ground protection should be used to achieve the latter.
3. All arboricultural pruning works must conform to the recommendations of BS 3998 (2010) 'Recommendations for Tree Work'.
4. No fires or chip piling to occur within 5m of the drip line of any tree canopy or within 10m of any tree trunk: whichever is further.
5. All operatives must be equipped with and use personal protective equipment (PPE) in accordance with current Health & Safety Executive current directives and industry codes of practice.
6. Wound sealants will not be used on any tree.
7. Performance of all arboricultural operations and use of equipment must be in accordance with current Health & Safety Executive current directives and industry codes of practice.

3. ERECT *TEMPORARY* STAKED TREE PROTECTION BARRIERS (TPBs)

1. Following completion of the tree works and prior to demolition and/or construction, the main contractor will erect the TPBs as per the appended Tree Protection Plan (TPP) and as detailed in the 'Tree Protection Barrier Specification' at Appendix 4 of this report. See also Appendix MS(i) below. This will establish the fenced-off **Construction Exclusion Zones**: CEZs (marked up on the TPP).
2. Due to restricted space for angular staking the landscape bed/grass verge area surrounding T2 the TPBs would be booted with sections *clamped together* so they cannot be moved.

3. Prior to commencement of any site demolition, construction, preparation, excavation or material deliveries, the Consulting Arborist will inspect installation of the TPB and the CEZs. Any damage occurring to the TPB during the demolition or construction phase will be made good by the main contractor.
4. Excavation will not occur at a distance of less than 300mm from the TPB.

4. MAIN CONSTRUCTION WORKS

1. Before commencing work on site, all operatives must be briefed by the **Site Agent/Contract Manager** on the importance of protecting both on and off-site trees. The basis of this briefing will be the protection measures as set out on the Tree Protection Plan (TPP) including the position of staked **Tree Protection Barriers**, **Ground Protection** and **Construction Exclusion Zones**. As such the TPP shall be clearly displayed on the wall of the site hut/office. **NB** During the construction the **Site Agent/Contract Manager** will be responsible for all tree protection measures. See also **Site Supervision Responsibilities** below.
2. **Temporary Ground Protection (TGP):** This shall be installed to protect the RPA incursion into the build site from T16 and T20. In general, for wheeled or track construction traffic within retention tree Root Protection Areas (RPA's), ideally the TGP would be specified by an engineer to accommodate the likely vehicular loading. We recommend the use of Durabase (<http://terrafirma.gb.com/>), Ground Guards (www.greentek.org.uk) or Eve-Trackway (<http://www.evetrakway.co.uk/>) due to their recognised *anti-soil compaction* properties (i.e. to protect underlying tree roots).

Note 1: If other similar TGP systems are used they must also have recognised *anti-soil compaction* properties (i.e. to protect underlying [RPA] tree roots)

Note 2: It is vital that the TGP is in place before any construction works begin on site.

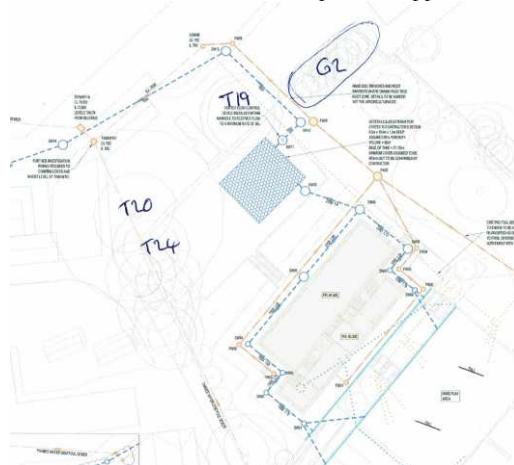
Note 3: On no account - referring to leakage – shall there be any mixing/preparation of noxious substances (e.g. wet mortar or concrete) on the TGP: unless prepared on top of thick heavy-duty polythene sheeting.

Note 4: To prevent leakage into the soil area under the TGP, any diesel shall be carried in a portable bunded bowser and petrol would be stored in a ventilated tool box.

