

**HAVANT RFU SITE, BEDHAMPTON,
HAVANT**

**PRE-DEVELOPMENT
ARBORICULTURAL SURVEY AND
IMPACT ASSESSMENT**

A Report to: CBRE Ltd

Report No: RT-MME-126985

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REPORT VERIFICATION

This study has been undertaken in accordance with British Standard 5837:2012 "Trees in relation to design, demolition and construction - Recommendations".

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DISCLAIMER

The contents of this report are the responsibility of Middlemarch Environmental Ltd. It should be noted that, whilst every effort is made to meet the client's brief, no site investigation can ensure complete assessment or prediction of the natural environment.

Middlemarch Environmental Ltd accepts no responsibility or liability for any use that is made of this document other than by the client for the purposes for which it was originally commissioned and prepared.

VALIDITY OF DATA

The findings of this study are valid for a period of 12 months from the date of survey. If works have not commenced by this date, an updated site visit should be carried out by a suitably qualified and experienced arboriculturist to assess any changes to the trees, groups and hedgerows on site and to inform a review of the conclusions and recommendations made.

It should be noted that trees are dynamic living organisms that are subject to natural changes as they age or are influenced by changes in their environment. As such following any significant meteorological event or changes in the growing environment of the trees they should be re-assessed by a suitably qualified and experienced arboriculturist.

NON-TECHNICAL SUMMARY

Middlemarch Environmental Ltd was commissioned to prepare a combined Pre-development Arboricultural Survey and Impact Assessment in respect of the proposed development of land at the Havant Rugby Club in Bedhampton, Havant. It is understood that the site will be the subject of a planning application for redevelopment of the existing rugby pitch and installation of a new bund. To fulfil the project brief a desk study and a field survey of the trees present on site were undertaken in December 2017.

The desk study exercise identified that none of the trees present on site are protected by a Tree Preservation Order and that the site is not situated within a Conservation Area.

The field survey was undertaken in December 2017 by Dean Moore (Arboricultural Consultant). The survey identified that the site's tree stock is primarily composed of early-mature and mature which are predominantly in a good condition.

The proposed development of the site will require the removal of three individual trees and three hedgerows within the site. Additionally some access facilitation pruning works to the crowns of trees within, and overhanging, the site will be required to minimise the potential for branch damage to occur during development.

The proposed tree removal will have a localised amenity impact however it is considered that any loss in visual amenity can be mitigated for by undertaking replacement landscaping within the site.

There are a number of areas across the site where the proposed development will require works to be undertaken within the Root Protection Areas of retained trees. However it is considered that the extent of encroachment will be relatively minor and unlikely to impact on the long-term health of affected trees.

To ensure the protection of trees selected for retention during the course of the proposed development it is recommended that the guidance set out in Sections 5 and 6 of this report are considered and that, during development of the site, the retained trees are protected by the erection of tree protection barriers to the specification set out in BS5837:2012.

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1. INTRODUCTION

1.1 PROJECT BRIEF

In December 2017, CBRE Ltd commissioned Middlemarch Environmental Ltd to prepare a combined Arboricultural Survey and Impact Assessment in respect of the proposed development of land at Havant Rugby Club on Fraser Road in Bedhampton, Havant.

The purpose of this report is to:

- Record the current condition of the trees found on the site and categorise them using criteria outlined in BS5837:2012 "Trees in relation to design, demolition and construction - Recommendations".
- Provide a Tree Constraints Plan that identifies any constraints to development presented by the trees to include root protection areas for the retained trees as described in BS5837:2012.
- Provide guidance detailing arboricultural constraints to development and factors to be considered during the detailed design of the proposed development.
- Detail the impact that the proposed development will have upon the site's existing tree stock and set out recommendations for the subsequent mitigation or avoidance of impact.

1.2 SITE DESCRIPTION

The site under consideration is the Havant Rugby Football Club which is located in Bedhampton, a suburb of Havant, Hampshire. The site is rectangular in shape and extends to 0.98 ha in size and it is centred on Ordnance Survey Grid Reference SU 70793 06872.

At the time of the survey, the site comprised of the existing pitch which is surrounded by hedgerows and amenity grassland. To the north of the study area are a number of playing fields whilst to the south is the rugby club building and associated car park.

The site abuts the grounds of St Thomas More's Pre School to the north and west, with the boundaries defined by conifer hedgerows. The site is bound to the east by residential properties off Hook's Lane and to the south by Havant Rugby Football Club and associated hardstanding. The wider landscape is dominated by residential development interspersed with school grounds, recreational grounds and areas of woodland.

The locations of the trees surveyed can be found on Middlemarch Environmental Ltd Drawing Number C126985-01 in Section 8 of this report.

