

**LARCHWOOD AVENUE,
BEDHAMPTON, HAVANT**

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

A Report to: Savills

Report No: RT-MME-122638-02

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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".

Report Version	Date	Completed by:	Checked by:	Approved by:
Final	24/05/16	Marco Bartolini TechArborA, GradCIEEM, FdScWM, Dip Mgmt (Arboricultural Consultant)	Ed Lusk HND, PTI (Principal Arboricultural Consultant)	Dr Philip Fermor CEnv, MCIEEM (Managing Director)

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 Arboricultural Survey and Impact Assessment in respect of the proposed development of land at Larchwood Avenue, Havant, Hampshire. It is understood that the site will be the subject of a planning application for construction of a new fast-food restaurant building. To fulfil the project brief a desk study and a field survey of the trees present on site were undertaken in May 2016.

The desk study exercise identified that group numbers G1, G5 (in part) and tree numbers 1, 2, 3, 4, 5, 6, 7, 8, 9, 16, 17 of the trees surveyed are protected by a Tree Preservation Order and that the site is not situated within a Conservation Area. See Section 3 for more details.

The field survey was undertaken in May 2016 by Marco Bartolini (Arboricultural Consultant). The survey identified that the site's tree stock is primarily composed of early-mature and mature which are predominately in a fair to good condition.

The trees situated around the periphery of the site were deemed to be significant landscape features and provided good visual separation from neighbouring properties and the local road networks.

It is important to note that the hard surfacing within the central section of the site is bound on three sides by a retaining wall and the trees surveyed beyond the retaining walls are growing on elevated section of ground that meet with the highways beyond the survey area.

The proposed development of the site will require the removal of three areas of shrub / scrub vegetation within the site where trees have self-set in gaps between section of degrading hard surfacing (Group numbers G2, G3 and G7). Additionally, some access facilitation pruning works to the crowns of trees within, and overhanging, the site may be required to minimise the potential for branch damage to occur during development. Further information in respect of construction methodology will determine the facilitation pruning requirements.

The proposed tree removal will have minimal amenity impact due to the secluded location of the trees to be removed.

There are several areas across the site where the proposed development may have the potential to cause harm to retained trees as works to construct the new retail food outlet will, in some locations, require works to be undertaken within the initial Root Protection Areas of the trees surveyed. Where such works occur it may be possible to minimise the impact by ensuring appropriate construction methodologies are followed.

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 May 2016, Savills commissioned Middlemarch Environmental Ltd to prepare a combined Arboricultural Survey and Impact Assessment in respect of the proposed development of land at Larchwood Avenue, Bedhampton, Hampshire.

The proposed development of the site is the construction of a new food retail outlet (KFC) building off Larchwood Avenue to include elements of hard and soft landscaping.

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.

Middlemarch Environmental have also been commissioned to undertake a Preliminary Ecological Appraisal for Savills at this site. The results of this survey are detailed within Report Number RT-MME-122638-01.

1.2 SITE DESCRIPTION

The site under consideration is a former car parking area located off Larchwood Avenue, Bedhampton, Havant in the county of Hampshire. The site is generally rectangular in shape, approximately 0.23 hectares in size and centred at Ordnance Survey Grid Reference SU 6961 0758.

At the time of the survey, the site comprised a disused car park which was becoming overgrown with self-set scrub and developing trees. Linear groups of shelterbelt highway trees were present towards the northern, eastern and western boundaries that framed the site. The majority of trees were growing upon elevated sections of land beyond retaining walls. All of the trees provided good visual separation from adjacent neighbouring commercial businesses.

The site was bound to the east and west by Larchwood Avenue, beyond which were commercial businesses. To the south the site abuts the access road to the car park of the ASDA Havant Supercentre, whilst to the north the site extends to abut the access road to an existing McDonald's retail building.

The locations of the trees surveyed can be found on Middlemarch Environmental Ltd Drawing Number C122638-02-01 in Section 8 of this report.

1.3 DEVELOPMENT PROPOSALS

The proposed development of the site includes the construction of a new food retail outlet (KFC) building, access road, car parking and associated hard and soft landscaping.

1.4 DOCUMENTATION CONSIDERED

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 May 2016. The documents and drawings considered are detailed within Table 1.1.

Author	Document	Drawing Number	Date
CTES Surveying	Topographical Survey	-	Jan 2016
@ Architect Ltd	Proposed Site Plan for Planning	0000/2011/B122/14-0062	Feb 2016

Table 1.1: Documentation Considered

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. Groups of trees have had their specific dimensions (as per individual tree) averaged and recorded as such. 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

Harriet Pitney (2016, *Pers. Comm.*) Planning Enquiry Officer, Havant Borough Council, confirmed in an email on the 26th May 2016 that there is a Tree Preservation Order covering trees on and adjacent to the site.