3. There must be no (a) storage of construction material/equipment or (b) preparation of noxious substances (e.g. cement) in any area designated as the Construction Exclusion Zone (CEZ) and enclosed by the TPB.
4. Fires on site will be avoided if possible. Where they are unavoidable they must not be lit in a position where heat could affect foliage or branches. The potential size of a fire and the wind direction must be taken into account when determining its location and it should be attended at all times until safe enough to leave.

5. INSTALL DRAINAGE RUNS

1. **Trench Runs for Surface Water & Foul Water Drains:** As plotted on the appended TPP - and with the removal of G2 end trees - a 3m wide zone will allow these to run past and out the RPA of T19. See ElliotWood Drain Layout plan extract below (project no. 2170727 drawing no. 1000). **NB** The staked Tree Protection Barriers will be 6m from trunk centre of T19: see as marked-up on the appended TPP.



6. SITE SUPERVISION RESPONSIBILITIES

1. It will be the responsibility of the main contractor to ensure that any tree protection planning conditions attached to planning consent are adhered to at all times and that a monitoring regime in regards to tree protection is adopted on site.
2. The main contractor must assign tree protection monitoring duties to one or more individuals working at the site, who will be responsible for all tree protection monitoring and supervision (see the *Site Personnel Induction Form* at Appendix MS ii).
3. The individual(s) assigned tree protection monitoring duties must:
 - Be present on site for the majority of the time;
 - Be aware of (a) the Tree Protection Plan and (b) the tree protection measures to be installed and maintained throughout all phases of the development;

- Be responsible for ensuring all tree protection measures are adhered to as detailed in the Arboricultural Impact Assessment (AIA) report and Arboricultural Method Statement (AMS);
 - Ensure all site operatives without exception read and understand the tree protection and control measures detailed in the AMS;
 - Keep on file all individual Site Personnel Induction Forms which must be signed by all site operatives (including sub contractors) indicating they have read and understood the control measures detailed within the AIA report and AMS;
 - Maintain a written record of Tree Protection / Construction Exclusion Zone inspections, to be kept up to date by the person(s) who have been designated the inspection and monitoring duties;
 - Have the authority to stop any work that is causing, or has the potential to cause, harm to any retention trees;
 - Be responsible for ensuring that all site operatives including sub contractors are aware of their responsibilities toward on/off site trees and the consequences of the failure to observe these responsibilities;
 - Make immediate contact with the Consulting Arboriculturist in the event of any tree related problems occurring, whether actual or potential. (Contact details including telephone number and email address are listed on the Title Page).
4. The Construction Exclusion Zone fencing, ground protection and all signs must be maintained in position at all times and checked on a regular basis by the on site person(s) who have been designated that responsibility.
 5. The main contractor will be responsible for contacting the Local Planning Authority and the Consulting Arboriculturist at any time issues are raised relating to the trees on site.
 6. If at any time pruning works are required, permission must be sought from the Local Planning Authority first and then carried out in accordance with BS 3998:2010 Tree Work – Recommendations (As updated).
 7. The main contractor will ensure the build sequence and phasing is appropriate to ensure that no damage occurs to the trees during the construction processes. Protective fences will remain in position and undisturbed until completion of ALL construction works on the site.
 8. The main contractor will be responsible for ensuring all site operatives including sub-contractors do not carry out any process or operation that is likely to adversely impact upon any tree on site.

7. REMOVAL OF *TEMPORARY* GROUND PROTECTION (TGP) AND TREE PROTECTION BARRIERS (TPBs)

1. The TGP & TPBs will be removed only upon completion of the construction.

8. REPLACEMENT TREE PLANTING:

1. In line with the Planit Intelligent Environments LLP Tree Strategy (See Appendix 6) twenty-four replacement amenity trees will be planted around the site.