1.3 DEVELOPMENT PROPOSALS

The proposed development of the site is the construction of a new pitch and associated works.

1.4 DOCUMENTATION PROVIDED

This assessment is based upon the information provided by the client in addition to information collected by Middlemarch Environmental Ltd during a survey of the site undertaken in December 2017. The documents and drawings considered are detailed within Table 1.1.

Author	Document	Drawing Number	Date
SIS UK Ltd	Proposed Location Plan	MUK1853-01 Rev D	Sep 2017
SIS UK Ltd	Existing Site Plan	MUK1853-02 Rev E	Nov 2017
SIS UK Ltd	Construction Management Plan (CEMP)	-	Nov 2017

Table 1.1: Documentation Provided

2. METHODOLOGY

2.1 DESK STUDY

A desk study was undertaken to identify if any of the trees present within or in close proximity to the site are covered by Tree Preservation Orders (TPOs) or if the site is situated within a Conservation Area. This involved consultation with the Local Planning Authority.

2.2 CONDITION STATUS

To determine the status of the trees within the site a full arboricultural survey has been undertaken, assessing the species and status of all trees present. This survey has been carried out in accordance with British Standard 5837:2012 'Trees in relation to design, demolition and construction – Recommendations'.

All trees have been assigned a unique reference number. Individual trees above 75 mm in diameter (at 1.5 m above ground level) have had their position plotted to a survey drawing. The trees were visually assessed and a schedule prepared listing: tree number, species, trunk diameter at 1.5 m above ground level (or in accordance with Annex C of BS5837:2012), tree height, crown spread (cardinal points), crown clearance (cardinal points), height of first branch and growth direction, age class and estimated remaining life expectancy in years. Measurements for tree height, first branch height, crown clearance and crown spread were taken to an accuracy of 0.5 m. Stem diameter measurements were recorded to the nearest 10 mm. Any specific observations or recommendations with regard to management were also noted. All these observations and measurements are summarised in Section 4.

Each tree was assessed and assigned to one of the following categories:

- Category A: Those trees of high quality and value with an estimated remaining life expectancy of at least 40 years.
- Category B: Those trees of moderate quality and value with an estimated remaining life expectancy of at least 20 years.
- Category C: Those trees of low quality and value with an estimated remaining life expectancy of at least 10 years or young trees with a stem diameter below 150 mm.
- Category U: 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.

Categories A, B and C have further sub-categories with regards to the reasons for tree retention:

- 1: Mainly arboricultural qualities
- 2: Mainly landscape qualities
- 3: Mainly cultural values, including conservation.

2.3 ROOT PROTECTION AREA (RPA)

In order to avoid damage to the roots or rooting environment of retained trees, the RPA has been calculated for each of the Category A, B and C trees. This is a minimum area around a tree which is deemed to contain sufficient roots and rooting volume to maintain the tree's viability. Protection of the roots and soil structure in this area should be treated as a priority.

These figures have been calculated utilising the formulas within Section 4.6 and Annex D of British Standard 5837:2012.

3. STATUTORY PROTECTION

3.1 TREE PRESERVATION ORDER AND CONSERVATION AREA DESIGNATIONS

Michelle Houghton (Planning Services, Havant Borough Council, 2017, Pers. Comm.) confirmed via email on the 15th December 2017 that there are no Tree Preservation Orders affecting the site and that the site is not situated within a Conservation Area.

3.2 PROTECTED SPECIES

Bats

Mature trees often contain cavities, hollows, peeling bark or woodpecker holes which provide potential roosting locations for bats. Bats and the places they use for shelter or protection (i.e. roosts) receive European protection under The Conservation of Habitats and Species Regulations 2010 (Habitats Regulations 2010, as amended). They receive further legal protection under the Wildlife and Countryside Act (WCA) 1981, as amended. Consequently causing damage to a bat roost constitutes an offence.

Generally should the presence of a bat roost be suspected whilst completing works on any trees on site then an appropriately licensed bat worker should be consulted for advice.

Birds

Trees and hedgerows offer potential habitat for nesting birds which are protected under the Wildlife and Countryside Act WCA 1981 (as amended). Some species (listed in Schedule 1 of the WCA) are protected by special penalties. This legislation makes it an offence to intentionally or recklessly damage or destroy an active bird nest or part thereof.

As the trees on, and adjacent, to the site provide potential habitat for nesting birds all tree work should ideally be completed outside the nesting bird season (Nesting bird season is generally accepted to be between March and September).

If this is not possible then the vegetation should be subject to a nesting bird inspection by a suitably experienced ecologist prior to commencement of works. If any active nests are identified then the vegetation, and a defined buffer zone, will need to remain in place until the young have naturally fledged.

