



ARBORICULTURAL IMPACT ASSESSMENT REPORT IN RELATION TO DEVELOPMENT PROPOSALS

LOCATION: Mengham Road, Hayling Island, land rear of 13 to 21
OUR REF: TTC/PT/01/07 - 02
CLIENT: Tester Associates
DATE: January 2007
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SURVEY DATE: 12/12/06
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INSTRUCTIONS: Issued by: Mike Tester, Tester Associates Terms of Reference: To inspect the significant trees on site in accordance with British Standard 5837:2005 'Trees in Relation to Construction' and assess their suitability for retention in relation to the proposed development. To provide guidance on measures that should be taken to ensure the protection of retained trees and successful integration of the proposed development.
Documents Supplied: Topographical Survey by Maltby Land Surveys, Haywards Heath, West Sussex. Proposed site plans prepared by Tester Associates, Hurstpierpoint, West Sussex.
Summary: Nine trees and one group of (5) trees were surveyed on site. T 7, a mature Poplar is a prominent tree with important amenity value and should be retained. Three trees (Ts 2, 8 and 10) should be removed for sound arboricultural and Health and Safety reasons regardless of any development of the site. All the other trees must be removed to facilitate the development. However, they are all self-sown Sycamore saplings with little or no merit. Some are likely to cause direct damage to existing structures if retained. Their removal will also allow for more appropriate new landscaping and tree planting. The removal of these trees will have a low impact on the landscape. No irresistible post-development pressures are anticipated and there is ample scope for new tree planting. Tree protection measures are prescribed that will safeguard the long term well-being of the retained tree.
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Please note that abbreviations introduced in [square brackets] are used throughout this report.

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ARBORICULTURAL REPORT

TREE SURVEY DETAILS

1.0 Scope of Survey and Report

- 1.1 This survey (and report) is concerned with the arboricultural aspects of the site only. The survey was carried out on December 12th 2006.
- 1.2 It is restricted to trees within the site or those outside the site that may be affected by its re-development only. No other trees were inspected.
- 1.3 The survey was carried out following guidelines detailed in British Standard 5837:2005 'Trees in relation to construction - Recommendations' [BS5837].
- 1.4 The planning status of the site is not known and has not been investigated. We understand that T 7 in this report is protected by a Tree Preservation Order [TPO].
- 1.5 Only trees of significant stature were surveyed. Trees with a stem diameter less than 75mm and large shrubs have been excluded.
- 1.6 In some cases groups of trees are discussed collectively where individual identification and separate treatment has been deemed unnecessary.
- 1.7 No plant tissue samples were taken and no internal investigation of the trees was carried out.
- 1.8 No soil samples were taken or soil analyses carried out.
- 1.9 The risk of tree-related subsidence to structures has not been investigated.
- 1.10 We have no knowledge of existing or proposed underground services.
- 1.11 The positions of trees are taken from the provided site plans (produced by others) and are shown plotted on an amended version of those plans – Plan 1, Tree Survey Plan.
- 1.12 This report should be read in conjunction with this amended plan and the Tree Protection Plan - Plan 2 that accompany this report (see Appendix F).

2.0 Survey Method

- 2.1 The survey was conducted from ground level with the aid of binoculars.
- 2.2 It is based on a ground level tree assessment and examination of external features only – described as the ‘Visual Tree Assessment’ method expounded by Mattheck and Breloer (The Body Language of Trees, DoE booklet Research for Amenity Trees No. 4, 1994).
- 2.3 The height of each tree was estimated visually or, where possible, by using a hypsometer.
- 2.4 The trunk diameters at breast height of single stemmed trees were measured in centimetres at 1.5m above ground level. Multi-stemmed trees were measured immediately above the root flare.
- 2.5 The crown radii were estimated by pacing and are given for each main compass point: north, east, south and west.
- 26 The dimensions of trees within groups are given as an averaged figure unless otherwise stated.
- 2.7 Where access to trees was obstructed or obscured, measurements have been estimated.

3.0 The Site

- 3.1 The site is an over-grown and derelict waste area situated to the north of Mengham Road and to the south of a public car park in Hayling Island, Hampshire.
- 3.2 It is located behind Nos. 13 to 21 Mengham Road and comprises two derelict garages, a rough gravel car park, a small underground air raid shelter and a mud track. The latter provides access from the parking area (and public road beyond) to the rear of the properties. The rest of the site is wild scrub including bramble and self-sown sycamores.
- 3.3 The site is bordered on its east and west sides by other properties comprising buildings, waste areas and rough car parking.
- 3.4 We understand that the geology of this area is ‘Bracklesham Beds’ which is a mixture of clays and marls with some sandy and lignitic beds
- 3.5 According to the Soil Survey of England and Wales – Sheet 6 S.E. England, the soil on site is ‘Park Gate’, a deep, stone-less silty soil.
- 3.6 Soil depth is not indicated but there is no reason to suppose that it would be inadequate for normal plant growth when considering new landscaping.
- 3.7 Further investigation would be required to assess the risk of differential building movement.

