

**Tree Survey
Arboricultural Impact Assessment**

Trees at
78-86 West Street, Havant.

Prepared for
Mr D. Willetts MP.
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ARBORTECH (Consultancy)

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HAVANT BOROUGH
COUNCIL

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Informative : Retained Trees & Development Sites.

TREES NEED ROOTS FOR :

- Anchorage i.e Stability.
- Water and nutrient uptake i.e general health.
- Energy storage i.e for drought periods.
- Breathing i.e Vertical gaseous exchange

DAMAGING TREE ROOTS MAY :

- Kill the tree.
- Weaken the tree.
- May cause the tree to fail.

TREE ROOTS CAN BE DAMAGED BY :

(Any may deny their needs for survival)

- Root severance
- Soil compaction.
- Escape of toxic fluids i.e Oil, Bitumen.
- Impermeable surfaces i.e Concrete



Tree Survey.

A Tree Survey records information about the trees on (or adjacent) a site, independently of any design proposal. Trees, groups of trees and woodlands are assessed for their physiological and structural condition and preliminary Health & Safety works are recommended. In addition the trees are categorised for their quality and value within the existing context. The tree categories are then differentiated on a tree survey plan.

The results of the Tree Survey may be included in the preparation of a Tree Constraints Plan which should be used to assist with layout design.



Arboricultural Impact Assessment.

Further to a tree survey, consideration is given to how a proposed development and retained trees will co-exist and interact in the present and future. It can identify and remove any potential conflicts between trees and the requirements of the development.

An AIA aims to identify, evaluate and mitigate the direct and indirect impacts on retained trees, that may arise as a result of the implementation of the layout proposal.



Arboricultural Method Statement for Protection of Trees during Construction.

This is a statement which is used to describe how construction works can be carried out close to trees and how the above and below ground parts of the trees will be adequately protected during this process.

Works are carried out in accordance with British Standard 5837:2005 *Trees in relation to construction – Recommendations* and good arboricultural practice.

1. INTRODUCTION

Client : Mr D Willetts MP
Report Ref : Will/ATAIA/4412
Site : 78-86 West Street, Havant.
Date of Site Visit : 20th March 2012

1.1 Instruction and Purpose of the Report.

Preparation of an Arboricultural report (in accordance with BS 5837) to include:

- Tree Survey.
- Arboricultural Impact Assessment.

1.2 Documents provided :

Andrews Newby Partnership provided me with the following :

- Topographical Land Survey Drg No : 11017 (*J. Brotherton & Partners*).
- 'Proposed Parking' Drg No : 2844/P/01 Rev B.

1.3 Scope of the report.

- The report is based on the site visit and the information provided, listed in 1.2 above.
- The work is undertaken in accordance with BS 5837:2005 *Trees in relation to construction*.
- This report includes a preliminary Visual Tree Assessment (VTA) from ground level.
- All dimensions are estimated.
- No detailed investigations have been undertaken.
- This report is reliant on plans provided.

1.4 Limitations of use and copyright : As set out in the terms of engagement provided.

1.5 Qualifications and experience : Details provided in Appendix 5.

2 TREE SURVEY

2.1 Identification and location of the trees :

The trees can be identified on the '*Tree Survey Plan*' at Appendix 2.

Appendix 2 should be read in conjunction with Appendix 4 '*Tree Survey Notes*

2.2 Tree observations: The trees were visually inspected and the information recorded on the '*Tree Survey Schedule*' included as Appendix 1.

3 ARBORICULTURAL IMPACT ASSESSMENT

The Arboricultural Impact Assessment aims to identify, evaluate and mitigate the impacts upon retained trees, that may arise as a result of the implementation of the layout proposal.

3.1 Summary of the Impact of the proposed development.

Tree Retention.

T3C, T4C, T8C/R (retained at clients request for screening purposes from the retail park), T9C, T10C & T11C. These trees are to be retained and protected in accordance with BS 5837:2005 '*Trees in relation to construction*'.

Trees to be removed :

T1C/R, T2C/R, T5C/R, T6C/R & T7C/R

These are poor/low quality trees which are to be removed to allow for the implementation of the development.

4 TREE PROTECTION.

4.1 Protection of trees during development - General.

To prevent physical damage to the rooting environment or aerial portions of retained trees during construction activities; the trees will need to have measures put in place for their protection prior to, during and post construction phases of development.

4.2 Tree Root Protection Areas (RPAs).

The Root Protection Areas have been calculated for retained trees on site in accordance with BS 5837:2005, in order to avoid damage to roots or the rooting environment.

They indicate the minimum area in m2 which is required for the functional rooting and stability of the trees.

Tree Reference	Root Protection Area Dimensions (m)	BS 5837 Category
T8	'Radius' of a square = 3.9m	C
T9	Radius' of a square = North 2.98 South 2.98 East 3.58 West 2.38 RPA offset by 20% to East (Open grown tree).	C
Juvenile trees within the verge to North. The verge surrounding these trees should be considered as the RPA.		