4. SURVEY RESULTS

4.1 WEATHER CONDITIONS AND PERSONNEL

The survey was completed on the 7th December 2017 by Dean Moore, Arboricultural Consultant. The weather conditions at the time of the survey are shown in Table 4.1.

Conditions	Result
Temperature (°C)	10
Cloud Cover (%)	100
Precipitation	Rain
Wind Speed (Beaufort)	F2-3

Table 4.1: Weather Conditions at Time of Survey

4.2 TREE SPECIES

Tree and shrub species recorded during the survey are listed in Table 4.2.

Common Name	Scientific Name
Apple	<i>Malus</i> sp.
English oak	<i>Quercus robur</i>
Flowering cherry	<i>Prunus</i> sp.
Leyland cypress	<i>Cupressus x leylandii</i>
Monterey cypress	<i>Cupressus macrocarpa</i>

Table 4.2: Tree Species Recorded During Survey

4.3 TREE QUALITY

Retention Value

The initial stage of a tree survey in accordance to BS5837:2012 looks at the trees on the site in terms of life expectancy and condition. Trees are then categorised according to their retention value.

Category A trees are those that have been assessed as being of a high quality and value; significant amendments to the proposed scheme should be considered in preference to their removal. These trees are shown in **Green** on the Tree Constraints Plan.

Category B trees are those that have been assessed as being of a moderate quality and value; amendments to the proposed scheme should be considered in preference to their removal. These trees are shown in **Blue** on the Tree Constraints Plan.

Category C trees are those that have been assessed as being of a low quality and value; the loss of these specimens should not necessarily be considered as a constraint to development. These trees are shown in **Grey** on the Tree Constraints Plan

Category U trees are those that have been assessed as having no retention value; these trees should not be a material consideration in the planning process. These trees are shown in **Red** on the Tree Constraints Plan.

Category A, B or C trees are those that should be a material consideration in the planning process whilst Category U trees are those which would be lost in the short term for reasons connected to their physiological or structural condition and hence they should not be a consideration in the planning process.

Overall six trees and three hedgerows have been inspected in accordance with BS5837:2012 'Trees in relation to design, demolition and construction – Recommendations'.

A summary of the trees and hedgerows in each of the four categories is given in Table 4.3.

BS5837:2012 Category	Tree Number
A	2, 3.
B	H1, H2, H3.
C	6.
U	1, 4, 5.

Table 4.3: Summary of Trees and Hedgerows in BS5837:2012 Categories

4.4 TREE SURVEY SCHEDULE

The full results of the Arboricultural Assessment are detailed in Table 4.4.

Tree No.	Species	No. Stems	Diam (mm)	H't (m)	H't 1st Branch (m)	Branch Spread (m)				Crown Clearance (m)				Age	Phys Cond	Struc Cond	Est. Remain Contrib (Years)	Cat	Comments	Preliminary Management - Recommendations
						N	E	S	W	N	E	S	W							
1	Flowering cherry	-	320	8.0	1.5 E	4.0	3.0	3.0	3.5	3.0	3.0	3.0	3.0	Y	P	F	<10	U	- Dieback present on lateral and apical branches. - Minor deadwood present. - Tree is in decline. - Tree offers a limited contribution to the local landscape.	-
2	English oak	-	830	16.0	3.0 S	4.0	5.0	5.0	8.0	3.0	3.0	3.0	4.0	M	G	G	40+	A1	- Hardstanding within RPA of tree. - Epicormic growth present on main stem. - Located off-site but does overhang. - Minor deadwood present. - Minor cuts present.	-
3	Monterey cypress	-	1270	17.0	4.0 W	8.5	7.5	7.0	9.0	4.0	3.0	3.0	3.0	M	G	G	40+	A1	- Hardstanding within RPA of tree. - Located off-site but does overhang. - Minor deadwood present. - Small branches hanging in crown. - Stem damage present. - Previous work – crown reduced.	-
4	Apple	-	280	7.0	2.0 S	3.0	2.0	3.5	3.0	2.5	2.5	2.5	2.5	Y	P	P	<10	U	- Tree is in decline. - Two major breakouts. - Large quantity of deadwood present. - Sparse crown. - Dieback present on apical and lateral branches.	-

Table 4.4: Results of Arboricultural Survey (continues)

