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## Arboricultural Survey (BS5837:2012) & Impact Assessment Report

Site details:

La Sainte Union School
La Sainte Union Convent
Highgate Road
London
NW5 1RP

Client details:

La Sainte Union School
La Sainte Union Convent
Highgate Road
London
NW5 1RP

Date of Report:

12th April 2016

Report Prepared by:

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## Contents

## 1. Introduction

1.1 This report has been commissioned by La Sainte Union School to survey, assess and provide arboricultural recommendations and an impact assessment for the trees within and in close proximity to the proposed development at La Sainte Union School, Highgate Road, London, NW5 1RP.

1.2 A site visit was conducted on Wednesday 6th April 2016 to survey and assess the trees. The weather at the time of inspection was dry and overcast with mild temperatures.

1.3 A tree survey, report and recommendations have been compiled for 3 trees (T1-T3) surveyed within La Sainte Union School, La Sainte Union Convent, Highgate Road, London, NW5 1RP.

1.4 The details of the subject trees are set out in the tree survey table in *Appendix A*. The trees were surveyed on the date and time shown above and the tree survey assessment information for the trees describing size, condition and surroundings are found within this appendix.

1.5 The trees located within the site and included in the survey are shown in site plan, *Appendix B.1 - B.2*, and these correspond to the tree survey results table, *Appendix A*. A proposed tree protection plan is included as *Appendix B.3.*

1.6 Photographs of the trees can also be found in *Appendix C* taken at the time of site visit.

1.7 This report and the opinions within it have been produced by Marcus Foster, a qualified Arboriculturist holding a National Diploma in Arboriculture, and the Arboricultural Association's Technicians Certificate as well as a degree in History and Society. Work experience within the industry includes work as a Contracts Manager for an Arboricultural Association Approved Company, a Local Authority Tree Preservation Officer and an independent Arboricultural Consultant.

1.8 No additional documentation has been referred to relating to the tree or the building at this property for the compilation of this report.

## 2. Survey Details and Scope

2.1 The site survey included the 3 trees (trees T1-T3) as shown in the survey, *Appendix A,* and also highlighted on the site plans*, Appendix B.1.*

2.2 The trees were surveyed from ground level from within La Sainte Union School. The diameter of the trunks have been measured using a Diameter at Breast Height (DBH) tape. The height of the trees have been estimated due to the topography of the site.

2.3 The following information was recorded for each tree and is shown in the Tree Schedule included in *Appendix A*:

- Number: an identity number which cross-references locations shown on the plan in Appendix A with the schedule in Appendix B.
- Species: listed by common names
- Tree Height: height in metres (m)
- Tree Spread: spread in metres (m)
- Stem diameter: measured in millimetres (mm) and taken at 1.5m above ground level
- Age Class: Y (young); EM (early-mature); M (mature); OM (over-mature)
- Vigour: G (good); F (fair); P (poor); D (dead)
- Physiological Condition: G (good); F (fair); P (poor); D (dead)
- Structural conditions: Specific comments relating to each tree
- Preliminary Management Recommendations
- Estimated Remaining Contribution (years)
- BS5837 Category Grading
- Protection Distance (if applicable – BS5827: 2012)

2.4 The information contained within the report reflects the condition of the specimens examined at the time of the inspection. As the inspection was only visual no guarantee can be given concerning the condition of the wood at present in any of the trees inspected and furthermore that no future problems or deficiencies may arise.

2.5 Information recorded in the tree survey, *Appendix A* is expanded in the report findings and recommendations have been made in *Section 5*.

## Tree Survey Summary

2.6 All trees have been survey in accordance with BS5837: 2012 'Recommendations for trees in relation to construction' (BS5837: 2012) and have been rated as follows:

Category 'A' trees

Trees of high quality with an estimated remaining life expectancy of at least 40 years. Trees have been categorised as 'A' trees for one of the following reasons:

- Mainly arboricultural qualities
- Mainly landscape qualities
- Mainly cultural values including conservation

Within the Site Plan (Appendix B) those trees rated as 'A' category trees have a **green** outline as denoted within the site plan key.

Category 'B' trees
Trees of moderate quality with an estimated remaining life expectancy of at least 20 years. Trees have been categorised as 'B' trees for one of the following reasons

- Mainly arboricultural qualities
- Mainly landscape qualities
- Mainly cultural values including conservation

Within the Site Plan (Appendix B) those trees rated as 'B' category trees have a **blue** outline as denoted within the site plan key.