4.0 Existing Trees

- 4.1 Nine trees and one group of (5) trees were identified and surveyed on the site.
- 4.2 The group (G 1) is located in the north east corner of the site. Trees 2 to 6 are in the south east corner and the rest are close or on the western boundary.
- 4.3 Whilst the assessment of a tree's condition is a subjective process, British Standard 5837: 2005 gives clear guidance on the appropriate criteria for categorizing trees and the factors that would assist the arboriculturist in determining the suitability of a tree for retention.
- 4.4 All the surveyed trees have been categorised according to BS 5837:2005 and as follows (see Appendix A3):

Category R: Trees in such condition that any existing value would be lost within 10 years and which should, in the current context, be removed for reasons of sound arboricultural management.

Category A: Trees of high quality and value: in such a condition to make a substantial contribution (a minimum of 40 years is suggested).

Category B: Trees of moderate quality and value: those in such a condition as to make a significant contribution (a minimum of 20 years is suggested).

Category C: Trees of low quality and value which might remain for a minimum of 10 years or young trees with stems of less than 150mm diameter.

- 4.5 T 7 is a protected, prominent and mature specimen of Lombardy Poplar. It has been classified as a category B tree.
- 4.6 G 1 and Ts 3 to 6 and T 9 are self sown Sycamore saplings that only warrant a C category status. These trees are of low quality or have low individual landscape value.
- 4.7 The remaining trees on the site – T 2 (a Sycamore), T 8 (an apple) and T.10 (a Sycamore) - have been given an R categorisation as it is recommended that they are all removed for reasons of sound arboricultural management. They are all in a poor condition with decay and/or have been badly pruned. All have a short life expectancy.

THE DEVELOPMENT

5.0 Proposals

- 5.1 The existing garages are to be demolished and replaced by a block of flats.
- 5.2 Parking spaces for six cars, a bike rack and a bin store are to be located to the south of the building accessed via a new road adjacent to the western boundary.
- 5.3 A landscaping strip for new planting is provided on all four boundaries.

6.0 Arboricultural Implications Assessment

- 6.1 The primary criterion in arboricultural terms is the retention of as many appropriate trees as is practicable. Quite apart from the requirement to retain some of the existing character, the presence of trees is generally accepted as being beneficial to the environment.
- 6.2 The following is an assessment of the effects of the proposed development on existing trees and the future landscape:

Recommended tree removals for reasons of sound arboricultural management and/or Health and Safety.

- 6.3 If the advice and recommendations in this report are followed, then three trees should be removed due to their R category status (see Appendix A1 for more details). They are:
 - T 2 – a self-sown Sycamore which has been badly lopped and topped
 - T8 – an Apple with a broken crown, trunk decay and crown die-back
 - T 10 – a self-sown Sycamore with basal and trunk decay
- 6.4 In our opinion, there are sufficient arboricultural and Health and Safety reasons why these trees should be removed - *regardless of any proposed development of the site.*

Tree losses to facilitate the development

- 6.5 The following trees will need to be removed to facilitate the development:
 - G1 – A group of self-sown Sycamores
 - T 3 – a self sown Sycamore
 - T 4 – a self sown Sycamore
 - T 5 – a self sown Sycamore
 - T 6 – a self sown Sycamore
 - T 9 – a self sown Sycamore

- 6.6 G 1 and Ts 3 to 6 are all situated very close to walls and/or existing buildings. In our opinion there would be practical/functional grounds (i.e. direct damage to adjacent structures or 'actionable nuisance') for the removal of these trees regardless of any proposed development.
- 6.7 T's 3 to 6 are also only partially visible outside the property from the north and west.
- 6.8 T 9 is only partially visible outside the property from the north and east.
- 6.9 It should be noted at this point that all the trees to be removed to facilitate the development are Sycamores.
- 6.10 The Sycamore is a non-native species of Maple now widely distributed and established - occurring in 2,267 10km-squares of the Atlas of the British Flora. Of all tree and shrub species only Ash and Hawthorn are more widely spread in the UK. It regenerates prolifically from seed and, in eastern England, Sycamore invasion is causing concern amongst many land-based professionals and is considered by many to be just a highly competitive 'weed' tree of no great merit.
- 6.11 In addition, during the summer months, Sycamores can attract large numbers of aphids that excrete sticky 'honeydew' on vehicles, paths and gardens. This, in turn, can be colonised by a black sooty mould that is very difficult to remove.
- 6.12 The removal of these Sycamores will also allow for more substantial and suitable new landscaping and tree planting. Their removal will have little or no long term impact on the local treescape and visual amenity.
- 6.13 Therefore, in our opinion, there are many reasons why the removal of these Sycamores - to facilitate the development - is no great environmental, amenity or landscape loss to the area.