Group numbers G1, G5 (in part) and tree numbers 1, 2, 3, 4, 5, 6, 7, 8, 9, 16, 17 surveyed are protected by a Woodland Tree Preservation Order, in particular W2 of this Order. A copy of the map appertaining to this Order can be found at Appendix 3 to this report.

The exact locations of each of the trees that are protected should be verified on the ground with the Local Authority Arboricultural Officer as the map is an indicative outline of the protection area.

The Town and Country Planning (Tree Preservation) (England) Regulations 2012, Part 4 – Applications for Consent under Tree Preservation Orders states that an application for consent to the cutting down, topping, lopping or uprooting of any tree in respect of which an order is for the time being in force shall be made in writing to the authority on a form published by the Secretary of State for the purpose of proceedings under these Regulations.

Until such time as the application has been granted no works must be undertaken on the trees identified as being subject to TPOs that contravene the order. Works include pruning, topping, lopping, uprooting or wilfully damaging these trees. Any proposed pruning works will need to be fully specified and agreed within any planning application. If works are not included within the planning application, a separate TPO application will be required to be submitted to the Local Authority for permission to undertake any works (approximately an 8-week process).

Apart from limited exceptions, permission must be sought from the local planning authority by submitting a standard application form. The form is available from the Local Authority Planning Portal. It is important that the information on the form makes clear what the proposed work is and provides adequate information to support the case.

The authority's consent is not required for carrying out work on trees subject to an Order so far as such work is necessary to implement a full planning permission. For example, the Order is overridden if a tree has to be removed to make way for a new building for which full planning permission has been granted. Conditions or information attached to the permission may clarify what work is exempt.

Harriet (2016) also confirmed 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 (generally March to 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 24th May 2016 by Marco Bartolini, Arboricultural Consultant. The weather conditions at the time of the survey are shown in Table 4.1.

Conditions	Result
Temperature (°C)	13
Cloud Cover (%)	0
Precipitation	Nil
Wind Speed (Beaufort)	F1-2

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
Alder	<i>Alnus glutinosa</i>
Ash	<i>Fraxinus excelsior</i>
Aspen	<i>Populus tremula</i>
Buddleia	<i>Buddleia</i> sp.
Cherry	<i>Prunus</i> sp.
Lime	<i>Tilia</i> sp.
English Oak	<i>Quercus robur</i>
Goat Willow	<i>Salix caprea</i>
Gorse	<i>Ulex</i> sp.
Hawthorn	<i>Crataegus monogyna</i>
Norway Maple	<i>Acer platanoides</i>
Silver Birch	<i>Betula pendula</i>
Turkey Oak	<i>Quercus cerris</i>
Viburnum	<i>Viburnum</i> sp.

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 nineteen trees and seven groups of trees have been inspected in accordance with BS5837:2012 'Trees in relation to design, demolition and construction – Recommendations'.

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

BS5837:2012 Category	Tree and Group Number
A	-
B	1, 2, 3, 4, 5, 6, 7, 9, 18, 19, G1, G5, G6.
C	8, 10, 11, 12, 13, 14, 15, 16, 17, G2, G3, G4, G7.
U	-

Table 4.3: Summary of Trees and Groups 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	Lime	1	260	11.0	2.0 S	2.5	3.0	3.0	3.0	4.0	2.0	2.0	2.0	M	G	G	20+	B2,3	• Hard surfacing and fence within RPA. • No visible significant defects.	-
2	Lime	1	260	10.0	2.5 S	2.5	1.0	2.0	3.0	4.0	8.0	6.0	4.0	M	G	G	20+	B2,3	• Hard surfacing and fence within RPA. • No visible significant defects.	-
3	Lime	1	<u>190</u>	8.0	2.0 N	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	EM	G	G	20+	B2,3	• Boundary fence within RPA. • Ivy on main stem. • No visible significant defects.	-
4	Lime	1	<u>150</u>	8.0	3.0 N	2.5	2.0	1.5	1.0	2.0	2.0	2.0	2.0	EM	G	G	20+	B2,3	• Boundary fence within RPA. • Ivy on main stem. • Suppressed by other trees in group. • No visible significant defects.	-
5	Lime	1	310	12.5	2.5 N	6.0	4.0	6.0	5.0	2.0	2.0	2.0	2.0	M	G	G	20+	B1,2,3	• No visible significant defects.	-
6	Lime	1	300	11.0	2.0 W	4.5	2.0	5.0	5.0	1.0	7.0	1.0	1.0	M	G	G	20+	B1,2,3	• Boundary fence and hard surfacing within RPA. • No visible significant defects. • Part of a linear group.	-
7	Ash	1	<u>240</u>	12.0	5.0 E	3.0	3.0	3.0	3.0	6.0	5.0	3.0	3.0	EM	G	G	20+	B1,2,3	• Boundary fence and hard surfacing within RPA. • No visible significant defects. • Part of a linear group.	-
8	Ash	1	<u>120</u>	7.0	3.0 S	1.5	2.0	1.5	1.0	6.0	1.0	1.0	3.0	EM	F	F	10+	C2	• Dense understorey restricts detailed assessment. • Growing on slope. • Part of a linear group.	-

