Notes:

- 25.03.10 Issued for Planning

Revision:

ORMS

Architecture
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Project UCS - Frognal Reception and Colonnade

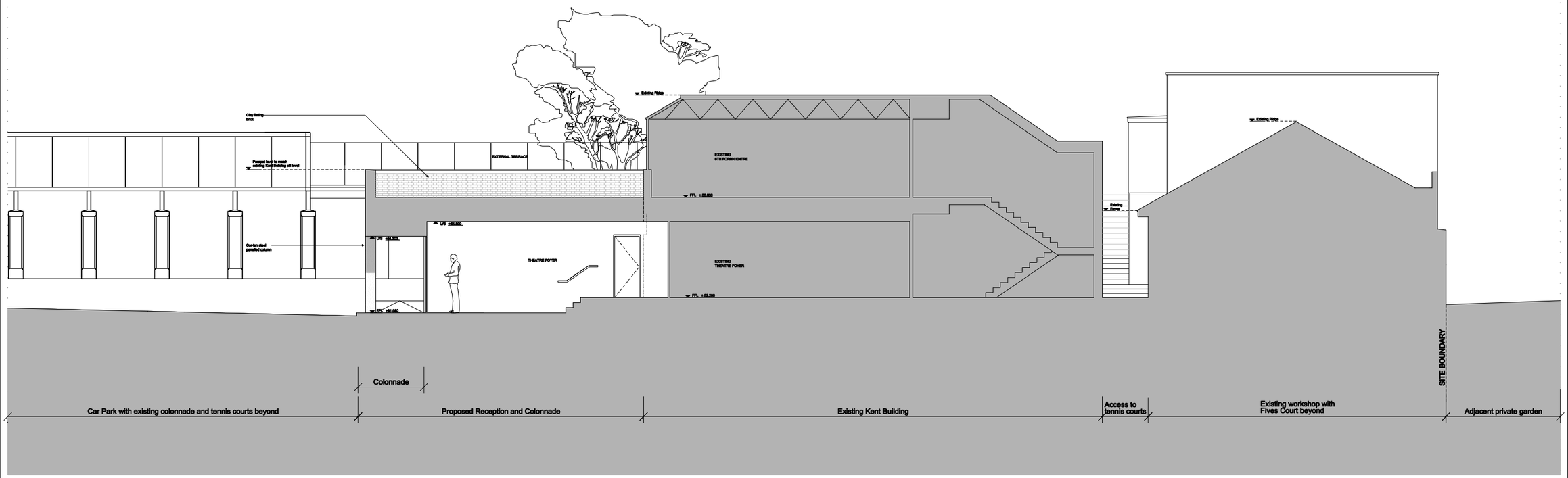
Drawing title Proposed Section AA

Scale 1:50 @ A0

Drwg. No.

Date March '10 **1770 PL 30** Rev. -

Status ■ For information ☐ For tender ☐ For construction



0 2.5m 5m 10m

Notes:

- 26.03.10 Issued for Planning

Revision:

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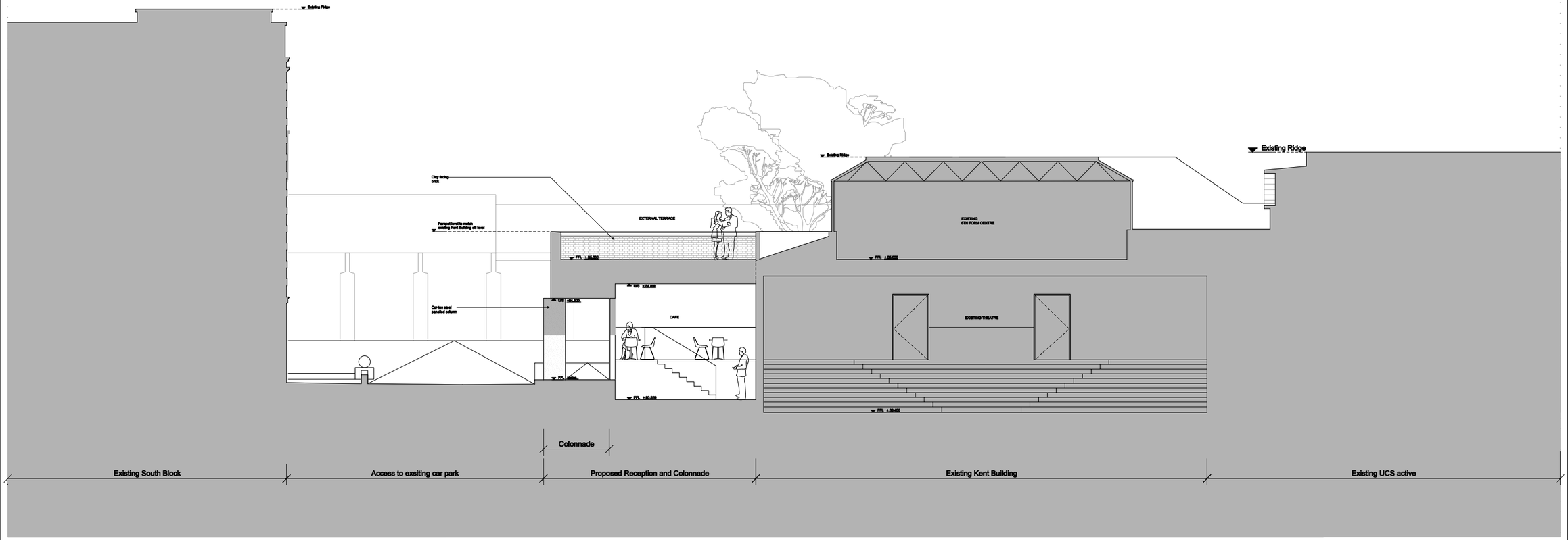
Project UCS - Frognal Reception and Colonnade

Drawing title Proposed Section BB

Scale 1:50 @ A0 Drwg. No.

Date March '10 1770 PL 31 Rev. -

Status ■ For information □ For tender □ For construction



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Notes:

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Revision:

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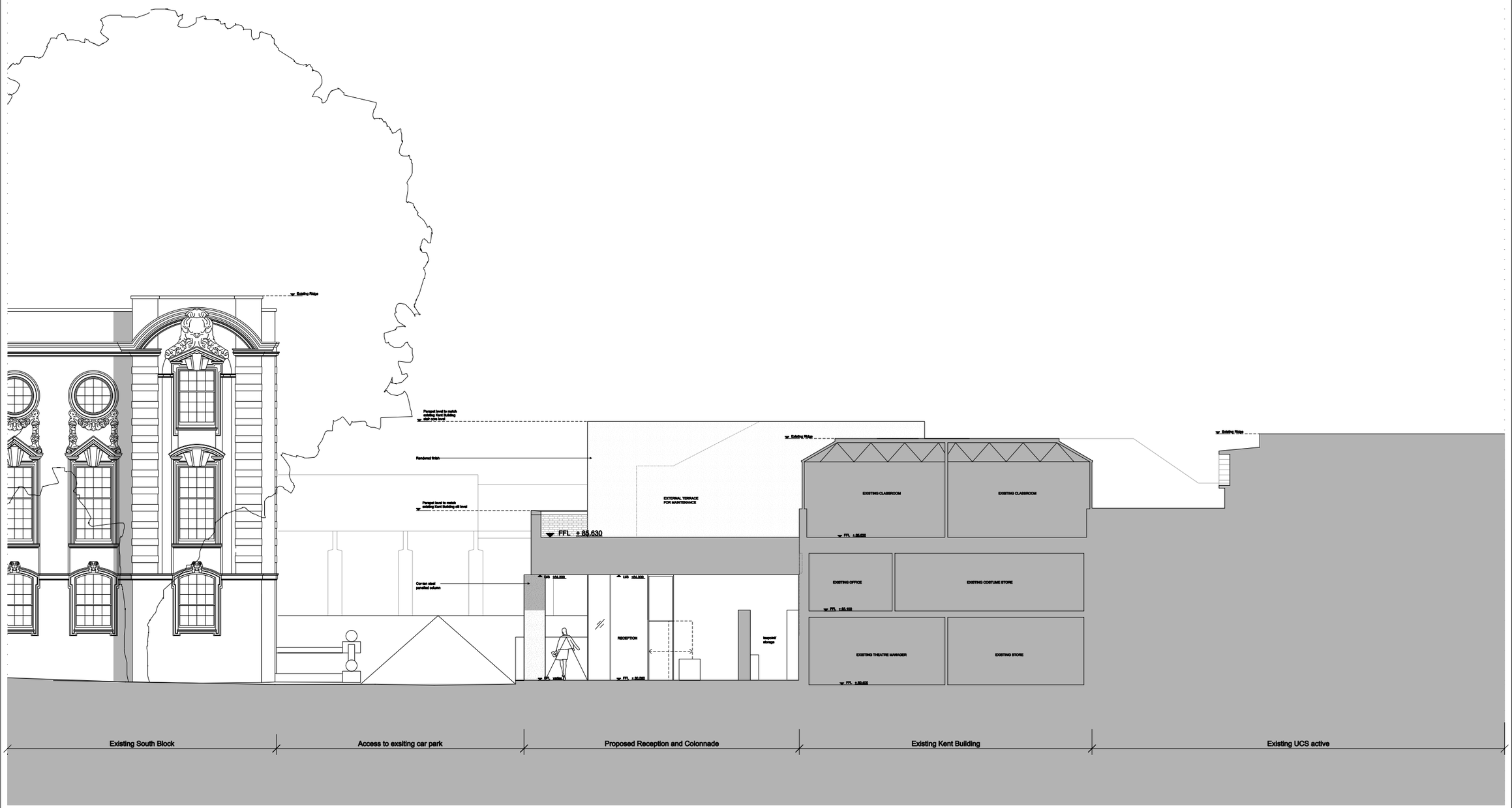
Project UCS - Frognal Reception and Colonnade