Post development pressures – including shading

- 6.14 The only tree to be retained on the site is T 7, a Lombardy Poplar. This is situated near the south west corner of the proposed new building. It is typical of this variety in that it has a narrow, upright habit that does not cast long periods shade that may be associated with other types.
- 6.15 If shading was considered an issue, this tree could be crown-lifted (see also 6.26) but it is not a densely foliated tree and the leaves are relatively late to emerge in spring and early to fall in autumn. The proposed development will however enjoy long periods of uninterrupted sunlight from the east and south, and, during the summer months, from the west in the late afternoon. It should also be noted that, further to the west, are more buildings. These are likely to block much of the setting sun in advance of any shading by T7.

- 6.16 We therefore consider that there will be no irresistible post development pressures for tree removal or inappropriate tree pruning to reduce shading.
- 6.17 Due to the retention of the Lombardy Poplar it may be prudent to include features in the rainwater collection system of the building that allows for easy maintenance such as: meshed grill caps and/or easily cleanable traps to down-pipes for leaf collection.

Site huts and access to site

- 6.18 During the construction process there is ample space to position site huts and materials to the rear (south) of the proposed block of flats – where the garages are located at present.
- 6.19 The only practicable access route to the site for plant and materials is the one proposed as the permanent access to the rear of the development.

Landscaping

- 6.20 There is ample scope for structural and ornamental landscaping on all four boundaries of the site.
- 6.21 Such appropriate landscaping/tree planting can be easily controlled by the imposition of a suitably worded condition attached to any consent.

Underground services

- 6.22 No detailed information has been provided regarding the installation of underground services.
- 6.23 However, as only one tree is to be retained on site, it is envisaged that there will be no reasons to excavate and install any services near it.
- 6.24 Confirmation of this should be sought from others.
- 6.25 Should the installation of new underground service runs within the Root Protection Area [RPA] of T 7 be unavoidable, see 9.2 below.

Tree works required to facilitate development

- 6.26 To facilitate the construction process, T 7 *may* require some minor crown lifting to ensure adequate clearance for the erection of scaffolding and for vehicles and plant to reach the rear of the site.
- 6.27 These recommended tree works will have very little impact on the overall amenity provided by this tree.

7.0 Tree Protection Measures

Root Protection Areas [RPAs]

- 7.1 As on many urban development sites the space available on this plot for retained trees is somewhat restricted.
- 7.2 It is imperative that, in order for T 7 to survive during, and flourish after the development works, special protection measures are rigidly applied.
- 7.3 BS 5837 provides guidance (within paragraph 5.2) on the creation of a RPA to avoid damage to the roots or rooting environment around retained trees. This is a minimum area in square metres that should be left undisturbed around each retained tree within which it is preferable that no construction related activity should occur.
- 7.4 BS 5837 also provides a formula (in Table 2) by which RPAs may be calculated for each retained tree. An RPA is an area equivalent to a circle with a radius 12 times the stem diameter for single stem trees and 10 times basal diameter for trees with more than one stem arising below 1.5 m above ground level. For practical purposes it is sometimes preferable to (demarcate) this area in the form of a square or rectangle rather than a circle.
- 7.5 In the case of open-grown trees with an even, radial root distribution it would be normal for the boundaries of the RPA to be equidistant from the trunk of the tree. However, BS 5837 acknowledges that the disposition of tree roots can be significantly affected by a number of factors and that the actual position of the RPA will be influenced by specific tree and site factors. These factors may be assessed by an arboriculturist and the shape and position of the RPA modified according to individual site conditions and the probable distribution of a tree's roots.
- 7.6 The RPA of the retained tree, T 7, is shown on the Tree Protection Plan – Plan 2 (as a red-dashed square) that accompanies this report – see Appendix F.
- 7.7 The encroachment of the new building into the RPA of T 7 is just 12% of the total area (*without offsetting*). This is an acceptable percentage.