APPENDIX MS(i)

Figure 2 Default specification for protective barrier

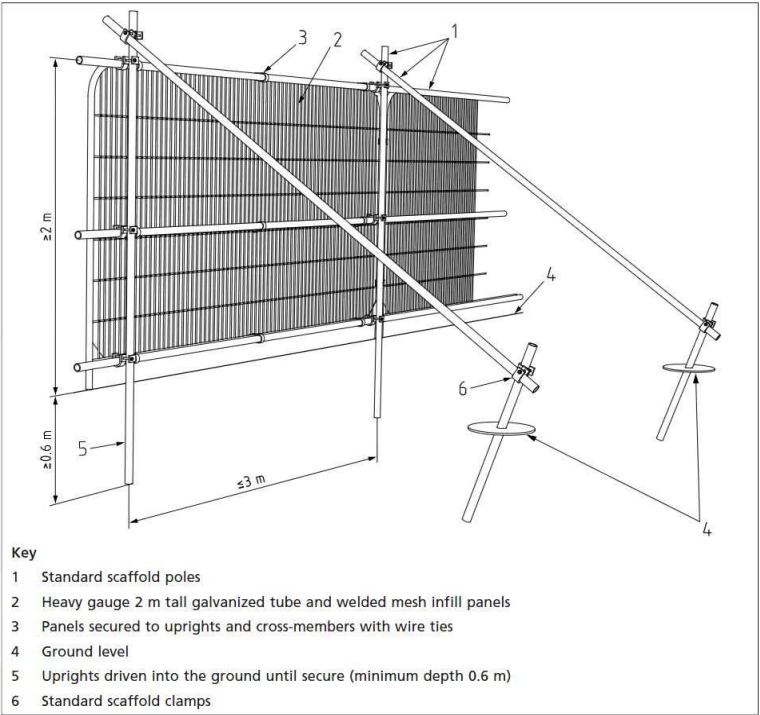
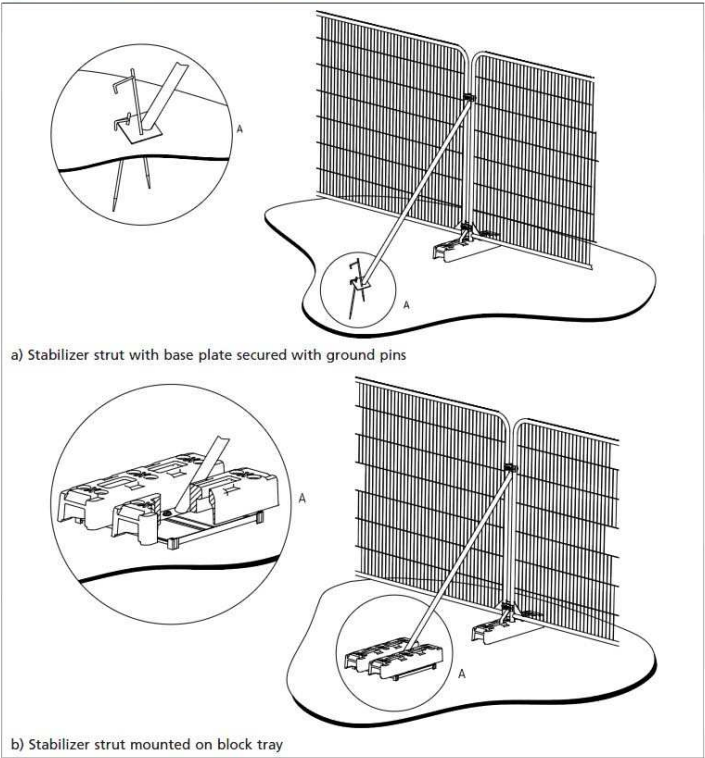


Figure 3 Examples of above-ground stabilizing systems



APPENDIX MS(ii)
Site Personnel Induction Form

Name:

Site Address:

Date:

Declaration	Tick to Confirm
I have read and understand the Arboricultural Method Statement and the requirements to be employed / actioned at the site regarding tree protection.	
I understand that all tree protection measures (fencing and ground protection) must not be moved or disturbed throughout the development project without prior agreement with the Consulting Arboriculturist.	
I understand that certain operations must only be undertaken under supervision of the Consulting Arboriculturist or a suitably qualified Arborist and/or must not be undertaken without their approval.	
I acknowledge that any concerns I have regarding the protection of trees at and adjacent to the development site will be brought to the attention of the Site Manager/Supervisor.	
I acknowledge that I must not cause direct or indirect damage to any on site or neighbouring tree, either above or below ground level during the course of my daily operational duties.	