Category 'C' trees
Trees of low quality with an estimated remaining life expectancy of at least 10 years or young trees with a stem diameter below 150mm. Trees have been categorised as 'C' trees for one of the following reasons

- Arboricultural qualities - unremarkable trees of very limited merit
- Mainly landscape qualities
- Trees with no material conservation or cultural value

Within the Site Plan (Appendix B) those trees rated as 'C' category trees have a **grey** outline as denoted within the site plan key.

Category 'U' trees
Trees in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.

Within the Site Plan (Appendix B) those trees rated as 'U' category trees have a **red** outline as denoted within the site plan key.

## 3. Survey Limitations

3.1 No soil excavations have been carried out.

3.2 This report only considers the trees and conditions at the time of inspection.

3.3 No invasive tools were used during this site survey.

3.4 This report is preliminary and further investigations may be required in order to reach firm conclusions and/or further recommendations for action.

## 4. Findings and Discussion

Site Overview

4.1 There are 3 trees located within the grounds of the school that are within relative close proximity of the proposed construction works which incorporate development / extension works to the existing building in the Servery area. Trees T1 - T3 have been surveyed and numbered as is depicted within the site plan (*Appendix B.1 - B.3* - also within the Tree Protection Plan *Appendix B.4*).

4.2 The trees surveyed are located within the London Borough of Camden; they are also located within the Dartmouth Park Conservation Area and are therefore protected by this status.

4.3 The proposed development has the potential to affect the trees in the following ways:

- **Development works within close proximity of existing trees require removal and replacement to facilitate the works**
- **Potential development works in close proximity to the trees have the potential to cause damage to trees being retained**
- **Associated construction site activities which have the potential to cause long term damage to the trees and surrounding vegetation**
- **Compaction of the ground surrounding the trees during construction works**
- **The use of and storage of materials and chemicals on site during the construction process**

4.4 The trees have been surveyed taking into account the condition, general health and form. In addition they have been surveyed taking into account the amenity value that is offered in relation to both the landscape and surrounding buildings. This report outlines the impact that the proposed development will have on the treescape and landscape; it provides recommendations to ensure that long-term amenity value for the area is both retained and enhanced.

4.5 The report has been written with close reference to the British Standard Guidance, British Standard 5837: 2012 ‘Recommendations for trees in relation to construction’ (BS5837: 2012), which addresses the juxtaposition between trees and structures.

**Development proposal in relation to trees within close proximity**

4.6 The proposed development works are to incorporate the retention of 2 of the 3 trees that have been surveyed. The tree closest to the proposed development, tree T1 is recommended for removal and replacement with a suitable landscape proposal implemented. This report will outline the condition of the trees and necessary requirements during the construction process in order to ensure their long term health, and the retention of the amenity value they provide for the long term.

4.7 The proposed construction works are to incorporate an extension to the Servery area of the existing school building which will extend towards the existing tree T1. The development is not achievable without causing damage to this tree and therefore its removal and replacement is recommended within the report. The remaining two trees, T2 and T3 will remain fully protected as tree protection distances (BS5837:2012) can be adhered to at all times.

4.8 Therefore by implementing the proposed protection measures, damage from the following activities will be avoided during the construction process:

4.8.1 Potential damage to the root plate of trees within close proximity of construction site activities where excavations may occur, potentially causing damage to the health and/or structural integrity of the trees.

4.8.2 Potential damage from compaction of the root plates of all trees where construction activities will require working methods with heavy machinery and storage of materials.

4.8.3 Potential direct damage to the canopy of trees within the site from construction site activities.

4.9 The aim of this report is to address these issues and highlight the solutions required in order for the implementation of the development to be carried out without detrimentally affecting the structural integrity of the trees.

**Tree Survey Notes - Trees T1 - T3 in relation to construction method**

*Tree T1*

4.10 Tree T1 is a mature Goat Willow (*Salix caprea*) tree located within the courtyard area of the main school grounds. The tree is generally structurally sound with good root flare compensating for a slight lean to the north east at the base. The main union at 800mm has some tight unions where 3 main stems develop to form a low and spreading canopy. With a relatively light pruning history for species the tree has a balanced canopy lightly encroaching towards the property to the west and the to the playground and soft landscape area for the remainder. The tree is rated as a 'C.1' category tree (BS5837: 2012) due to the limited amenity value provided within the wider landscape.

4.11 The tree's location within very close proximity of the proposed extended building area means that the tree cannot be retained taking account of both the implementation of the proposed development and its associated construction site activities. Therefore the tree is proposed for removal and a replacement provided as specified below and in *Section 5.4*.