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							
9	Norway Maple	1	280	8.0	2.0 N	3.0	3.5	3.0	2.0	2.0	2.0	2.0	2.0	EM	G	G	20+	B1,2,3	• Hard surfacing within RPA. • No visible significant defects. • Part of a linear group.	-
10	Ash	1	<u>110</u>	6.0	0.0 E	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	EM	G	G	10+	C1	• Fence and hard surfacing within RPA. • Growing on slope on raised section behind retaining wall. • No visible significant defects. • Part of a linear group.	-
11	Ash	1	100	4.0	1.0 E	1.0	1.5	1.5	0.5	1.0	1.0	1.0	1.0	EM	F	F	10+	C3	• Fence and hard surfacing within RPA. • Growing on slope on raised section behind retaining wall. • No visible significant defects. • Part of a linear group.	-
12	Norway Maple	1	280	8.0	2.0 E	<u>4.0</u>	<u>3.5</u>	4.0	<u>3.5</u>	2.0	2.0	2.0	4.0	EM	G	G	10+	C1	• Fence and hard surfacing within RPA. • Growing on slope on raised section behind retaining wall. • No visible significant defects. • Part of a linear group.	-
13	Ash	1	<u>100</u>	7.0	3.0 S	1.0	1.0	1.5	0.5	6.0	5.0	3.0	6.0	EM	F	F	10+	C3	• Growing on slope on raised section behind retaining wall. • Hard surfacing within RPA. • Ivy on main stem and in crown. • Part of a linear group. • Suppressed by T12 and T14 • Tall and etiolated due to group pressure.	-

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							
14	Norway Maple	1	220	7.0	2.0 N	<u>4.0</u>	<u>3.0</u>	3.5	2.5	3.0	3.0	3.0	3.0	EM	G	G	10+	C1	- Growing on slope on raised section behind retaining wall. - Hard surfacing within RPA. - No visible significant defects. - Part of a linear group.	-
15	Norway Maple	1	230	9.0	2.0 N	<u>5.0</u>	2.5	4.0	<u>4.0</u>	3.0	3.0	3.0	3.0	M	G	G	10+	C1	- Growing on slope on raised section behind retaining wall. - Hard surfacing within RPA. - No visible significant defects. - Part of a linear group.	-
16	Turkey Oak	1	130	6.0	2.0 N	<u>2.0</u>	2.0	1.0	1.5	2.0	2.0	2.0	2.0	EM	G	G	10+	C1	- Hard surfacing within RPA. - No visible significant defects. - Part of a linear group.	-
17	Turkey Oak	1	160	7.0	2.0 N	1.5	1.5	1.5	1.5	2.0	2.0	2.0	2.0	EM	G	G	10+	C1	- Hard surfacing within RPA. - No visible significant defects. - Part of a linear group.	-
18	Lime	1	300	13.0	2.0 E	<u>5.0</u>	<u>5.5</u>	4.5	<u>5.0</u>	2.0	3.0	2.0	2.0	M	G	G	20+	B1,2,3	- No visible significant defects. - Part of G6. - Substation, Hard surfacing and retaining wall within RPA.	-
19	Norway Maple	1	<u>300</u>	14.0	2.0 N	<u>5.0</u>	4.0	<u>4.5</u>	<u>5.0</u>	2.0	2.0	2.0	2.0	M	G	G	20+	B1,2,3	- Ivy on main stem and in crown. - No visible significant defects. - Part of G6. - Substation, hard surfacing and retaining wall within RPA.	-

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							
G1	Buddleia, Cherry, English Oak, Goat Willow, Hawthorn, Lime	1	240	10.0	0.0 N	2.0	2.0	2.0	2.0	0.0	0.0	0.0	0.0	Y EM M	G	G	20+	B1,2,3	- Provides good visual separation from neighbouring business. - Gate, signage and footpath within RPA - Part of linear group.	-
G2	Alder, Buddleia, Goat Willow, Silver Birch, Viburnum	1	50	4.0	0.0 S	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	Y EM	G	G	10+	C2	- Hard surfacing within RPA. - No visible significant defects.	-
G3	Cherry, Goat Willow, Norway Maple, Silver Birch, Viburnum	>5	160	6.0	0.0 E	2.0	2.0	2.0	2.0	0.0	0.0	0.0	0.0	Y EM	F	F	10+	C2	- Hard surfacing within RPA. - Developing self-set trees. - One dead tree within group.	Make dead tree safe.
G4	Ash, Gorse, Hawthorn, Viburnum	1	50	3.0	0.0 W	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	Y EM M	G	G	10+	C2,3	- Fence and hard surfacing within RPA. - Growing on slope on raised section behind retaining wall. - No visible significant defects.	-
G5	English Oak, Lime, Norway Maple	1	250	14.0	1.5 S	4.0	4.0	4.0	4.0	0.5	0.5	0.5	0.5	EM M	G	G	20+	B1,2,3	- Shelterbelt plantation of prominent trees within the landscape. - Hard surfacing and boundary wall within RPAs of periphery trees.	-
G6	Lime, Norway Maple	1	270	13.0	2.0 W	4.0	4.0	4.0	4.0	1.0	1.0	1.0	1.0	M	G	G	20+	B1,2,3	- No visible significant defects. - Substation, hard surfacing and retaining wall within RPA.	-