Drawing title Proposed Section CC

Scale 1:50 @ A0 Dwg. No.

Date March '10 1770 PL 32 Rev. -

Status ■ For Information □ For tender □ For construction



0 2.5m 5m 10m

Notes:

- 26.03.10 Issued for Planning

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Project UCS - Frognal Reception and Colonnade

Drawing title Proposed Section DD

Scale 1:50 @ A0 Drwg. No.

Date March '10 1770 PL 33 Rev. -

Status ■ For Information □ For tender □ For construction

New shared surface - block paving

New vehicle access barrier with intercom to security room

New planting to either side of security barrier

New vehicle access barrier

FFL +83.490

New kerb

New asphalt to re-aligned entrance

New rails to delineate vehicle and pedestrian traffic

New bench with rail

Proposed location for relocated bike stands

EXTENT OF WORKS TO BOUNDARY WALL AND SITE ENTRANCE

New wall and railings to match existing

Pavement and Kerb re-aligned and made good as appropriate

FROGNAL

New brick piers with stone pedestals and capitals, new vehicle access gates, wall and railings - all to match existing. Site entrance, pavement and kerb re-aligned as appropriate

New pedestrian entrance gates, wall and railings all to match existing

New tree planted to boundary

0 1m 2m 5m

N

SECURITY

STORE

New resin-bound gravel to colonnade

FFL +80.590

STORE

RECEPTION

Teapoint/ storage

FFL +80.300

Existing paving

FFL +80.160

New paving to match existing

Notes:

- 25.03.10 Issued for Planning

Revision:

ORMS

Architecture
Design

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Project UCS - Frognal Reception and Colonnade

Drawing title Proposed Entrance Plan

Scale 1:50 @ A1 Drwg. No. 1770 PL 35 Rev. -

Date March '10

Status ■ For Information □ For tender □ For construction

Do not scale. All dimensions to be confirmed on site.

Supporting Information

Appendices

Appendix A: Arboriculturist Report

Appendix B: Green Travel Plan

Appendix C: Heyne Tillett Steel Stage C Report

Appendix A: Arboriculturist Report

Supporting Information

Custom Cutters
Tree Specialists Ltd.
Arboricultural Association Approved

Arboricultural Report

Site details

Frognal Reception and Collonade
University College School
Frognal
Hampstead
London
NW3 6XH

Client Details

University College School
Frognal
Hampstead
London
NW3 6XH

Date of site visit

Wednesday 17th March 2010

Prepared by

Marcus Foster: BA (hons); NDipArb; AATech.cert

Date

Thursday 18th March 2010

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Contents:

1. Introduction

1.1 I have been instructed by Edward Whiteley of ORMS Designers and Architects Limited to prepare an arboricultural report relating to the proposed development of the Frognal Reception and Colonnade, University College School, Frognal, Hampstead, London, NW3 6XH.