4.12 The replacement tree species is recommended to be one the following species in order to provide replacement amenity value and wildlife habitat for the long term in this location:

- *Corylus colurna* (Turkish Hazel)
- *Crataegus prunifloia* (Cockspur Thorn)
- *Sorbus aria* (Whitebeam)
- *Pyrus communis* (Native Pear)

By providing one of the above tree species as a replacement, the tree will also not likely require significant pruning within the limited space available within the courtyard area where the tree should be planted.

4.13 Whilst the existing Willow tree, T1, offers current amenity value its mature age and location closely adjacent to building, combined with short lived characteristics does provide it with a limited lifespan. The replacement planting is recommended to be planted at a greater distance from the boundary wall where possible and also a minimum distance of 8.0m from the closest point of the proposed development.

*Tree T2*

4.14 Tree T2 is a mature Birch tree (*Betula pendula*) which is located within the central area of the Servery courtyard area alongside tree T2. The tree provides good amenity value to this area and is generally structurally sound. The tree is rated as 'B.1' (BS5837:2012) taking into account the above factors and its visibility within the wider landscape.

4.15 This tree is at its closest point is sited in excess of 10.0 metres from the proposed development and taking into account its recommended root protection distance of 3.4m, its comprehensive protection is fully achievable.

The protection fencing is specified a significant distance from the main stem (3.4m minimum but achievable at a greater distance) of this tree and incorporates both retained trees (trees T2 and T3) to the east of the proposed development providing a Construction Exclusion Zone (CEZ).

*Tree T3*

4.16 Tree T3 is also a mature Birch tree (*Betula pendula*) which is located on the southern boundary of the courtyard area approximately 2.0m distance from the building; and provides good amenity value for the area. The tree is generally structurally sound with some overhanging growth to the building. The tree is rated as 'B.1' (BS5837:2012) taking into account the location and its context within the wider landscape. As with tree T2, this tree is at its closest point is sited in excess of 10 metres from the proposed development and taking into account its recommended root protection distance of 3.9m, its comprehensive protection is fully achievable; the protection fencing is specified a significant distance from the main stem of this tree (3.9m minimum but achievable at a greater distance).

4.17 The protection fencing that is specified for trees T2 and T3 is therefore recommended to extend across the width of the area for both of these trees (see *Appendix B.3*) ensuring that full protection is provided for the entire rear garden area for this development site and a Construction Exclusion Zone (CEZ) is provided.

**Tree Protection Specifications**

4.18 With the nature of development works and associated construction site activities potentially encroaching within the main courtyard area to the east of the construction site area, it is important that the tree protection guidelines are adhered to in order to afford the full protection for the tree's surveyed. The implementation of the proposed development can be achieved whilst retaining all trees (with the exception of T1) within the area for the long term by taking into account all the above points within *Section 4* and in addition to the following which must be adhered to AT ALL TIMES:

- **The tree protection fencing / root protection area to be constructed as outlined with *Appendix B.3* of this report and to the specifications provided within *Appendix D* and *Appendix E***

  - ***minimum 3.4m from main stem of T2***
  - ***minimum 3.4m from main stem of T3***

- **All construction activities must adhere to the tree protection guidelines as explained throughout the report and as outlined below – these should remain for the entire construction process in order to provide comprehensive protection from the trees.**

- **No building materials or chemicals are stored within the Root Protection Areas - the boundaries of which will be clearly marked with the TREE PROTECTION NOTICES.**

- **There should be no mixing of concrete or chemicals within the tree protection areas during the construction process.**

- **There should be no fires within the site**

4.19 The site notice as included in *Appendix D* summarising the above information should be visible at all times for employees working within the site.

## Arboricultural Supervision

4.20 It is recommended that an Arboricultural Supervision Scheme is implemented to ensure full tree protection and replacement planting is implemented. The following is recommended:

*Before & During Land Preparation:*
- Approval of any utility service routes approved that infringe within the RPA
- Approval of Site Storage Area
- Approval of Root Protection Areas (where fencing not implemented)
- Approval of Tree Protection Fencing positioning

*Ongoing throughout development process:*
- Monitoring of tree protection / condition
- Monitoring construction methods and storage areas in relation to trees

## Summary

4.21 With close adherence to the above points and to the following:

- **Full implementation of Tree Protection Specifications**
- **Full adherence to Tree Protection Area**
- **Comprehensive use of the Tree Protection Notice**
- **Full Implementation of Replacement Planting Plan**

all trees surveyed and proposed for retention, will remain protected from the construction process and the replacement also can continue to provide amenity value in this area for the long term.