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							
G7	Aspen, Goat Willow, Silver Birch	1	50	4.0	0.0 E	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	Y EM	F	F	10+	C3	- No visible significant defects. - Self-set developing trees.	-
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 <u>000</u>: Estimated dimension due to access restrictions 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 groups surveyed which were classified as Category 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)
1	Lime	260	3.3	34
2	Lime	260	3.3	34
3	Lime	<u>190</u>	2.4	18
4	Lime	<u>150</u>	1.8	10
5	Lime	310	3.9	48
6	Lime	300	3.6	41
7	Ash	<u>240</u>	3.0	28
8	Ash	<u>120</u>	1.5	7
9	Norway Maple	280	3.6	41
10	Ash	<u>110</u>	1.5	7
11	Ash	100	1.2	5
12	Norway Maple	280	3.6	41
13	Ash	<u>100</u>	1.2	5
14	Norway Maple	220	2.7	23
15	Norway Maple	230	3.0	28
16	Turkey Oak	130	1.8	10
17	Turkey Oak	160	2.1	14
18	Lime	300	3.6	41
19	Norway Maple	<u>300</u>	3.6	41
G1	Mixed Species	240	3.0*	28*
G2	Mixed Species	50	0.9*	3*
G3	Mixed Species	160	2.1*	14*
G4	Mixed Species	50	0.9*	3*
G5	Mixed Species	250	3.0*	28*
G6	Mixed Species	270	3.3*	34*
G7	Mixed Species	50	0.9*	3*
Key: *: Around centre of each tree within group. <u>000</u> : Estimated dimension.				

Table 4.5: RPA and Approximate Root Protection Radius of Category B and C Trees and Groups 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 sites 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 May 2016.

The location of the trees can be found on Drawing Number C122638-02-01 in Section 8 and a schedule of the trees surveyed can be found within Section 4.

5.2 IMPACTS FROM DEMOLITION AND RELATED OPERATIONS

5.2.1 Building Demolition

The proposed development will not require the demolition of buildings on site.

5.2.2 Removal of Hard Surfaces

It is understood that the existing hard surfaced areas across the site are to be broken out. This aspect of the development will require works to be undertaken within the default Root Protection Areas (RPAs) of tree numbers 4, 5, 6 and G1 where the retaining wall that surrounds the site tapers to ground level.

Whilst tree root development may have been restricted beneath the existing hard surfaced areas and beyond a retaining wall, as a result of reduced nutrient or moisture availability and a lack of provision for gaseous exchange, removal of the existing structures has a greater potential to cause harm to the trees due to the need for works in close proximity to them.

Where existing hard surfaces are located within the Root Protection Areas of retained trees care should be taken in their removal and such works should be completed in accordance with the guidance set out in Section 6.3.2.

5.2.3 Removal of Services

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

5.3 IMPACTS FROM DEVELOPMENT LAYOUT

5.3.1 Tree Removal

The proposed development will require the removal of a small number of groups of scrub or self-set developing trees within the site. The groups to be removed are detailed within Table 5.1 additionally they are identified on the Draft Tree Protection Plan, Drawing Number C122638-02-02, in Section 8 of this report.

Tree/Group Number	Species	BS5837 Category	Reason for Removal
G2	Mixed Species	C2	Self-set group of trees to be removed to facilitate the development.
G3	Mixed Species	C2	Self-set group of trees to be removed to facilitate the development.
G7	Mixed Species	C2	Self-set group of trees to be removed to facilitate the development.

Table 5.1: Tree Removal

Overall the proposed development will require the removal of three groups of trees, in addition one section of a group containing shrubs and scrub vegetation are to be removed.

With respect to the vegetation identified for removal it is considered that the loss of these groups will not be detrimental to the overall character of the site.

Additionally, it is worthwhile to note that the proposed development is largely screened from public view by the existing boundary trees which are to be retained and managed as part of the

development proposal, consequently it is not considered that removal of the groups will have an adverse impact upon the visual amenity of the local area.