Tree No.	Species	No. Stems	Diam (mm)	H't (m)	H't 1st Branch (m)	Branch Spread (m)				Crown Clearance (m)				Age	Phys Cond	Struc Cond	Est. Remain Contrib (Years)	Cat	Comments	Preliminary Management - Recommendations
						N	E	S	W	N	E	S	W							
5	Flowering cherry	-	320	6.0	2.0 E	3.5	3.0	2.5	3.0	3.0	2.5	2.5	2.5	Y	F	P	<10	U	- Major breakout, decay present. - Large quantity of deadwood present. - Dieback present on apical and lateral branches. - Generally a poor specimen with a limited contribution to the local landscape.	-
6	English oak	-	440	8.0	3.0 S	4.0	4.0	4.5	7.0	2.5	2.5	2.5	2.5	Y	F	F	20+	C1	- Dieback present in northern section of crown. - Minor deadwood present. - Tree appears to be in decline. - Wound present on northern section of main stem between 0.0 and 1.0 m above ground level, decay present.	-
H1	Leyland cypress	-	100 - 380	12.0	0.0 E	3.5	3.5	3.5	3.5	0.0	0.0	0.0	0.0	Y, EM	G	G	20+	B2, 3	- Hedge offers screening and protection from prevailing winds. - Lower part of hedgerow managed.	-
H2	Leyland cypress	-	100 - 320	10.0 - 12.0	0.0 S	4.5	4.5	4.5	4.5	0.0	0.0	0.0	0.0	Y, EM	G	G	20+	B2, 3	- Hedge offers screening and protection from prevailing winds. - Lower part of hedgerow managed. - Sparse in areas.	-

Table 4.4 (cont'd): Results of Arboricultural Survey (continues)

Tree No.	Species	No. Stems	Diam (mm)	H't (m)	H't 1st Branch (m)	Branch Spread (m)				Crown Clearance (m)				Age	Phys Cond	Struc Cond	Est. Remain Contrib (Years)	Cat	Comments	Preliminary Management - Recommendations
						N	E	S	W	N	E	S	W							
H3	Leyland cypress	-	100 - 280	8.0 - 12.0	0.0 W	4.0	4.0	4.0	4.0	0.0	0.0	0.0	0.0	Y, EM	G	G	20+	B1, 2, 3	- Hedge offers screening and protection from prevailing winds. - Lower part of hedgerow managed.	-
Key <u>Age Class</u> Y: Young = tree within first third of average life expectancy EM: Early mature = tree within second third of average life expectancy M: Mature = tree within final third of average life expectancy OM: Over mature = tree beyond average life expectancy <u>Physiological Condition</u> G: Good = no health problems F: Fair = symptoms of ill health that may be remedied P: Poor = poor health <u>Structural Condition</u> G: Good = no structural defects F: Fair = remedial structural defects P: Poor = significant structural defects RPA: Root Protection Area																				

Table 4.4 (cont'd): Results of Arboricultural Survey

4.5 ROOT PROTECTION AREA (RPA)

Table 4.5 provides details of the Root Protection Area (RPA) of all trees and hedgerows surveyed which were classified as Category A, B or C specimens. This table also gives an approximate root protection radius for these trees.

Tree No.	Species	Diameter (mm)	Approximate Root Protection Radius (m)	Root Protection Area (m ²)
2	English oak	830	10.2	327
3	Monterey cypress	1270	15	707
6	English oak	440	5.4	92
H1	Leyland cypress	380	4.8	72
H2	Leyland cypress	320	3.9	48
H3	Leyland cypress	280	3.6	41
Key: *: Around centre of each tree within group. <u>000</u> : Estimated dimension.				

Table 4.5: RPA and Approximate Root Protection Radius of Category A, B and C Trees and Hedgerows Surveyed

5. ARBORICULTURAL IMPACT ASSESSMENT

5.1 INTRODUCTION

This section of the report details the potential impacts that the proposed development may have upon the site's tree stock. The assessment has been based upon the documents detailed in Table 1.1 with reference to the results of the field survey undertaken in December 2017.

The location of the trees can be found on Drawing Number C126985-01 in Section 8 and a schedule of the trees surveyed can be found within Section 4.

5.2 IMPACTS FROM DEVELOPMENT LAYOUT

5.2.1 Tree Removal

The proposed development will require the removal of a small number of trees within the site. The trees to be removed are detailed within Table 5.1 and are also identified on the Draft Tree Protection Plan, Drawing Number C126985-02, in Section 8 of this report.

Tree Number	Species	BS5837 Category	Reason for Removal
1	Flowering Cherry	U	Removal required due to poor structural condition.
4	Apple	U	Removal required due to poor structural condition.
5	Flowering Cherry	U	Removal required due to poor structural condition.
H1	Leyland Cypress	B2, 3	Removal required to facilitate proposed bund construction.
H2	Leyland Cypress	B2, 3	Removal required to facilitate proposed bund construction.
H3	Leyland Cypress	B1, 2, 3	Removal required to facilitate proposed bund construction.