## 5. Recommended Tree Management Plan

Tree Works Specification

5.1 Any tree work should be carried out to *BS 3998; 2010 'Tree Work – Recommendations*' and to standards set within the Arboricultural Association's 'Standard Form of Contract and Specifications for Tree Work' by a qualified arboriculturist.

T1 Goat Willow
*Fell to ground level and grind out stump*

T2 Birch
*No action required at present*

T3 Birch
*No action required at present*

Tree Planting Specification / Plan

5.2 The following recommended planting specification is to provide replacement amenity value and wildlife habitat resulting from the removal of the existing tree T1 proposed for removal.

5.3 Any tree planting work should be carried out to *BS 8545; 2012 'Trees: From Nursery to Independence in the Landscape*'

5.4 The following guidelines should be adhered to:

- Single stemmed standard specimen, at least 14-16cm girth in size should be supplied
- Irrigation pipes and suitable staking implemented as part of the scheme
- A weed suppressing bark mulch layer between 40-60mm thickness should be applied to the planted area

5.5 The following tree species are recommended

- *Corylus colurna* (Turkish Hazel)
- *Crataegus prunifloia* (Cockspur Thorn)
- *Sorbus aria* (Whitebeam)
- *Pyrus communis* (Native Pear)

5.6 The following location for the new tree planting is recommended:

- Minimum distance 8.0m from location of tree T1 as currently exists / proposed development

# 6. Appendices

# Appendix A

## Tree survey (BS5837:2012)

## La Sainte Union School
## La Sainte Union Convent
## Highgate Road
## London
## NW5 1RP

**Colour Key: BS5837: 2012 (see *Section 2.6*)**

- Category A
- Category B
- Category C
- Category U

**La Sainte Union School, London, NW5 1RP**
**BS 5837:2012 Tree Schedule – April 2016**

| Tree No | Species | Ht (m) | DBH (mm) | Sprd (m) | Age | Visual Cond | Vigour | BS5837 Cat. Rating (2012) | Remaining (years) | Comments / Structural Condition | Managem. Recomms | RPA (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| T1 | Goat Willow | 6 | m/s 210 | N: 6 E: 6 S: 4 W:4 | M | F | G | C.1 | 10-15 years | Tree has a lean to the north east at the base - multi-stem at 800mm with 3 main stems developing and 7 branches forming a compact and broad low spreading canopy. Tree has very tight unions at the base taking account of playground location. | Fell to ground level and provide replacement tree planting to implement proposed development | N/A |
| T2 | Birch | 11 | 280 | N: 5 E: 3 S: 3 W:3 | M | F | G | B.1 | 15-20 years | Tree is structurally sound at the base growing from soft landscape area. Leans to the west - main union at 3m sound. Tree has been selectively crown reduced but has responded well. Relative broad canopy for species. | No action required at present | 3.4 |
| T3 | Birch | 12 | 320 | N: 4 E: 3 S: 3 W:5 | M | G | G | B.1 | 15-20 years | Tree is a structurally sound at base - good root flare and leans to the north west. Canopy in upper crown slightly unbalanced to the west with some deadwood throughout - tree has grown to the light against building which is approx 2m distance from base. | No action required at present | 3.9 |