Special protective measures around T 7 during the development

- 7.8 There is insufficient room for traditional tree protection barriers around T 7.
- 7.9 It is therefore recommended that the stem of the tree is protected by cross-braced and framed marine ply boarding at least 2.5m tall attached to 150 x 150mm timber posts firmly bedded in concrete or 'off the peg' galvanised metal hoarding as illustrated in Fig 1.

- 7.10 The suggested location of this fencing/hoarding is shown on Plan 2 as a purple dotted line.



Figure 1: Galvanised metal hoarding

- 7.11 On this site it will be necessary, during the entire development, to permit vehicular and pedestrian access within the RPA of T 7 - for example to erect scaffolding and to gain access to the rear of the site.
- 7.12 In addition, a section of the proposed new access road and car park will be situated within T 7's RPA.
- 7.13 *This means that T 7 will not only need to be protected during the development by appropriate ground protection measures but also, in the long term, by appropriate road and parking area construction methods (see 7.21 to 7.25 below).*
- 7.14 Such ground protection should be of sufficient strength and rigidity to prevent disturbance or compaction to the soil underneath (e.g. Ground Guards supplied by GreenTek – Tel. 0113 267 6000, www.groundprotection.co.uk). Contamination of the soil underneath this ground protection by toxic substances should be prevented by the use of geotextile fabric.
- 7.15 The recommended position of this ground protection is shown as blue shading on Plan 2 - the Tree Protection Plan (see Appendix F).

The air raid shelter

- 7.16 At present, T 7 is surrounded by overgrown vegetation and, close by to the south east, is an underground air raid shelter.
- 7.17 The condition and size of this structure is unknown to us.
- 7.18 Assuming it is of a reasonable size and intact, it is recommended that the 'roof' and top sections of the walls be broken into the shelter (for drainage), some drainage holes are created in the 'floor' and then the void is filled with soil and compacted.

- 7.19 This will then become a large, new rooting space for T 7 that it previously didn't have – under the proposed parking area. This should help compensate for any reduced rooting space in other areas.
- 7.20 Care must be taken to not damage or sever the roots of T 7 during this operation

Special road/parking area construction measures around T 7 to ensure its long term well-being - post development

- 7.21 Mature trees can react badly to even minor changes in their environment – especially underground.
- 7.22 Not only is it essential to provide this tree with the protection measures recommended in this report during construction, it is also essential that the new road and parking area takes into consideration the trees susceptibility to disturbance and alterations.
- 7.23 Therefore, it is recommended that the section of road and parking area that falls within the RPA of T 7 is of a 'no-dig' construction design, avoiding localised compaction and porous to allow water movement and gaseous exchange. Such works may require further arboricultural advice or supervision. See Appendix F.
- 7.24 This will involve the use of a three dimensional cellular confinement system – such as CellWeb produced by Geosynthetics Ltd Tel 01455 617139, www.geosyn.co.uk/products/cellweb (See Appendix D for more information).
- 7.25 It would be advantageous if the (final) access road could be constructed at the outset of the development *and* the surface given additional protection as described above (the ground guards) within the RPA of T 7 for the duration of the works.

Cranes and excavators

- 7.26 Particular care and planning is necessary to accommodate the operational arcs of excavation and lifting machinery, including their loads, especially large building components such as beams and roof trusses. Operations like these have the potential to cause incidental damage to trees and logistical planning is essential to avoid conflicts.
- 7.27 Any transit or traverse of plant in close proximity to T 7 should be conducted under the supervision of a banksman to ensure that adequate clearance is maintained at all times.

Other general protection measures

- 7.28 Do not raise or lower soil levels or strip topsoil around T 7 - even temporarily.
- 7.29 Avoid disturbing the natural water table level.

- 7.30 Do not light fires near T7.
- 7.31 Do not attach notice boards, telephone cables or other services to any part of T 7.
- 7.32 No heavy construction materials that may cause soil compaction should be stored within the RPA of T 7. Toxins such as diesel, petrol or cement should be suitably stored to prevent such substances leaching into the soil.
- 7.33 The landscape treatment around T 7 should be low-impact – avoiding deep excavation, root severance and compaction.
- 7.34 In addition to protecting existing trees, BS 5837 recommends that areas of the site in which new or replacement tree planting is proposed should also be protected from the effects of construction. There is ample space for suitable structural re-landscaping, however some areas may have to be completely re-cultivated before such planting is carried out.