Table 1 : Root Protection Areas – Retained Trees.

4.3 Crown proportions.

The crown proportions of the retained trees are included in the 'Tree Survey Schedule' at Appendix 1.

4.4 'Construction Exclusion Zone' - Tree Protection Barriers.

It will be necessary to install a 'Construction Exclusion Zone' by way of Tree Protection Barriers set at the correct distances to encompass the Root Protection Areas of retained trees. See Appendix 3 in conjunction with Table 1 for the location of Tree Protection Barriers. Tree Protection should comply with the recommendations set out in British Standard 5837 : 2005.

4.5 Construction of the proposed car-park within the RPA of T8.

Where the proposed car-park encroaches upon RPAs, it will be necessary to utilise a 'No Dig' method of construction to avoid root severance/disturbance or compaction within the rooting environment.

No machine excavation, soil stripping or site grading should be undertaken.

A synthetic 3-dimensional load spreading product i.e "Cellweb" (Cellular Confinement System) should be used to avoid localised compaction or 'rutting' within the RPA. This should be correctly installed in accordance with the manufacturers specifications and BS 5837. *The design should take account of the height increase associated with the use of 'Cellweb' tree root protection system or similar, which is placed upon existing ground level.*

Where the proposed car-park would cover in excess of 20% of the RPA or be wider than 3m within it, it should be constructed so as to allow for aqueous and gaseous filtration (permeable) i.e gravel or dry jointed block paving. Works should be carried out in accordance with Section 11 of BS 5837:2005.

The proposed 'No Dig' area utilising 'Cellweb' is indicated on the 'Tree Constraints Plan' at Appendix 3 and should be read in conjunction with Table 1. This should be installed at the onset of development, to ensure protection of the rooting environment throughout the construction process.

The boundary wall to the West of T8 is to be retained and utilised as a Tree Protection Barrier, to avoid access into the unprotected RPA.

4.6 Construction Site Access.

To avoid any inadvertent damage to retained trees; The site supervisor should take responsibility for supervising the approach, exit and on site activities of delivery, muck-away vehicles and site machinery.

4.7 General Protection Measures.

Utility Services.

No services are to be routed through any RPAs.

Soil Level Changes.

No machine excavation, soil stripping or site grading should be undertaken within the RPAs of trees to be retained to avoid root severance/disturbance.

Topography of the Site.

Care should be taken to avoid 'run off' from toxic fluids during construction, which may be harmful to trees i.e concrete mixings, diesel, oil.

Storage of construction materials

No construction materials or any material likely to be injurious to a tree i.e Oil, Bitumen, Cement (concrete mixing), should not be stacked or discharged within the Tree Root Protection Area or within 10m from a tree stem. Allowance should be made for any slope of the ground, so that damaging materials cannot run towards the trees.

At no time should the Root Protection Area be breached for storage purposes.

Machinery/Equipment near tree canopy.

Great care should be exercised when using piling rigs, mobile cranes or similar equipment near the spread of the canopy of trees so as not to damage them in any way. The site supervisor should take responsibility for supervising the approach, exit and on site activities of delivery, muck-away vehicles and site machinery.

Fires

Fires should not be lit in a position where their flames can extend to within 5m of foliage, branches or trunk. Size of fire and wind direction should be taken into account.

5 RECOMMENDATIONS.

5.1 Tree Work Recommendations :

Tree T8.

Prune the lower crown growth to a height of 4m to West back to the boundary.

Reason : To provide for the implementation of the car-park to the West of this tree.

T3, T4, T10 & T11 (Juvenile trees).

Formative prune to promote good tree structure.

5.2 Implementation of tree works : The contractor should carry out any tree works to BS 3998 *Recommendations for Tree Work* (2010).

Any required tree work operations should be carried out prior to construction activities on site due to space restrictions and Health and Safety issues further to this.

5.3 Future Considerations :

All trees on site should be inspected on a regular basis by a qualified arboriculturist.

5.4 Building near trees :

Foundations in proximity to trees should be specified by a structural engineer taking into account the current guidance set out in National House Building Council Chapter 4.2 (Foundations) Building near trees.

6 OTHER CONSIDERATIONS

6.1 Trees subject to statutory controls :

Consultation with the local planning authority will be required prior to any pruning works (other than certain exemptions) to trees covered by a tree preservation order or located in a conservation area.

6.2 Risk

The Occupiers Liability Act 1957 & 1984 places a "common duty of care" upon the owner occupier of a site to take reasonable steps to minimise the risk of personal injury or damage to property arising from any tree on that site.

6.3 Wildlife.

Your attention is drawn to the wildlife and Countryside Act 1981 and related legislation which provides statutory protection for nesting birds and bats including roosting sites, some mammals, invertebrate species and plants.