1.2 The report takes into account the condition of three trees on site, located within close proximity of the proposed development. These three trees, T966, T967 and T968 have been surveyed with findings documented in the Tree Survey, *Appendix A*.

1.3 The proposed development will provide an extension to the existing building and this will require construction works within close proximity to the above 3 trees. Construction activities within the Root Protection Area mean that a tree protection plan will need to be implemented.

1.4 The site inspection to survey and assess the tree was carried out on the morning of Wednesday 17th March 2010. Weather conditions were sunny and bright.

1.5 The status of the trees is that they are covered by virtue of being located within a Conservation Area. The Tree Preservation Order status has not been checked.

1.6 The report has been written without prejudice by Marcus Foster on behalf of Custom Cutters Tree Specialists Limited.

2. Survey Methodology

2.1 The trees were surveyed from ground level. The diameter of the trunk's have been measured using a diameter tape.

2.2 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 part of the tree inspected and furthermore that no future problems or deficiencies may arise.

3. Limitations

3.1 No soil excavations were carried out.

3.2 The trees were surveyed visually and no invasive tools were used.

3.3 No further observations, unrelated to the trees, have been made.

4. Findings

Site overview

4.1 There are three trees located within close proximity of the proposed works. These three trees are a Willow (T966), an Alder (T967) and an Oak (T968). All three trees offer amenity value but are in varying condition and age.

4.2 The three trees are all located within the Senior Branch of University College School in the London Borough of Camden. The School is located within the Redington Frognal Conservation Area and therefore all trees are protected. They are not subject to a Tree Preservation Order.

Tree T966

4.3 Tree T1 is a mature Willow tree (rated mature but close to classification as over-mature) located on the front boundary of University College School and Frognal. The tree is generally structurally sound and has been pruned on a cyclical basis in the form of crown reduction every 2-3 years for a significant number of years. However, there are structural weaknesses and concerns over the location of the tree adjacent to car parking.

4.4 The tree is structurally sound at the base. However surrounding the base of the tree is a gravel area for parking cars; cars are being parked on either side of the tree. There are roots within a 1.5m radius of the tree which are exposed and some may have been damaged although there is no evidence of this as the roots are very well established. The anchorage roots appear to have remained intact although it is likely that the tree root system has suffered from significant compaction from all angles; the adjacent Frognal, the cars parking beneath and the school driveway (see photographs in *Appendix C*). The tree has a significant lean to the south with good compensating buttress roots. The lean is likely to originate from suppression from the previous trees and from growing towards the light. There is one main stem with a first lateral branch at a height of 2 metres from ground level. At the main crown break at a height of 4 metres from ground level 2 main stems originate. At this point there is 1 very large piece of dead wood overhanging the car parking area. The tree requires management for health and safety reasons due to the high levels of pedestrian and vehicular traffic beneath the tree.

4.5 Tree T966 was last pruned approximately 2-3 years ago. There is currently an application with Camden Council (Application reference: 2010/0760/T) to prune this tree as below:

Willow (T966): Crown reduce 40% and remove any remaining deadwood

The tree works have been scheduled to be carried out for reasons outlined in *Section 4.4*. However they will also ensure no damage is caused to the crown of the tree during the construction process.

4.6 Tree T966 offers very good amenity value but taking into account the structural weaknesses as outlined above, is rated as C.1, British Standard 5837: 2005 'Recommendations for trees in relation to construction' (BS5837). Therefore the tree is to be retained and should be protected throughout the construction process to ensure the structural integrity and good health remains. Measures as outlined below must be implemented in order to ensure the long term amenity value of the tree.