5.3.2 Tree Pruning

There are areas where it may be necessary to undertake access facilitation pruning works to retained trees present on and adjacent to the site in order to minimise the potential for branch damage to occur during construction or future use of the site. All tree works should be specified within an Arboricultural Method Statement (AMS) for the proposed development.

These works will be of a minor extent and considered routine in nature as they have occurred in the past where trees overhang the highway and footways around the site. 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.

5.4 DIRECT IMPACTS FROM CONSTRUCTION

5.4.1 Works within RPAs

Following the proposed tree removal the construction of the proposed new food retail outlet and the associated resurfacing works will largely fall outside of the RPAs of retained trees.

With respect to the works to be undertaken within the RPAs of the groups of trees G1, G4 and tree numbers 2, 5 and 6 it is noted that the area affected by the works is currently hard surfaced.

Furthermore, and more importantly, the trees and groups of trees surrounding the proposed development site are growing on elevated ground, beyond retaining walls. It is therefore considered very unlikely that the roots will have penetrated in to the site but remained within unmade ground outside of the proposed section identified for construction. In addition, where the trees are growing in locations close to the existing ground levels and where the retaining walls taper to meet the entrance to the site, the existing hard surfaces are likely to have significantly limited root development in the locations affected by the works and as such the potential for harm to occur to the root system of this tree due to the construction of the proposed new entrance is considered to be minimal.

Given the existing constraints to root development, and subject to the works being completed in accordance with an appropriate working methodology; which should be specified within an Arboricultural Method Statement (AMS) for the proposed development, it is considered that the works can be completed without impacting significantly upon the health of the retained trees.

5.4.2 Works within Canopy Spreads

Following completion of the any access facilitation pruning works that may be required (See Section 5.3.2) there are no areas on site where the construction of the proposed development will require works within the canopy spread of retained trees. However, the construction of the proposed new access road and associated driveways and turning head within the southern section of the site will require works in proximity to the crowns of boundary edge trees within group numbers G1, G5 and G6.

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.

All tree works should be carried out in accordance with BS3998:2010 Tree Works – Recommendations by a suitably qualified and experienced arboricultural contractor.

5.4.3 Working Space

The ground within the RPAs of the retained trees is currently hard surfaced and it is likely that root development will have been restricted in this location, as such no impact from the provision of working space is considered likely.

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 to MacDonald's fast-food outlet and the proposed new access road off Larchwood Avenue. It will be necessary to ensure retained trees adjacent to the two access routes are protected from potential impact damage by carrying out facilitation pruning to overhanging vegetation and 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 road. Retained trees will be protected from harm by the prior installation of tree protection barriers. A suitable location for the development of a site compound to include storage of materials is shown on Draft Tree Protection Plan Drawing Number C122638-02-02, in Section 8.

5.5.3 Site Compound

A suitable location for the installation of a site compound is shown on Draft Tree Protection Plan Drawing Number C122638-02-02, in Section 8. Retained trees will be protected from harm by the prior installation of tree protection barriers.

5.5.4 Contractor's Parking

A suitable location for site parking is shown on Draft Tree Protection Plan Drawing Number C122638-02-02, in Section 8. Should there be a requirement for additional parking then this will be provided in off-site locations and away from retained trees. Retained trees will be protected from harm by the prior installation of tree protection barriers.

5.6 POST-DEVELOPMENT IMPACTS

5.6.1 Shading

The orientation of the proposed restaurant building is such that shading of interior spaces is likely to occur from nearby trees. However, the interior of the proposed development is likely to utilise artificial lighting which negates any potential shading from trees and any consequent conflicts that may occur.

5.6.2 Privacy and Screening

The proposed development does not require the removal of any trees that contribute significantly to privacy and screening of the site. As such no impact is anticipated.

5.6.3 Direct Damage to Structures

The continued growth of the crown of all of the retained trees may cause some ongoing conflict with the access routes in to the site. It is anticipated that this will be managed through undertaking routine pruning works to the overhanging crown of these trees.

5.6.4 Future Pressure for Removal

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

5.6.5 Seasonal Nuisance

It is not considered that a significant degree of seasonal nuisance will occur. In addition, the sweeping of leaves and clearing of gutters is considered to be routine maintenance tasks and therefore no conflict is anticipated.

5.7 SUMMARY OF IMPACTS

In summary it is considered that the proposed development of the site will not have an impact upon the visual amenity of the local area as a result of the proposed tree removal and pruning works necessary to facilitate it.

However 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 it is considered that, due to the existing constraints to root development, 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 demolition operations, such as the removal of existing hard surfaces, 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 C122638-02-02, 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

So long as the existing retaining walls are maintained intact and that only the top tarmacadam layer of existing hard surfaced areas are removed to allow the hard-core base layers to remain in situ then it is considered that no ground protection measures will need to be installed.

6.3 MITIGATION OR AVOIDANCE OF IMPACTS

6.3.1 Design Amendments

There are no areas of the site where design amendments are to be considered.