Signed:.....

APPENDIX 4

TREE PROTECTION BARRIER
SPECIFICATION

1 page only

TREE PROTECTION BARRIER SPECIFICATION

The Root Protection Area (RPA) and Construction Exclusion Zone (CEZ) enclosed by temporary protective fencing must:

1. Be erected prior to any site works, demolition or construction works, delivery of site accommodation or materials and must remain for the duration of the demolition/construction works. All-weather notices should be attached to the barriers with the following wording: **"CONSTRUCTION EXCLUSION ZONE – NO ACCESS"**
2. Be protected by temporary protective fencing and other measures as specified and as defined by area (m²) on the drawings (Tree Protection Plan - TPP).
3. Preclude the storage or tipping of all materials and substances, in addition, toxic substances such as fuels, oils, additives, cement, or other deleterious substances within 5.0 metres of an exclusion zone.
4. Any incursion into the Root Protection Area (RPA) and Construction Exclusion Zone (CEZ) as indicated on the Tree Protection Plan (TPP) must be by prior arrangement, following consultation with the Local Planning Authority.

Temporary Tree Protection Barrier (Specification taken from BS:5837 -2012)

Figure 2 Default specification for protective barrier

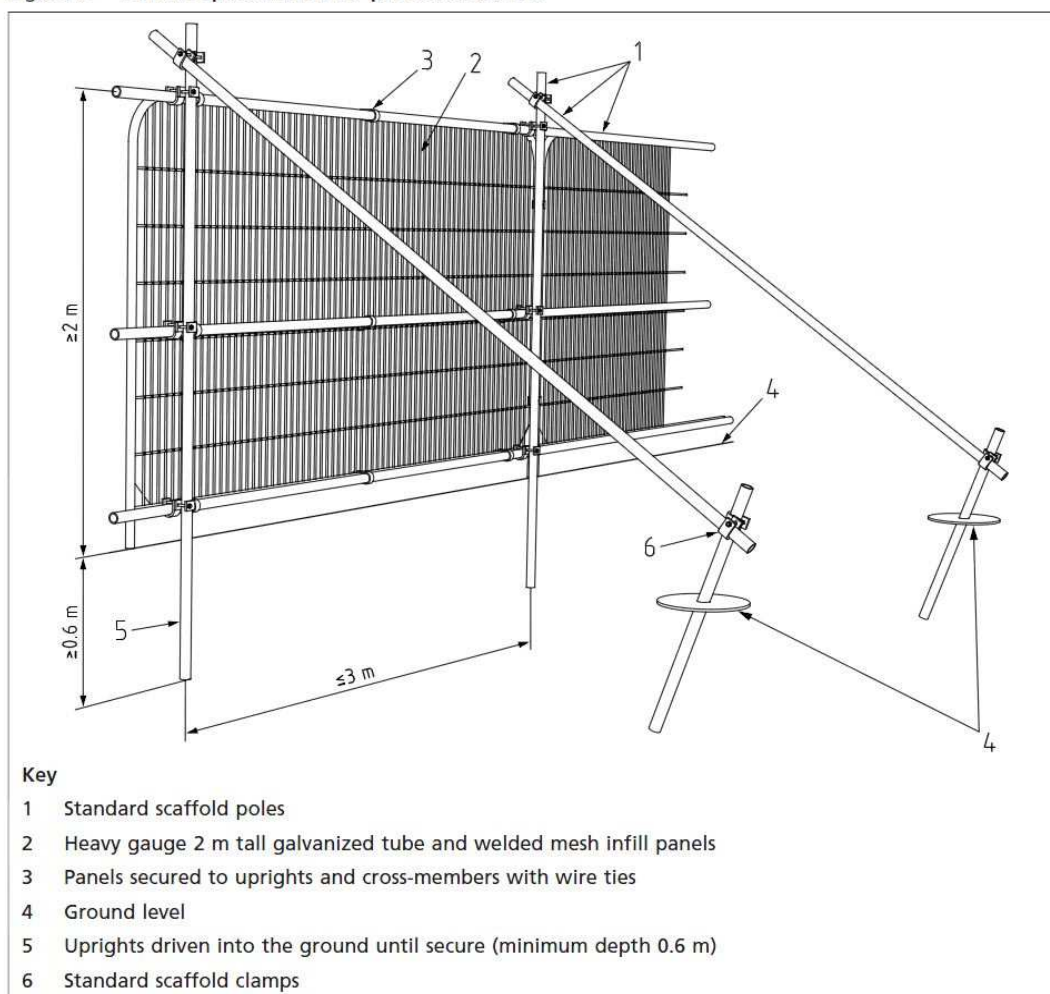
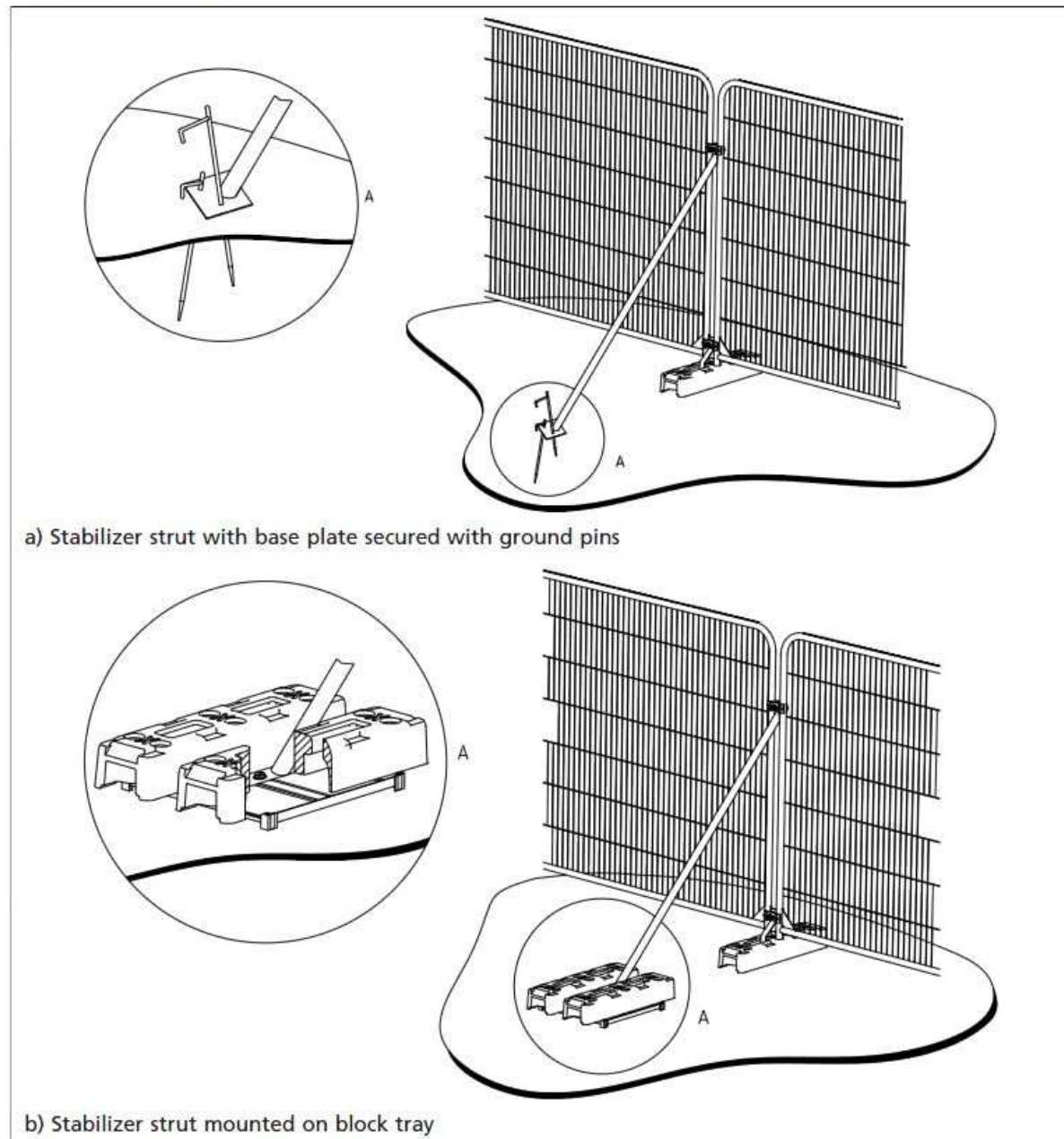