4.7 Tree T966 is located at its closest point 15.4 metres from the proposed development, and will not be affected by the development itself. However, damage to trees will often occur during the construction process but this must be avoided. The implementation of tree protection in accordance with British Standard 5837: 2005 'Recommendations for trees in relation to construction' as outlined in *Section 5* of this report must take place. The size of the Root Protection Area is 9.4 metres and dictates that no development work should occur within this area without prior consultation with the Local Authority Tree Officer.

4.8 Although the development is occurring at a significant distance from the tree, and tree protection is required, this will have to be constructed in a way in which to allow continued access to the school and development site. Tree protection on the north, south and west of the root plate is not required to BS5837 (2005) specified distances as the driveway will remain and level / material changes are not occurring. Therefore the root plate will remain preserved beneath the tarmac driveway where this exists; this driveway is familiar with high levels of vehicular traffic. To ensure protection of the tree base and areas where tarmac does not cover the roots, the tree protection fencing must be constructed to the specifications in *Section 5* and in order to ensure that all exposed soil remains an exclusion zone as illustrated in *Appendix B.2 – Site Plan with guidelines for Tree Protection*.

4.9 To the east of the root plate where the development is most likely to affect the tree and construction activities will inevitably encroach towards the tree it will also not be able to achieve the 9.4 metre RPA as specified in BS5837 (2005). However, the existing driveway offers adequate protection to the root plate. In addition, the tree works specified are proposed to be carried out in April 2010 and therefore the canopy of the crown will not overhang the driveway area where machinery will be entering the site. However, the tree protection must be constructed as far from the trunk as possible - **a minimum of 4 metres** - from the trunk ensuring that no soil is exposed. it is imperative that in order to minimise any root damage the construction process from start to finish must be based around the principals outlined in *Section 5*. In addition all employees must be familiar with the Tree Protection Notice as provided in *Appendix D*.

4.10 Further re-landscaping works to the boundary wall will require works within the RPA. This can be achieved by adhering to the guidelines outlined in the Tree Protection Notice as provided in *Appendix D*. In addition the following points must be considered in relation to this part of the development:

- No roots larger than 25 mm in diameter can be severed without prior consultation with the Local Authority Tree Officer and / or an appointed arboricultural consultant.

- The soil must not be compacted during the construction process and therefore no tools, materials or machinery should be stored at any point within 9 metres of T966.

- During the construction process care should be taken to ensure that no heavy plant comes into contact with any part of the trees.

- Spillage from chemicals/hazardous materials must be avoided at all times. The mixing of chemicals should be carried out no closer than 9 metres from T966 regadless of whether the surface beneath is existing tarmac.

Tree T967

4.11 Tree T967 is a mature Alder tree which is located in a small planting pit, surrounded by hard landscaping. This tree is an old specimen, generally structurally sound and with good vigour. There is likely compaction on the root plate due to the surrounding landscaping. The root plate to the immediate trunk is protected by steel tree protection grills.

4.12 In order to construct the proposed development excavations have to be made significantly within the recommended Root Protection Area (RPA) of tree T967. The RPA for this tree is 3.36 metres *(BS5837: 2005)* and with reference made to *Appendix B.2* it is evident that excavations and building works have to occur significantly closer than this distance. As illustrated in *Appendix B.2*, the closest point of excavations to the tree is 2.6 metres from the centre of the trunk. In addition the very close proximity of the development makes the implementation of a Root Protection Zone very difficult as construction activities surrounding the tree are likely to cause as much damage as the required excavations.

4.13 Obviously the tree does offer good amenity value and therefore its removal has to be replaced with a similar level of amenity value. In terms of amenity value, the tree's removal will not result in significant detriment to the treescape. This tree for its species has been contained at a diminished size compared to the height and spread that can be achieved by an Alder growing under favourable conditions. In addition, the tree is currently located within the shadow of the adjacent existing building. The tree does offer good screening to the existing building which is important for amenity value and 'softening' of the landscape, but at close proximity only. The replacement screening can be achieved within a relatively short period and with one of the proposed species this can be for the long term. The replacement tree can be planted in a location which can accommodate optimum growing conditions ensuring it is not surrounded by hard landscaping, allowing for the natural height and spread of the tree to be attained.