6.3.2 Methodology for Hard Surface Removal within RPAs

The following guidance will be adhered to for the removal of any hard surfaces within the RPAs of retained trees:

1. The initial 'breaking up' of the tarmac hard surface will be done with hand held pneumatic tools (not breakers attached to diggers or JCBs) or, if possible, by using manual hand held tools.
2. Removal of the upper surface material will occur in 2.0 m bands working from the undisturbed surface. Any exposed roots will be covered with good quality topsoil or high grade compost to avoid desiccation and make the levels good.
3. The debris resulting from breaking up the hard surface and the exposed sub-base will be retained and augmented accordingly to accept the new finished surface layer.

4. Should any roots become exposed and are damaged during the removal of hard surfaces then they will be cut using a sharp knife or secateurs to leave a clean wound with as small a surface area as possible.
5. Work will not be carried out if the ambient air temperature is below + 4°C

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.

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.

Auditable systems of site monitoring should be made available to the Local Planning Authority/Arboricultural Officer and included within the program of development construction as recommended within BS5837:2012. This should include a schedule of events whereby periods of supervision or input from the Project Arboriculturist is required.

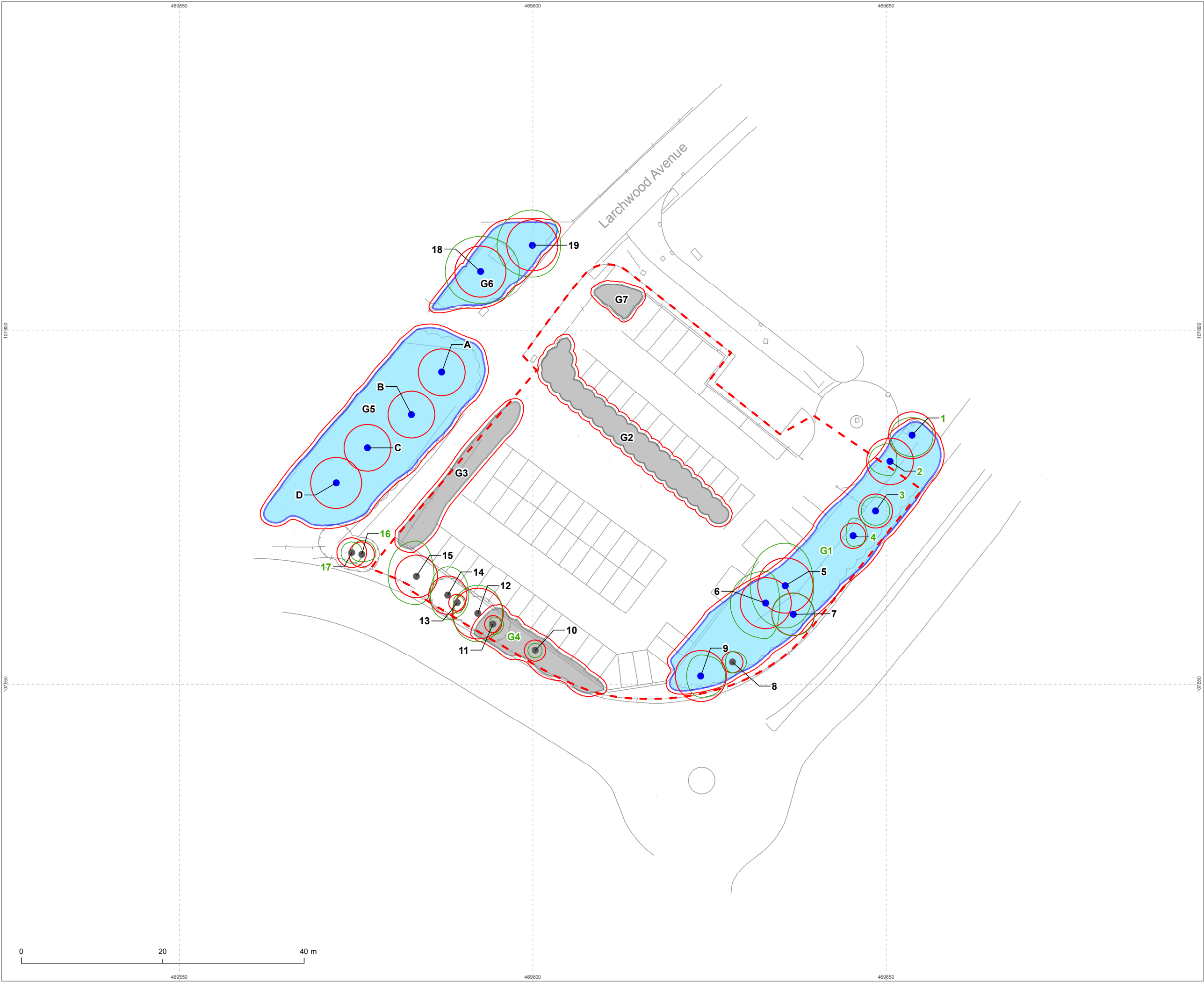
The Project Arboriculturist contact details are:

Name: Marco Bartolini
Position: Arboricultural Consultant
Company: Middlemarch Environmental Ltd
Southern Office (Hampshire)
Telephone: 01676 525 880
Mobile: 07557 154175

8. DRAWINGS

Drawing Number C122638-02-01 – Tree Constraints Plan

Drawing Number C122638-02-02 – Draft Tree Protection Plan



122638-02-01

Legend

- Category B tree
- Category C tree
- Category B group
- Category C group
- Current canopy extent
- Root Protection Area
- Site boundary
- Tree/Tree Group under TPO

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

Project	
Larchwood Avenue, Bedhampton, Havant	
Drawing	
Tree Constraints Plan	
Client	
Savills - Planning	
Drawing Number	Revision
122638-02-01	00
Scale @ A3	Date
1:500	May 2016
Approved By	Drawn By
BJ	AM

MIDDLEMARCH ENVIRONMENTAL

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APPENDICES

- APPENDIX 1: Headings for Protective Barrier Notices and Example Protection Sign
- APPENDIX 2: Details of Protective Barrier
- APPENDIX 3: Tree Preservation Order Map (Havant Borough Council)

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 !**

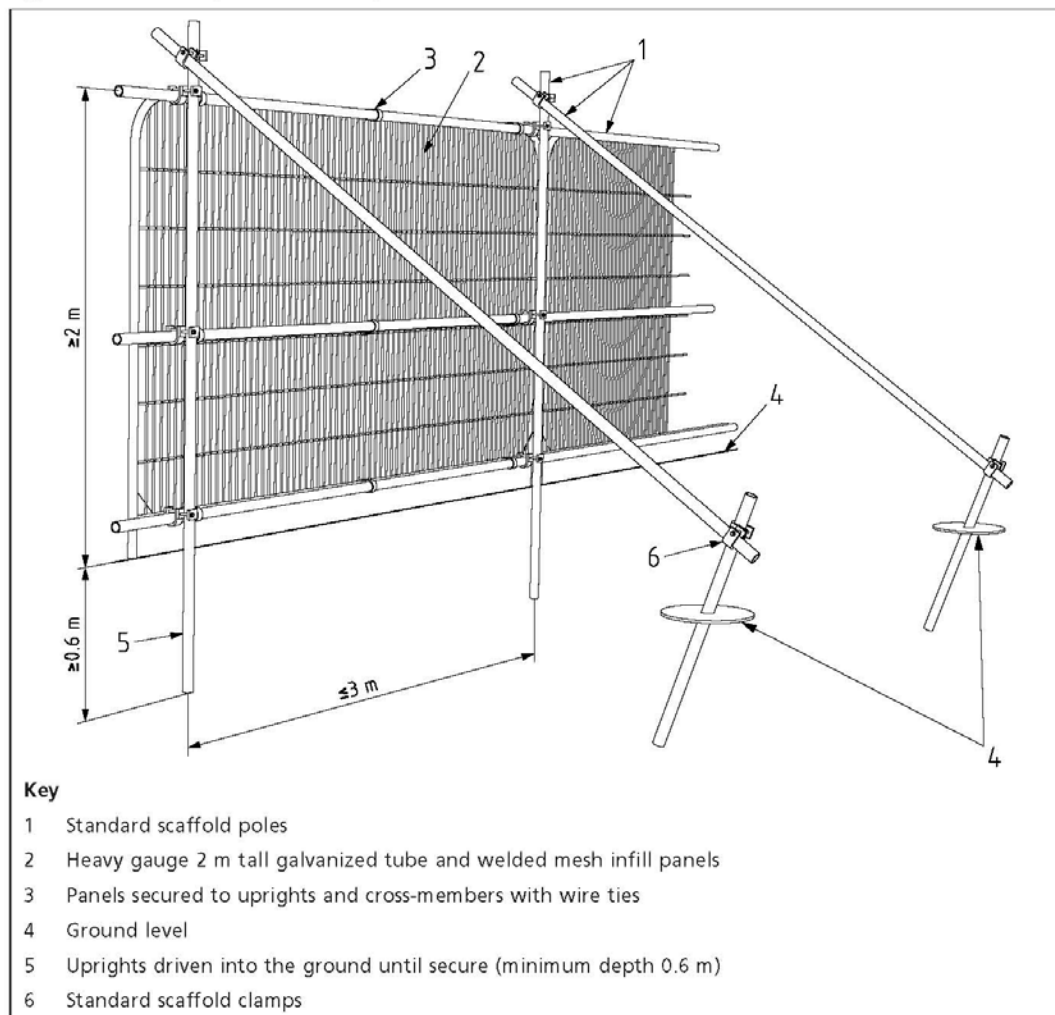
**(TOWN & COUNTRY PLANNING ACT 1990)
TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY
PLANNING CONDITIONS AND/OR ARE THE SUBJECTS OF A
TREE PRESERVATION ORDER.
CONTRAVENTION OF A TREE PRESERVATION ORDER MAY
LEAD TO CRIMINAL PROSECUTION**