# Appendix B

## Existing & Proposed Site Plan including Tree Protection Plan:

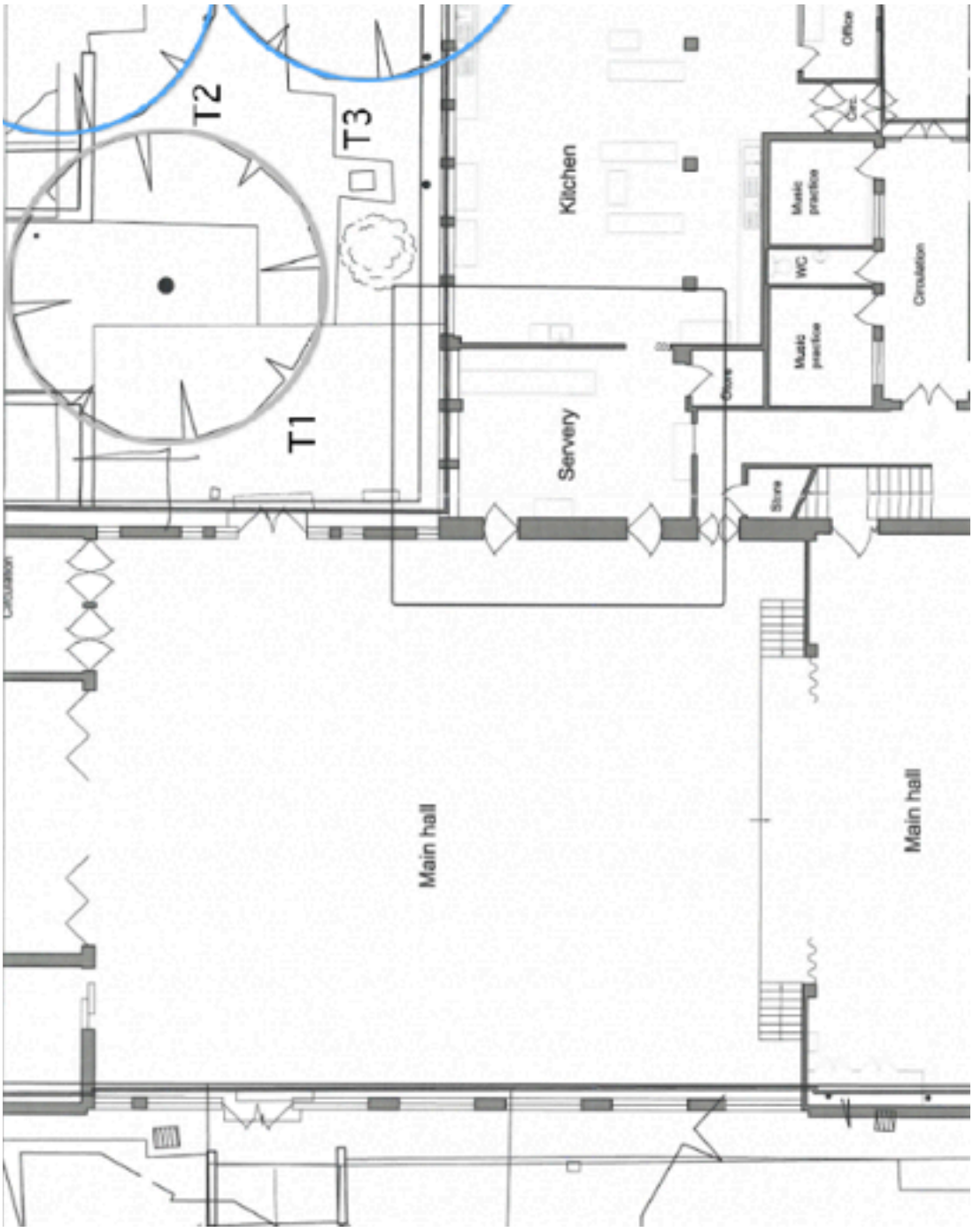
## La Sainte Union School
## La Sainte Union Convent
## Highgate Road
## London
## NW5 1RP