4.14 In addition, within the past 2 years, there have been 2 new trees planted within the border area located between the existing hard landscaping and the boundary fence to Frognal within 10 metres of tree T967. The species of these trees is *Quercus palustris* (Pin Oak) and these will mature into large and spreading trees. Within 10 years it is likely that these trees would (if retained) be suppressing tree T967 and offering sufficient amenity value themselves, which would then allow for the tree's removal. Therefore these 2 trees in addition to the proposed replacement can offer an enhanced treescape to the street and school within a relatively short period of time.

4.15 The location of the proposed development requires for the removal of this tree. Recommended replacement species are as below:

Alnus glutinosa (Alder tree)
Ginkgo biloba (Maidenhair tree)
Liquidambar styraciflua (American Sweet Gum)
Liriodendron tulipifera (Tulip tree)
Nyssa sylvatica (Tupelo tree)

Due to the loss of amenity from the tree's removal, it is proposed that the replacement tree should be 20-25cm in girth. In addition, the location of the replacement tree is important for directly replacing the amenity value lost. Therefore, the replacement should be located at the front of the school.

Tree T968

4.16 Tree T968 is an Oak tree (Quercus rubra) and is located in a raised planting bed adjacent to the Music Department. The tree has historical and social importance having been planted by the Queen in 1980. The tree has good vigour and offers good amenity value. The base of the tree is structurally sound but the main union at a height of 1.8m from ground level has significant included bark which should be monitored regularly. The upper crown is structurally sound with no further structural defects evident; the tree has been crown thinned in the past and at present has some dead wood within the crown which should be removed.

4.17 Tree T968 is located in a raised planting bed which is surrounded by a brick wall 1.7m high. This retaining wall offers good protection from the development, ensuring that the root plate remains totally unaffected by the proposed development. The tree is located 5.3 metres from the edge of the retaining wall on the south-west side, closest to the proposed development which in total is 7.6 metres away. The recommended root protection area is 6 metres BS5837 (2005) for a tree of this size and although this distance is 0.7 metres more than the retaining wall, this will not affect the tree's root system. After all, the tree's roots will be contained within this raised planting pit.

4.18 Although the development will not be affecting the tree for the reasons as above, tree protection is required, in order to protect the root plate from the construction site activities which will be occurring in close proximity to the tree. Therefore, by installing tree protection along the boundary of the retaining wall to the specifications as illustrated in *Appendix B.2* the root plate will remain preserved from storage of materials, mixing of chemicals and other associated construction activities. The tree protection fencing must be constructed to the specifications in *Section 5* and in order to ensure that all exposed soil remains an exclusion zone.

4.18 For the long term health of the tree, it is important to note that the path adjacent to T968 although temporary may have resulted in some excavations to the north of the root plate and also some compaction to the roots. On the south to south-west of the root plate a large container has been situated 1.5m from the tree which will also have led to some

compaction of the root plate. This should be removed at the earliest opportunity in order to avoid any long term damage. In order to de-compact the ground surrounding the tree where the container has been located, Terraventing should be carried out upon the completion of all construction activities within this area to ensure the retention of the amenity value which this tree provides.

4.19 With adherence to the above points and with the use of the Tree Protection Notice as provided in *Appendix D*, T968 can be retained without detriment to the amenity value which it provides. All specified tree works outlined in *Section 6* should be carried out prior to the commencement of construction works.

5. Tree Protection Statement

5.1 Physical protection of the trees during construction works is best achieved in accordance with the current British Standard 5837: 2005 ‘Recommendations for trees in relation to construction’.

5.2 The Root Protection Area (RPA) should be surrounded by protective fencing to ensure the roots are protected. The protective fencing used should be suitable for the purpose of excluding construction activity and appropriate to the degree and proximity of work taking place around the retained trees. These barriers should remain rigid and complete during the entire construction process.

5.3 The type of fencing used should be that as described in the current British Standard 5837: 2005 ‘Recommendations for trees in relation to construction’. This consists of a scaffold framework as outlined in the British Standard, comprising a vertical and horizontal framework, well braced to resist impacts, with the vertical tubes spaced at a maximum of 3m. Weldmesh panels should be securely fixed with wire or scaffold clamps to the framework.