Figure 3 Examples of above-ground stabilizing systems



APPENDIX 5

OUTLINE CIRRICULUM VITAE AND PROFESSIONAL EXPERIENCE

Russell Ball BSc. (Hons.), P.G. Dip. LM, CBiol., MSB.
Chartered Biologist

Qualifications

- BSc. (Hons.) Botany (Manchester University).
- Post Graduate Diploma: Landscape Management (Manchester University).
- Royal Society of Biology **Chartered Biologist** (since 1995).
- International Society of Arboriculture **Certified Arborist** No. UI 1287A (2017)
- L~~A~~NTRA Approved **Professional Tree Inspector** (Ref: HO00178227 504187)
- International Society of Arboriculture **Qualified Tree Risk Assessor** (ID: 2148)

Professional Experience (1984-2012)

- Tree Works Contractor.
- Harrow Council: Assistant Tree Officer (Parks Dept.)
- London Tree Officers Association: Executive Officer.
- International Society of Arboriculture (European office): Senior Executive.
- Arbol Euro Consulting: Technical Director (**Madrid, Spain**).
- Harrow Council: Principal Tree Preservation (TPO) Officer. During my employ with Harrow Council I served on the Executive Committee of the "*London Tree Officers Association*".
- Arbol Euro Consulting Ltd: Technical Director (**London, UK**).

Professional Memberships

- International Society of Arboriculture (ISA). President of the ISA UK/I Chapter (2010-2012).
- Arboricultural Association
- Consulting Arborist Society
- Royal Society of Biology
- Royal Horticultural Society (Chelsea Flower Show *Silver-Gilt* medal Winner: *Rainforest Belize* – 1996)

Contact Details

- Mobile: 078844 26671
- Email: russell@arboleuro.co.uk



APPENDIX 6

Planit Intelligent Environments
LLP Tree Strategy

2.3 Tree Strategy



DESIGN PRINCIPLES

This Tree Strategy is subject to agreement by the Local Planning Authority in accordance with standard landscaping conditions.

All proposed trees to be removed have a Category C rating, they have been identified as suppressed or of declining vitality. Their contribution to the prosperity of the site long term is of little value.

As a means of mitigating against the loss of existing trees and future-proofing the vitality and character of the school, 24 new trees have been proposed in their place; two new trees for every one lost.

Removal of two trees in Group G2 is subject to further assessment before development takes place

KEY:

- TREES TO BE RETAINED (NO. 22 + 2 GROUPS)
- TPO TREES TO BE RETAINED (NO. 3)
- TREES TO BE REMOVED (NO.8)
- TPO TREES TO BE REMOVED (NO.3)
- PROPOSED TREES (NO. 24)
- TPO TREE PREVIOUSLY REMOVED DUE TO SAFETY CONCERNS (NO.1)