ARBORICULTURAL METHOD STATEMENT

8.0 Preliminary Works

- 8.1 Prior to the commencement of any other works the tree removal and pruning specified in Appendix A1 should be carried out.
- 8.2 All tree works should be carried out in accordance with BS 3998 - 1989 "Tree Work" and current and accepted arboricultural principles. Only suitably experienced and equipped operators should undertake all tree works, including ground use of chain saws. It is recommended that only contractors who can demonstrate competence and have appropriate insurance cover are employed for any work on this site.
- 8.3 Tree protection measures, barriers and additional ground protection, as detailed in this report, should be installed prior to the commencement of any site clearance, demolition or construction works.
- 8.4 The demolition of any existing structures near trees should be carried out in accordance with the method statement (at Appendix C).
- 8.5 Where any existing hard surface within the RPA of T 7 is to be removed it should also be carried out in accordance with the method statement at Appendix C. Mechanical stripping of the hard surface and underlying soil near trees must be avoided. Once the hard surface is removed the area must be protected from construction damage by appropriate fencing etc as detailed in this report or similar accepted.
- 8.6 The position of any site huts, materials storage and any on-site car parking for contractors should be clearly identified. These should be outside the RPA of T 7 unless, in the case of site huts only, special guidance is followed (see Appendix E). However, on this site, there is ample space at the rear for all the above – far away from T 7.

- 8.7 Tree protection measures shall remain in place until completion of the development and may only otherwise be removed to facilitate any post development landscaping.
- 8.8 The proposed new access road should be constructed at the beginning of the development using 'no dg' methods near T 7 and additional ground protection installed over the top of this area to be left in place for the duration of the works.
- 8.9 The final porous surface finish to this part of the road should be applied at the end of the works.

9.0 Underground Services

- 9.1 We have no detailed information regarding the installation of underground services. Wherever possible they should be installed outside the RPA of T 7.
- 9.2 Should the installation of underground services within the RPA be unavoidable, it is essential that it is carried out in accordance with National Joint Utilities Group Booklet 10 1995 'Guidance for the Planning, Installation and Maintenance of Utility Services in Proximity to Trees' [NJUG10] and under the supervision of an arboriculturist. This booklet can be downloaded at: www.aie.org.uk/download/njug.pdf

10.0 Arboricultural Supervision

- 10.1 The installation of tree protection measures should be supervised by an appropriately experienced arboriculturist who should be appointed to monitor the observance of such measures for the duration of the development.
- 10.2 The arboriculturist should directly supervise any works that have to be undertaken within the RPA. These include the removal of any hard surfacing, the demolition of the air raid shelter, the installation of any underground services and the construction of any new footpaths or hard surfaces near T 7.
- 10.3 The arboriculturist should make weekly site inspections and keep a written log of the results of those inspections. Any contraventions of the tree protection measures or other incident that may prejudice the well-being of retained trees shall be brought to the attention of the site manager in the form of a written report. Copies of the inspection log and any contravention reports will be available at the site for inspection by the Local Planning Authority at all times.

CONCLUSIONS

- 11.1 These development proposals have been assessed in accordance with British Standard 5837: 2005 'Trees in relation to construction'.

- 11.2 T 7 can be protected from the effects of development by means of appropriate protective barriers and ground protection throughout the duration of the works – as prescribed in this report.
- 11.3 Particular care must be taken with regard to the construction of the access road and parking areas near T 7.
- 11.4 The trees listed for removal are all self-sown Sycamores plus one fruiting apple. Three must be removed in the interests of good arboricultural practice and for Health and Safety reasons. The rest are all C category trees of little or no value.
- 11.5 The removal of these trees follows BS 5837 guidelines and will represent a very minor loss of visual amenity which will be restored in the long term by new planting.
- 11.6 There is ample scope for new tree planting and landscaping to ensure continued screening and long term tree cover.
- 11.7 The observance of the Arboricultural Method Statement, together with any additional guidance from the arboriculturist will ensure the successful integration of these proposals with the retained tree.
- 11.8 In consideration of the information provided and our own site observations we are satisfied that the proposals for this site are arboriculturally sound and that the long term well-being of T 7 will be safeguarded in a sustainable manner.

RECOMMENDATIONS

- 12.1 The tree works specified in the schedule of trees should be carried out to avoid damage to trees during construction and in the interests of good arboricultural management
- 12.2 The tree protection measures detailed in this report should be supervised by an appropriately experienced arboriculturist.
- 12.3 Appropriate post development landscaping should be implemented to ensure sustained, effective tree cover on the site but not be designed or constructed in any way that would be to the physiological detriment of retained trees.

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The Thurman Consultancy

January, 2007

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