Table 5.1: Tree Removal

Overall the proposed development will require the removal of three individual trees and three hedgerows within the site.

The individual trees to be removed were all assessed as being unsuitable for long term retention when considered in accordance with BS5837:2012 due to their poor structural condition. The loss of these trees would occur within a short period of time irrespective of the proposed development and as such their removal should not be seen as a material consideration in the planning process.

The hedgerows to be removed have been assessed as having a moderate retention value. Collectively, the trees within these hedgerows do have the potential to make a longer-term contribution to the landscape character of the site. It is therefore recommended that their loss from the site be mitigated through replacement tree planting, in suitable off-site locations, post development.

5.2.2 Tree Pruning

There are areas where it will be necessary to undertake access facilitation pruning works to retained trees present on the site to minimise the potential for branch damage to occur during construction.

In this respect it is recommended that the tree numbers 2, 3 and 6 are lifted to an adequate height (i.e. 3.5 m above ground level) to provide clearance for proposed construction works.

These works will be of a minor extent and they are routine in nature. As such it is not considered that they will have a significant impact upon the long-term health, or visual quality, of the trees.

All tree pruning works should be completed in accordance with the current best practice guidance set out within BS3998:2010 "Tree Work – Recommendations" by suitably qualified and insured arboricultural contractors.

5.3 IMPACTS FROM DEMOLITION AND RELATED OPERATIONS

5.3.1 Building Demolition

There are no existing buildings on site which require demolition as part of the proposed development. As such, impacts to retained trees from this aspect of development are not anticipated.

5.3.2 Removal of Hard Surfaces

There are no existing areas of hardstanding within the site which will require removal as part of the proposed development. As such, impacts to retained trees from this aspect of development are not anticipated.

5.3.3 Removal of Services

There are no areas on site where the removal of existing underground services are likely to require works within the RPAs of retained trees.

5.4 DIRECT IMPACTS FROM CONSTRUCTION

5.4.1 Works within RPAs

Following the tree removal detailed in Section 5.2.1, works to facilitate the proposed development will largely fall outside of the RPAs of retained trees. However works to install the new bund around the perimeter of the pitch will encroach slightly within the RPA of tree number 3. However as the extent of overlap with the tree's RPA is relatively minimal it is not considered that significant impacts to the long-term health of the tree are likely to occur.

Proposed works to resurface the rugby pitch itself are expected to fall partially within the RPAs of tree numbers 2, 3 and 6. These works will involve excavation of existing topsoil to facilitate installation of new hardstanding for foundations and perimeter footpaths within the footprint of the pitch. It is noted that the extent of encroachment within the RPAs of tree numbers 2, 3 and 6 is relatively minor and as such significant root activity is not expected to be present.

However, in order to minimise any potential impacts upon tree health, it is recommended that excavation works proceed according to an appropriate working methodology (as detailed in Section 6.3.2) and under supervision of a suitably qualified and experienced arboriculturist.

Subject to excavation works being undertaken using appropriate precautions, subsequent works to install new hardstanding within the excavated areas are not expected to result in further harm to tree roots. Nonetheless, it is recommended that new hardstanding be installed according to appropriate working practices as detailed in Section 6.3.3.

5.4.2 Works within Canopy Spreads

Following completion of the proposed access facilitation pruning works, detailed in Section 5.3.2, there are no areas on site where proposed construction works will be required within the canopy spread of retained trees.

The nature of the works to be completed in this location are such that it is considered that the potential for branch damage to occur is minimal, and that the trees can be adequately protected from harm during the development by the prior erection of tree protection barriers.

5.4.3 Working Space

There are no areas on site where working space for the construction of new buildings will need to be provided within the RPAs of retained trees.

5.5 IMPACTS FROM CONSTRUCTION RELATED OPERATIONS

5.5.1 Site Access

It is understood that construction access to the site will be provided along the existing access drive from Fraser Road. It will be necessary to ensure retained trees adjacent to the access route are protected from

potential impact damage by the installation of tree protection barriers prior to the commencement of the development.

5.5.2 Delivery and Storage of Materials

Material deliveries to the site will utilise the existing access track. Retained trees will be protected from harm by the prior installation of tree protection barriers and the completion of access facilitation pruning works.

Areas for materials storage within the site have not been identified at this stage, however the nature of the site is such that ample opportunities exist for the storage of materials in areas well away from retained trees.

5.5.3 Site Compound

The proposed location for the contractor's compound during development of the site has not been identified at this stage, however the nature of the site is such that several opportunities exist to create a site compound in areas away from retained trees.

5.5.4 Contractor's Parking

The locations for contractor's parking have not been identified at this stage. There are areas throughout the site where car parking could be provided outside of the RPAs of retained trees.