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

APPENDIX 2

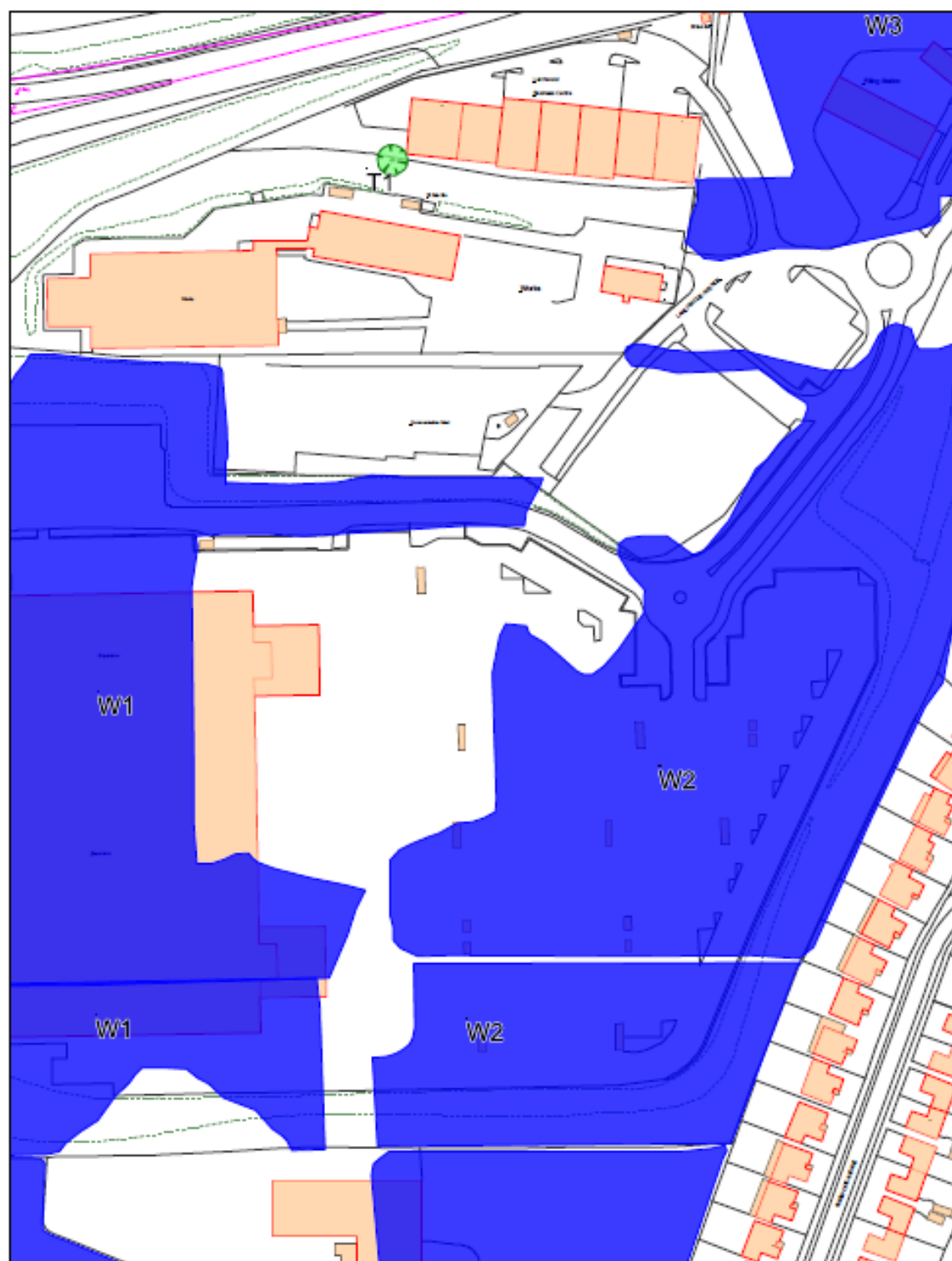
Details of Protective Barrier

Figure 2 Default specification for protective barrier



APPENDIX 3

Tree Preservation Order Map



Public Service Plaza
Civic Centre Road
Havant
Hampshire PO9 2AX

tel 023 9247 4174 fax 023 9248 0263
www.havant.gov.uk



Havant
BOROUGH COUNCIL

Title:

Drawn By:

Scale:

Scale: 1:2000

Drawing No:

Cleaner, Safer, More Prosperous

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