5.4 Once the Exclusion Zone has been protected by fencing all weather notices should be put onto the barrier warning that the area is a construction exclusion zone.

5.5 During the construction process care should be taken to ensure that no heavy plant machinery or chemicals comes into contact with any part of the retained trees. In this situation it will be prudent to prune the trees to allow access, before any damage can occur.

5.6 Additionally, there should be no storage of fuels, chemicals or cement based products within the Root Protection Area (RPA) of any of the trees on or near the site during the construction. There should be no fires within 10 metres of the foliage, braches or trunk of any of the trees. Notice boards, telephone cables etc should not be attached to any part of any of the trees.

6. Recommended Tree Works Specification

T966: Willow
Crown reduce 40% and remove all deadwood

T967: Alder
Fell to ground level and grind out stump
Provide a replacement tree as specified in report above.

T968: Oak
Remove deadwood
Crown lift to 4m
Prune to give 2.5m clearance from all surrounding properties
Monitor main stem union at 1.8m on an annual basis

Appendix A: Tree survey

Frognal Reception and Collonade
University College School
Frognal
Hampstead
London NW3 6XH

Custom Cutters Tree Specialists Ltd

Custom Cutters Tree Specialist Tree Survey													
Site	University College School - Frognal Reception						Date: 17/03/2010				Survey by Marcus Foster		
Age Range	Y - Young, EM - Early Mature, M - Mature, FM - Fully Mature, V - Veteran												
Visual Condition	G - good, F - Fair, P - poor, D - dead/dying/dangerous												
Height/Crown Spread/Dimensions	Measurements taken using clinometre and tape measure												
Distance from property	Distance from proposed property (metres)												
Growth Potential	L - Low, M - Medium, H - High - Determined by existing size of tree and its mature size potential												
Water Demand	L - Low, M - Moderate, H - High - As specified by NHBC Chapter 4.2												
RPA	Root Protection Area - As specified in BS5837 (2005)												
Retention Category	Retention Category - As specified in BS5837 (2005)												
Tree No.	Species	Height (m)	Stem Diameter (mm)	Crown Spread (m)	Age Class	Visual Condition	Distance from proposed structure (m)	Growth Potential	Water Demand	RPA (m)	Retention Category	Comments	Tree Works Specification
T966	Willow	15	780	12	M	F	15.4m	L	H	9.36m	C.1	The tree offers good amenity value. The base of the tree is surrounded by a gravel area for parking cars. Many roots within a 1.5m radius of the tree are exposed and some may have been damaged although there is no evidence of this as the roots are more established than the adjacent newly planted Maples; the anchorage roots appear to have all remained intact. Cars are being parked on either side of the tree.The tree has a significant lean to the south with good compensating buttress roots. The lean is likely to originate from supression from the previous trees and from growing towards the light.There is one main stem with a 1st lateral branch at a height of 2m from ground level. At the main crown break at a height of 4m from ground level 2 main stems originate. At this point there is 1 very large piece of dead wood overhanging the car parking area.	Crown reduce height and spread 40% and remove deadwood.

T967	Alder	10	280	7	M	F	2.6m	M	M	3.36m	R	This tree is an old specimen generally structurally sound. There is likely compaction on the root plate due to the surrounding hard landscaping and the adjacent building. The root plate next to the trunk is protected by steel grills but beyond approx 1m radius from the tree the hard landscaping dominates.	Fell to ground level and replace.
T968	Oak	13	470	12	M	F	7.6	M	H	6	C.1	This tree is located in a raised bed adjacent to the Music Department. The adjacent path although temporary may have resulted in some excavations to the north of the root plate and therefore some compaction to the roots. To the east of the root plate a large container has been situated 1.5m from the tree which will also result in compaction. The main union at a height of 1.8m from ground level has significant included bark which should be monitored regularly. As a result the tree will require regular management works;The tree has been crown thinned in the past and at present has some dead wood within the crown. The tree was planted by the Queen in 1980 and therefore has historical and social importantance for the school.	Remove all deadwood. Monitor on an annual basis. Crown lift to 4m Prune to give 2.5m clearance from all surrounding properties