5.6 POST-DEVELOPMENT IMPACTS

5.6.1 Shading

The nature of the proposed development is such that shading from retained trees is not considered to be a significant constraint. As such conflicts between retained trees and the proposed development, resulting in further pressure for tree removal, are not anticipated.

5.6.2 Privacy and Screening

The proposed development will require the removal of the three Leyland Cypress hedgerows (numbers H1, H2 and H3) along the perimeter of the rugby pitch to avoid conflicts arising with the new treatment of the pitch. These trees contribute significantly to privacy and screening of the pitch and residential properties off Hook's Lane to the east.

However the installation of the new bund along the pitch perimeter will provide ample screening for the pitch and residential properties. As such, no impacts to privacy of the site are anticipated.

5.6.3 Direct Damage to Structures

There are no areas on site where retained trees will be in such close proximity to the new development that direct damage, through branch whipping or root growth, are likely to occur.

5.6.4 Future Pressure for Removal

The layout of the proposed development is such that future pressure for tree removal is generally unlikely to result.

5.6.5 Seasonal Nuisance

It is not considered that a significant degree of seasonal nuisance will occur.

5.7 SUMMARY OF IMPACTS

In summary it is considered that the proposed development of the site is likely to have a localised impact upon the visual amenity of the site and surroundings as a result of the proposed tree removal and pruning works necessary to facilitate it. However it is considered that this can be adequately mitigated through replacement tree planting post-development.

There are a number of areas of site where works are to be undertaken within the RPAs of retained trees which may have an impact upon them.

In this respect where works are to be undertaken within the RPAs of tree numbers 2, 3 and 6 it is considered that, subject to works, the works can be completed in such a way that they have little potential to cause harm to the long term condition of the trees.

6. MITIGATION AND PROTECTION

6.1 INTRODUCTION

This section of the report details the initial protection, mitigation and avoidance measures suggested to prevent harm to the retained trees.

6.2 GENERAL TREE PROTECTION

6.2.1 Construction Exclusion Zone

To minimise the potential for harm to occur to the root systems and canopies of retained trees during development it will be necessary to implement construction exclusion zones throughout the site. These are areas surrounding the trees' RPAs and canopies in which no construction works, or related activities, will be undertaken.

It is recommended that the exclusion zones are afforded protection at all times through the use of tree protection barriers and/or ground protection (specified in accordance with BS5837:2012). No works that cause compaction of the soil or severance of tree roots, except where undertaken in accordance with the guidance provided within this document, will be undertaken within any exclusion zone.

Where excavation works are to be undertaken within the RPAs of retained trees the working practices detailed in Section 6.3.2 should be followed. Additionally where new hard surfaces are to be constructed within the RPAs of retained trees the guidance set out at Section 6.3.3 should be followed.

6.2.2 Tree Protection Barriers

The protective barriers should be erected prior to the commencement of any site works e.g. before any materials or machinery are brought on site or the stripping of soil commences.

Drawing Number C126985-02, in Section 8, provides a Draft Tree Protection Plan indicating the potential location of protective barriers.

The protective barriers are to be constructed in accordance with the specification detailed in BS5837:2012 (Figure 2, Appendix 2). Any variation to the specification of the protective barrier will be agreed with the Local Planning Authority Arboricultural Officer.

6.2.3 Ground Protection

There are no areas on site where ground protection measures will require installation on this site.

6.3 MITIGATION OR AVOIDANCE OF IMPACTS

6.3.1 Design Amendments

It is not considered that design amendments are required on this site as the trees requiring removal are typically of a low value and there are no areas where significant conflicts between the proposed development and retained trees will occur.

6.3.2 Excavation Works within RPAs

The following guidance will be adhered to for all excavation works required within the RPAs of retained trees:

1. Tree pruning necessary to prevent harm occurring to lower branches by the use or passage of the vacuum excavator will be identified by the Project Arboriculturist and such work will be completed prior to commencement of the works.
2. Upon commencement of the works the aim will be to excavate soil within the footprint of the existing rugby pitch to the depth required to facilitate construction of new foundations and hardstanding whilst retaining as many tree roots as feasible. Excavation depth should be discussed within an Arboricultural Method Statement for this development.

3. Root presence will be ascertained by careful scraping of topsoil in 50 mm increments, in order to prevent excessive damage occurring to tree roots.
4. Whilst roots smaller than 25 mm in diameter may be pruned back to facilitate excavation works, such works shall only be completed under the direction of the Project Arboriculturist.
5. All exposed roots must be wrapped or covered with damp hessian or similar material, as soon as possible, to prevent desiccation and to protect them from rapid temperature changes.
6. Upon completion of excavation works, the proposed foundations can be installed as per the construction management plan.
7. Works will not occur where temperatures of less than +4 degrees Celsius are forecast.