**Plans supplied:**
***DHP***
**Drawing No:**
***5427/2001/P***
**Date:**
***08.08.2015***

**Tree Canopy Colour Key: BS5837: 2012 (see *Section 2.6*)**

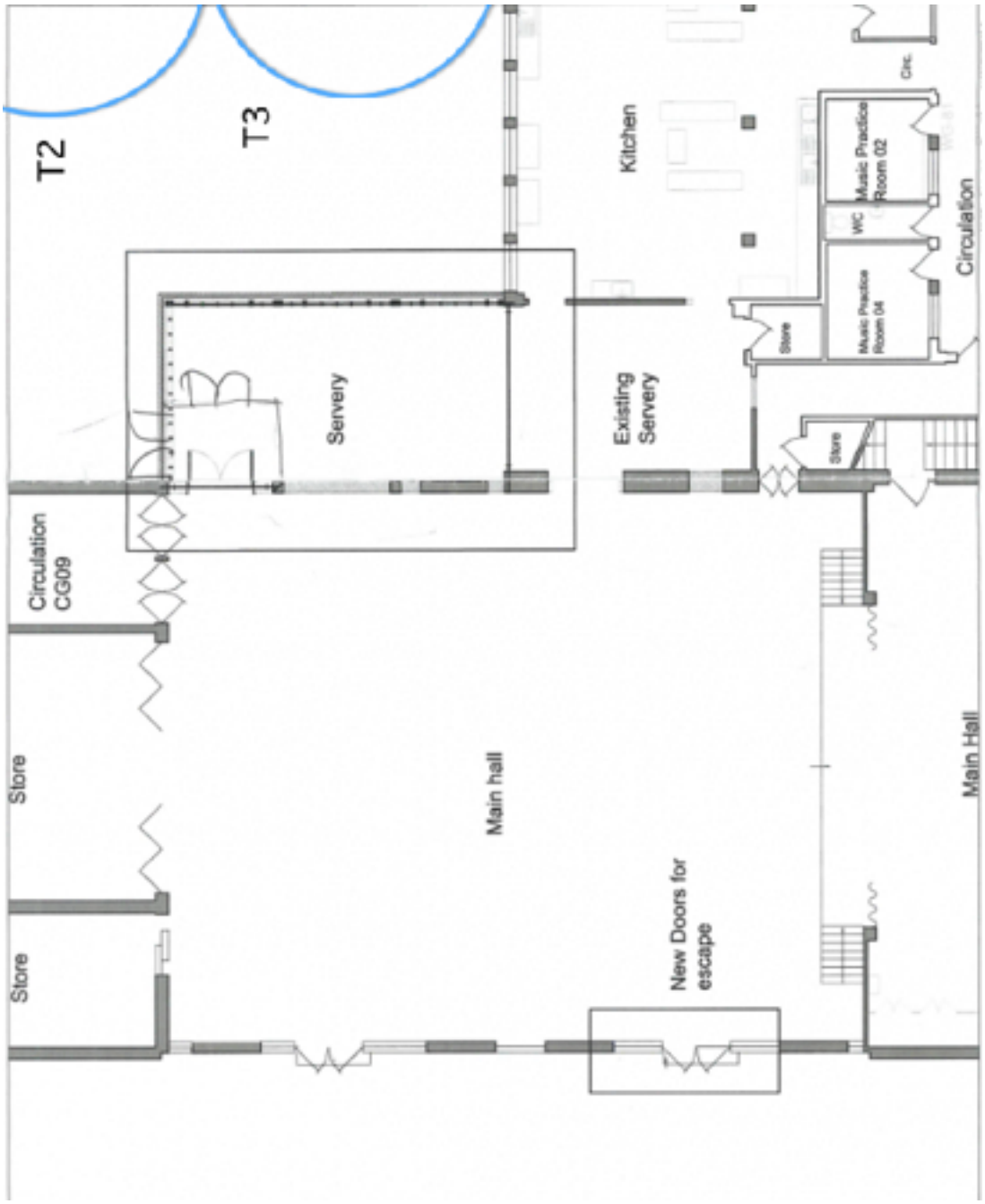
- **Category A**
- **Category B**
- **Category C**
- **Category U**

Appendix B.1 Existing Site Plan:
La Sainte Union School, Highgate Road, London, NW5 1RP