It would be prudent to undertake a Bat survey prior to carrying out any works to trees with significant cavities and to avoid works at times when birds are likely to be nesting.

6.4 Trees outside the property.

Trees located in adjacent properties are effectively out of the control of the owners of this site. By common law, branches from trees on adjacent properties extending over boundaries can be pruned back to the boundary line without the permission of the owners. However, the material belongs to the tree owner and the same guidance on statutory controls apply.

7 BIBLIOGRAPHY / REFERENCES

British Standard 5837 '*Trees in relation to construction - Recommendations*' : 2005.

British Standard 3998 '*Recommendations for Tree Work*' (2010)

Occupiers Liability Act 1957 & 1984.

Town & Country Planning Act 1990.

Wildlife & Countryside Act 1981 (As amended)

CRoW Act 2000

APPENDIX 1
Tree Survey Schedule
To be read in conjunction with 'Tree Survey Notes'

Tree Reference No	Species	Height (m)	Stem Diameter (mm)	Crown Spread (m)	Height of crown clearance (m)	Age Class	Physiological Condition	Structural Condition	Estimated remaining contribution (years)	Category Grading
T1	Apple <i>Malus spp</i>	3.5	175	N 3 S 2.5 E 2 W 2	1.2	SM	Fair	Poor	<10	C/R
Observations : • Single stem with large limb arising at 1m to North. • Large branch arising at 0.5m to South. • Extensive Ivy on stem.										
T2	Cherry <i>Prunus spp</i>	4.5	230	N 2 S 2 E 1.5 W 2.5	2	SM	Fair	Poor	<10	C/R
Observations : • Single upright stem with large branch arising at 1.5m – tight union with included bark.										

Tree Reference No	Species	Height (m)	Stem Diameter (mm)	Crown Spread (m)	Height of crown clearance (m)	Age Class	Physiological Condition	Structural Condition	Estimated remaining contribution (years)	Category Grading
T3	Hornbeam <i>Carpinus Betulus</i>	4	55mm max	N 1 S 1 E 1 W 1		J	Fair	Good	>10	C
Observations : Young tree (staked)										
T4	Hornbeam <i>Carpinus Betulus</i>	5	55mm max	N 0.75 S 0.75 E 0.75 W 0.75		J	Fair	Good	>10	C
Observations : - Young tree (staked) - This tree would benefit from formative pruning.										

Tree Reference No	Species	Height (m)	Stem Diameter (mm)	Crown Spread (m)	Height of crown clearance (m)	Age Class	Physiological Condition	Structural Condition	Estimated remaining contribution (years)	Category Grading
T5	Cherry <i>Prunus spp</i>	4	120	N 1 S 1 E 1.5 W 1	1.2	J	Fair	Poor	<10	C/R
Observations : • Single stem with co-dominant bifurcation at 2m. • Some previous pruning evident.										
T6	Macrocarpa	11	540 At base	N 4 S 5 E W 4	1	M	Good	Poor	<10	C/R
Observations : • Stem divides at 0.75-1m - tight union with included bark. • Becomes multi-stemmed from 1m.										

Tree Reference No	Species	Height (m)	Stem Diameter (mm)	Crown Spread (m)	Height of crown clearance (m)	Age Class	Physiological Condition	Structural Condition	Estimated remaining contribution (years)	Category Grading
T7	Leylandii	11	300	N 4 S 0 E 4 W 4	2 East 0.5 West	M	Good	Fair	<10	C/R
Observations : Single stem with significant branching to North and West from 0.5m										
T8	Leylandii	11	370	N 0.5 S 5 E 4 W 4	2 East 0.5 West	M	Good	Fair	<10	C/R
Observations : Single upright stem with significant branching to West and South.										

Tree Reference No	Species	Height (m)	Stem Diameter (mm)	Crown Spread (m)	Height of crown clearance (m)	Age Class	Physiological Condition	Structural Condition	Estimated remaining contribution (years)	Category Grading
T9	Eucalyptus	10	280	N 4 S 2.5 E 4 W 1.5	3	SM	Good	Fair	10	C
Observations : - Main stem leans to North East with vertical branch arising at 1.5m. - Minor deadwood in crown to North.										
T10	Hornbeam <i>Carpinus Betulus</i>	3	60mm	N 0.5 S 0.5 E 0.5 W 0.5		J	Good	Good	>10	C
Observations : Single upright stem.										

Tree Reference No	Species	Height (m)	Stem Diameter (mm)	Crown Spread (m)	Height of crown clearance (m)	Age Class	Physiological Condition	Structural Condition	Estimated remaining contribution (years)	Category Grading
T11	Hornbeam <i>Carpinus Betulus</i>	4.5	65mm	N 1 S 0.5 E 1 W 1		J	Good	Good	>10	C
Observations : Single upright stem.										