6.3.3 Hard Surface Design within Root Protection Areas

Wherever it is intended to construct new hard surfaces within the Root Protection Areas of trees, precautions must be taken to maintain the condition and health of trees root systems.

In particular:

- Works shall be conducted in such a manner as to prevent physical damage to roots during demolition or construction, such as soil compaction or root severance.
- Provision for water and oxygen to reach the roots must be made and the soil structure must not be disturbed.
- Provision must be made for future root growth and precautions taken to ensure that such root growth does not cause unacceptable levels of damage to the finished construction.
- The soil must not be compacted and soil bulk density must be maintained at suitable levels for tree root growth and function. In this respect a soil bulk density of over 1.8 g/cm³ is likely to impede root growth and function.

To achieve the above requirements for tree root growth and function the proposed new hard surfaces shall be designed so that:

- No excavation of bare ground is required for their installation; to ensure that physical root damage does not occur.
- The surface can be installed without compaction of the existing soils; thus ensuring damage to the soil structure does not occur.
- The surface is permeable; thus ensuring that oxygen and water can reach the root system and that CO₂ can diffuse vertically out of the soil as high concentrations can cause root suffocation.

There are various methods of creating such a surface, however one that is commonly in use and is therefore recommended here is the use of a three dimensional cellular confinement system, such as CellWeb produced by Geosynthetics, to provide for load suspension above the existing soil grade and reducing vertical loads on the underlying soils.

6.3.4 Site Setup and Logistics

Prior to commencement of development a plan should be prepared detailing the locations in which activities related to the establishment of a site compound, contractor's car parking areas, material storage areas and associated works are to occur. All such areas should be located outside of the RPAs of retained trees.

7. RECOMMENDATIONS

An Arboricultural Method Statement will be required for the site as the proposed development will require works to be undertaken within the RPAs of retained trees.

The purpose of a method statement is to ensure that all site operations can occur with minimal risk of adverse impact upon trees that are to be retained. The document will identify all areas where specific working methods will be required to ensure protection to trees. The document will also specify in detail the final locations and extent of tree protection barriers and ground protection.

In relation to this development the method statement should address the following:

- Final material storage and site compound locations.
- Final protective barrier and ground protection locations and specifications.
- Methodology for construction of new hard surfaces within RPAs.
- Pre-commencement site meeting and schedule of auditing of tree protection measures and supervision of works within RPAs of retained trees.

8. DRAWINGS

Drawing Number C126985-01 – Tree Constraints Plan

Drawing Number C126985-02 – Draft Tree Protection Plan



C126985-01

Legend

- Category A tree
- Category C tree
- Category U tree
- Category B hedgerow
- Current canopy extent
- Root Protection Area
- 00 Tree locations are approximate - based on combined field observations and aerial imagery.

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

Project
Havant RFU Site, Bedhampton, Havant

Drawing
Tree Constraints Plan

Client
CBRE Ltd.