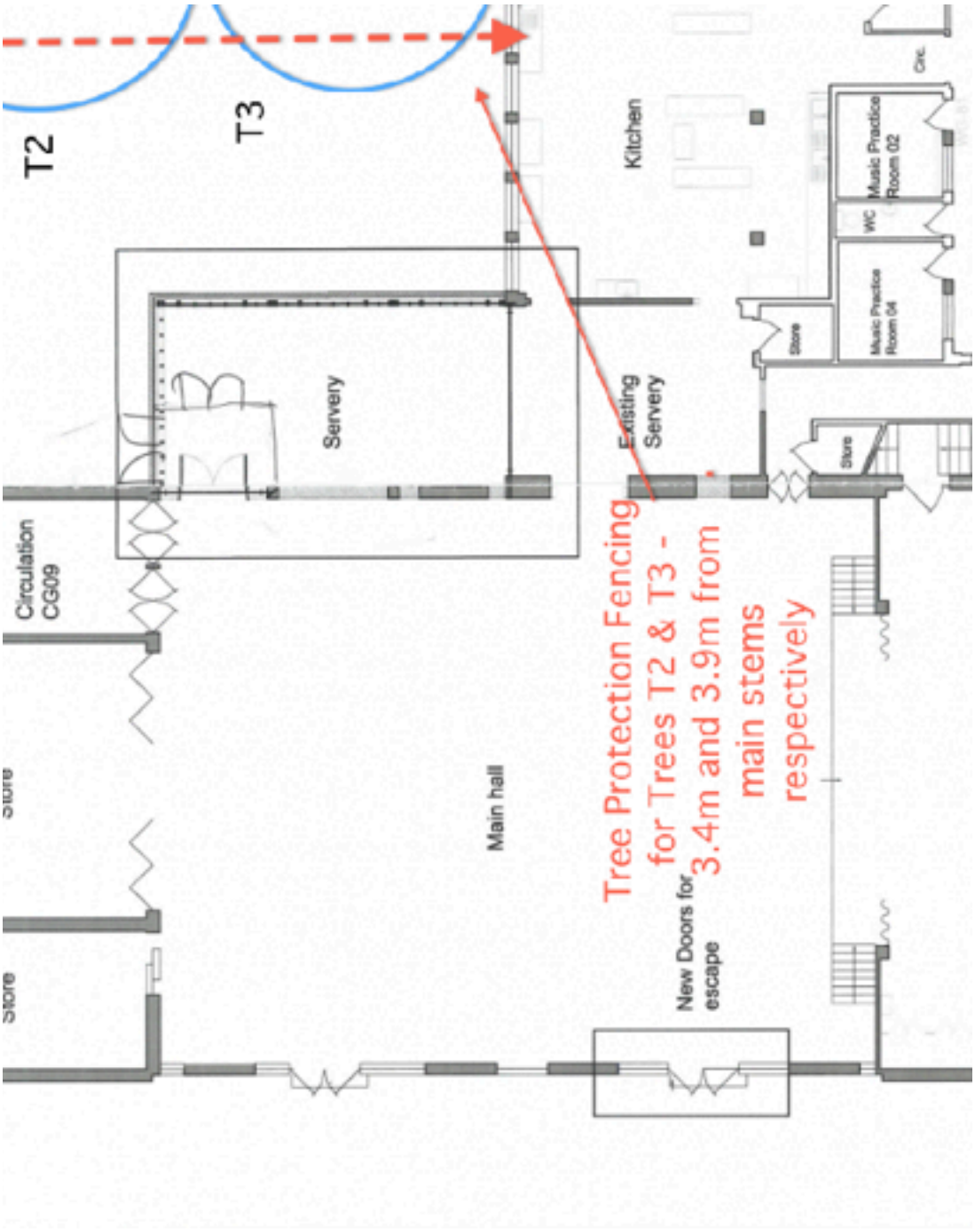

*Do not scale from this drawing*

Appendix B.2 Proposed Site Plan:
La Sainte Union School, Highgate Road, London, NW5 1RP




*Do not scale from this drawing*

## Appendix B.3: Site Plan of Tree Protection:
## La Sainte Union School, Highgate Road, London, NW5 1RP




*Do not scale from this drawing*

Tree Protection Site Plan Notes / Key:

1. Red line denotes Tree Protection Fencing to offer protection to soft landscaped area and also incorporating full protection for trees T2 and T3

# Appendix C

## Site Photographs for:

## La Sainte Union School
## La Sainte Union Convent
## Highgate Road
## London
## NW5 1RP

***Taken 6th April 2016***

C.1 Photograph of trees T1- T3, La Sainte Union School, Highgate Road, London, NW5 1RP as viewed in a south westerly direction

C.2 Photograph of tree T1, La Sainte Union School, Highgate Road, London, NW5 1RP as viewed in a westerly direction

C.3 Photograph of tree T2, La Sainte Union School, Highgate Road, London, NW5 1RP as viewed in a north westerly direction

Photograph of tree T3, La Sainte Union School, Highgate Road, London, NW5 1RP as viewed in a southerly direction

# Appendix D:
# Site Tree Protection Notice

## Tree Protection Notice
## (BS5837: 2012):

## La Sainte Union School
## La Sainte Union Convent
## Highgate Road
## London
## NW5 1RP

***Notice to be clearly shown on site***
***AT ALL TIMES ON PROTECTIVE FENCING***

# Guidance for ALL EMPLOYEES working on site in relation to the tree protection required at all times

# Site: La Sainte Union School Highgate Road, London NW5 1RP

- There should be no storage of fuels, chemicals or cement based products within Construction Exclusion Zone (CEZ) of the proposed scheme within close proximity of trees T2 and T3

- There should be no storage of materials or mixing of chemicals / concrete within this area at any time. There should also be no fires within the site

- . Notice boards, telephone cables etc should not be attached to any part of any of the trees.

- The severance of any tree roots encountered larger than 2.5 cm in diameter MUST NOT occur without prior consultation with the Local Authority Tree Officer or appointed Arboricultural Consultant.