Drawing Number C126985-01	Revision 00
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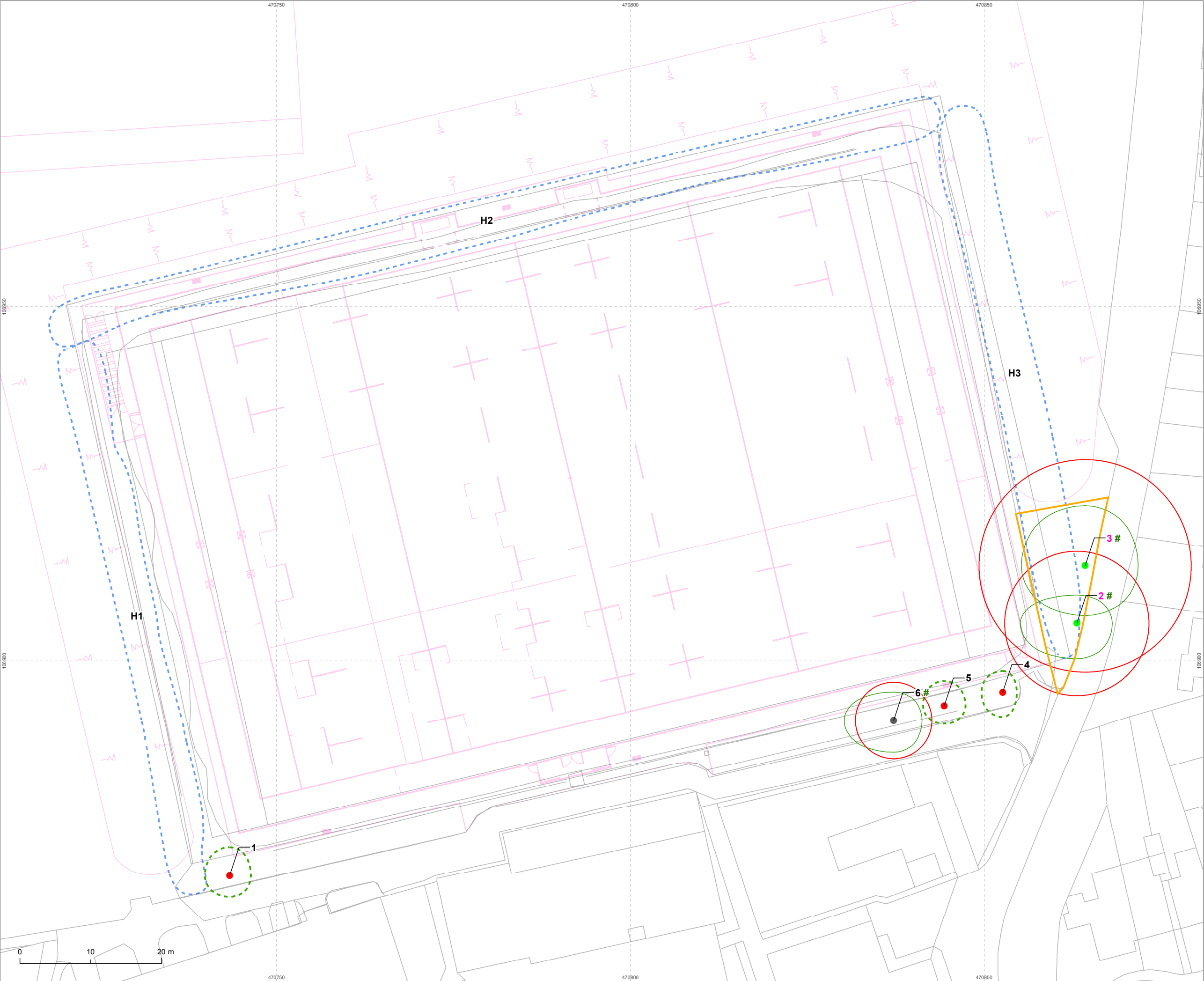
Scale @ A3 1:500	Date December 2017
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Approved By CP	Drawn By RP
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C126985-02

Legend

Category A tree

Category C tree

Category U tree

Category B hedgerow

Category B hedgerow to be removed

Current canopy - tree to be retained

Current canopy - tree to be removed

Root Protection Area

Tree protection barrier

Proposed development layout

#

Pruning

00

Tree locations are approximate - based on combined field observations and aerial imagery.

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

Project

Havant RFU Site, Bedhampton, Havant

Drawing

Draft Tree Protection Plan

Client

CBRE Ltd.

Drawing Number

C126985-02

Revision

00

Scale @ A3

1:500

Date

December 2017

Approved By

DM

Drawn By

GM

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APPENDICES

APPENDIX 1: Headings for Protective Barrier Notices and Example Protection Sign

APPENDIX 2: Details of Protective Barrier

APPENDIX 1

Headings for Protective Barrier Notices

Root Protection Area (RPA) Model Notice

DON'T excavate within this area

DON'T use any form of mechanical plant with this area

DON'T store materials, plant or equipment within this area

DON'T move plant or vehicles within this area

DO contact the Local Authority Arboricultural Officer or owner of the tree if excavation within this area is unavoidable

DO protect any exposed roots uncovered within this area with dry sacking

DO backfill with a suitable inert granular and top soil material mix as soon as possible on completion of work

ANY WORK in this area requires a permit from the Local Authority Arboricultural Officer



**PROTECTIVE FENCING. THIS
FENCING MUST BE
MAINTAINED IN ACCORDANCE
WITH THE APPROVED PLANS
AND DRAWINGS FOR THIS
DEVELOPMENT.**



**TREE PROTECTION AREA
KEEP OUT !**

**(TOWN & COUNTRY PLANNING ACT 1990)
TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY
PLANNING CONDITIONS AND/OR ARE THE SUBJECTS OF A
TREE PRESERVATION ORDER.
CONTRAVENTION OF A TREE PRESERVATION ORDER MAY
LEAD TO CRIMINAL PROSECUTION**

**ANY INCURSION INTO THE PROTECTED AREA MUST BE
WITH THE WRITTEN PERMISSION OF THE LOCAL
PLANNING AUTHORITY**

APPENDIX 2

Details of Protective Barrier

Figure 2 Default specification for protective barrier