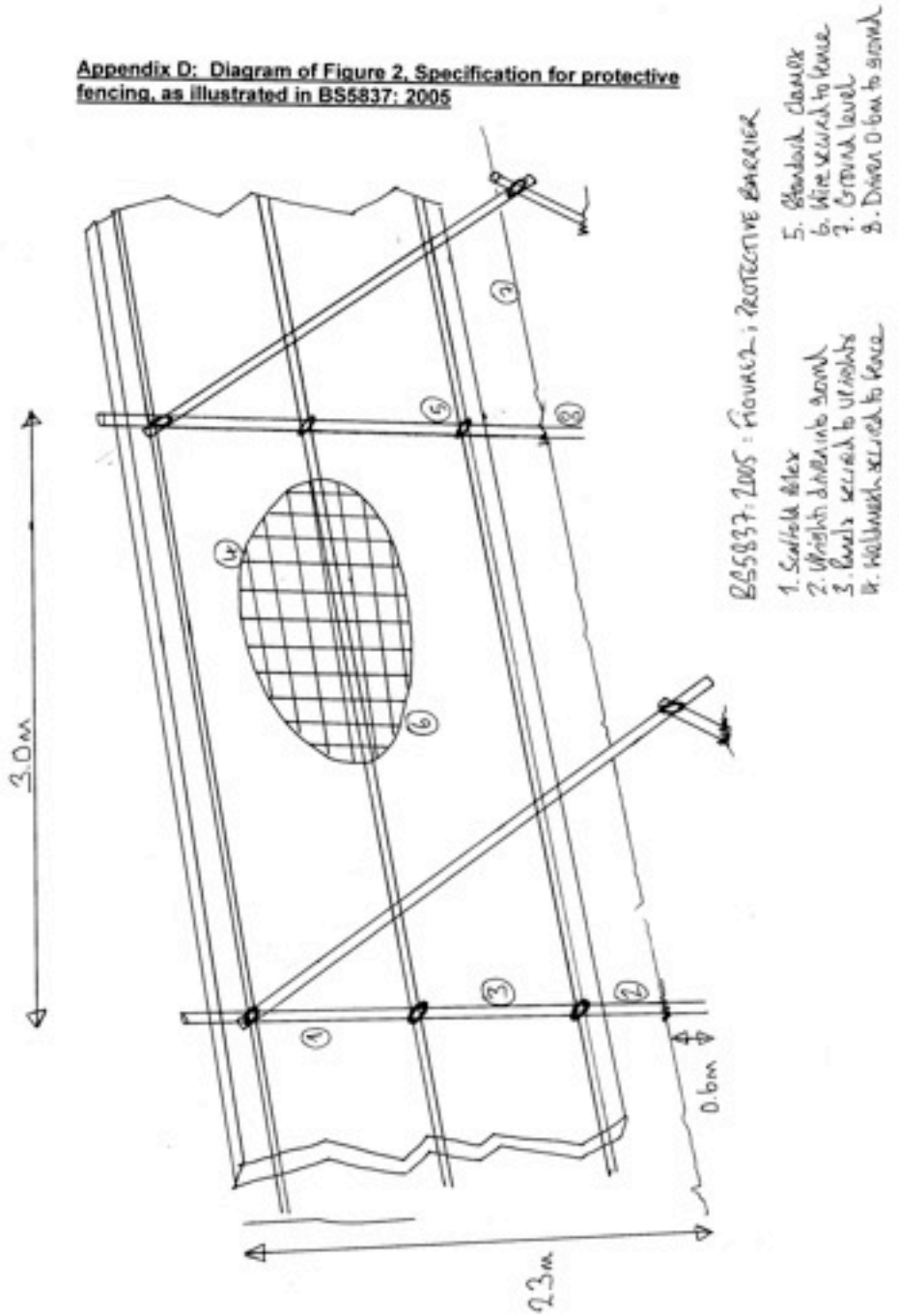
- If excavations do occur within the specified Root Protection Area where hand dug excavations are being undertaken, ANY tree roots encountered over 2.5cm in diameter should be retained where possible. Hand digging is to continue around any such tree roots.

**If at any point it is deemed not possible to continue with excavations without having to damage significant tree roots, the Local Authority Tree Officer and / or Arboricultural Consultant must be contacted.**

**Marcus Foster (Arboricultural Consultant): 0781 202 4070**
**Local Authority Tree Officer (LB Camden): 020 7364 5009**

# Appendix E: Tree Protection Fencing as outlined in BS5837 (2012) Specifications

**Appendix D: Diagram of Figure 2, Specification for protective fencing, as illustrated in BS5837: 2005**



# Appendix F: References


1. *BS5837: British Standard: Trees in relation to construction - Recommendations*, British Standard (2012)

2. *Principles of Tree Hazard Assessment and Management,* Lonsdale, D. (Department for Transport, Local Government and the Regions, 1999)

3. *The Body Language of Trees*, Mattheck, C. and Breloer, H. (HMSO, 1994)

4. *Trees in Britain,* Philips, R. (Pan Books, 1978).

5. *Diagnosis of Ill Health in Trees,* Strouts, R. and Winter, (TSO, 1994)

6. *NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees (Issue 2),* (November 2007)