

Tree survey and Protection plan to BS 5837 (2012)

Hollybank, Station Road, Hythe, Kent CT21 5PR

Summary

This report arises from a proposal to build a second storey onto the existing dwelling of Hollybank. No groundworks are proposed except for the supports for the proposed balcony on the west side of the dwelling.

The site is not in a Conservation Area but four trees close to the east boundary, and about 2m from the dwelling footprint, are protected by Tree Preservation Order 19 of 2006. These are the only trees at issue since the remainder of the site is effectively inaccessible, except to pedestrians, as it is reached by steep steps down.

There are two impacts for the TPO trees. First, the crown of the roadside holly T1 descends to height 2.5m over the east side of the roadside entrance. To increase headroom would be to reduce the screening of the dwelling from the road, so instead demolition/delivery vehicles are to be limited in size to avoid damage to the tree in its present unreduced form.

The second impact is to the trees T3 Holm oak, T4 Holly and T5 Holly. The crown lifting operation of some years ago has to be repeated to increase headroom where the trees overtop the dwelling footprint. Implications for privacy and amenity are minimal, and the opportunity can be taken to improve the form of the trees. I include a Schedule of works specifying the necessary works.

There are no implications for the roots of any tree given the specified methods, by which the construction site is effectively limited to the existing ceiling and joists of the first-floor, the surrounding first-floor scaffold walkways and part of the frontage hardstanding.

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Planning application:

Y17/1000/SH/PAH

Alterations to create a two storey dwelling with pitched roof.

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Tree position plan	attached as separate document
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1. Objectives

To comply with the direction of Shepway D.C. in an email from Mr Paul Howson, Planning Officer, dated 12 October 2017:

Please supply a tree survey to include information on trees to be retained, any to be removed, and means of protecting them during construction.

2. Preamble

There are several stages in the procedure recommended in BS 5837 (2012): *Trees in relation to design, demolition and construction – Recommendations.*

- 1. Tree Survey and assessment of trees' retention value.*
- 2. Tree Constraints Plan.*
- 3. Arboricultural Impacts.*
- 4. Tree Protection Plan.*
- 5. Arboricultural Method Statement.*

While (2) and (3) are not strictly required, they are mentioned to the extent that protection measures arise from them.

Trees were surveyed according to the precepts and procedures of Lonsdale (2006) and Mattheck & Breloer (1998).

The technical terms I use in this report are italicized in the text and defined in the glossary (Appendix I).

3. Scope

I visited the site on 28 October 2017 and inspected the trees and other vegetation with the aid of a *sounding mallet* and binoculars.

Measurements were by tape for (i) horizontal distance and (ii) tree diameter, and by inclinometer as appropriate for (iii) tree height.

4. Abbreviations and units

Dimensions are in metres (m) or centimetres, area is in square metres (m²). Trunk diameter was measured or estimated 1.5m above the ground unless otherwise stated.

SDC	Shepway District Council
G	Group
RPA	<i>Root protection area</i> (see glossary)
T	Tree

5. Plans and design

The existing layout and proposal are shown on *Remodel Project Proposal*, Planning Dwg. 4, dated July 2017, by NHM. This plan shows tree positions.

The *Tree position plan* (attached as the separate document *171103 PLAN Hollybank Hythe* is a derivative of this plan.

I also refer to the drawings 001 and 003, showing the existing and proposed elevations.

I used my discretion to plot trees and other vegetation not shown on *Remodel Project Proposal*, and to adjust the positions of other trees, and believe that I have done this with satisfactory accuracy for the purpose.

6. Planning and wildlife constraints

6.1. Planning constraints

I accessed the Shepway D.C. interactive planning map on 31 October 2017 at:
www.shepway.gov.uk/mapserver2016/fusion/templates/mapguide/maroon/index.html?ApplicationDefinition=Library://sdc-exp.ApplicationDefinition

The site is not in a Conservation area but individual trees on the east boundary are protected by TPO 19 (2006) and trees on the west boundary (some off-site) are protected by TPO 11 (1996).

In my interpretation the protected trees are:

	TPO	This report
T1 Holly	T8	T1
T3 Holm oak	T16	T3
T4 Holly	T17	T4
T5 Holly	T18	T5

Other trees protected by the TPO on the east boundary appear to be in the neighbouring property to the east.

Works proposed to the TPO trees normally require the prior consent of SDC. However, if the planning application that this report supports is granted full planning permission in due course, the works I recommend can be enacted without further formality.

Works to any non-TPO trees at Hollybank can normally be enacted without prior reference to SDC. However, all trees, whether protected or not, are material considerations in the planning system.

6.2. Wildlife constraints

Native wildlife is protected primarily under *The Wildlife and Countryside Act 1981* (as amended). The level of protection varies with species. Note that protection may include reckless as well as intentional harm, so that ignorance resulting in injury to some protected species is not a defence.

Animal species with a high level of protection include the *hazel dormouse* and all species of *bats*, while the *slow-worm* is protected under the 1981 Act from intentional killing or injury.

No native bird may be disturbed at its nest, which means that works to trees or other vegetation that contain nests should not be undertaken during the *nesting season*.

7. Site description

The site consists largely of the frontage hardstanding and the strip of land on the east side of the dwelling.

On the west (left) side of the frontage hardstanding, steep steps lead down to the majority of the garden, effectively protecting it from any incursion except by pedestrians during site works. Thus, those trees protected by TPO 11 (1996), and any other trees in the lower (western) part of the garden, are not regarded as part of the site and are not included in this report.

7.1. *Geology and soil*

According to the *Geology of Britain viewer*, the site is on Weald clay with no superficial deposits recorded.

8. Introduction to tree survey

This section consists of four parts:

- (i) The *Scheme for conservation value*, reproduced from BS 5837 (2012).
- (ii) *Notes* give further details of the survey method.
- (iii) The *Tree survey schedule* describes the trees surveyed in numbered sequence, classifies them according to conservation value and gives their RPA radius.
- (iv) The trees' positions are shown on the *Tree position plan*.

Parts (i) to (iii) are given in Appendix II. Part (iv) is attached as the separate document *171103 PLAN Hollybank Hythe*.

Tree works are recommended in Section 11 *Schedule of tree works*.

The tree survey included an assessment of tree risk for on-site trees.

8.1. *Perspective on retention value*

The trees at issue, on the east boundary, provide mutual privacy for Hollybank and the neighbouring block of apartments to the east.

9. Tree constraints and impacts

The crowns of the trees on the east boundary were raised on the site side some years ago, and the increase in headroom necessary to enact the proposal will essentially be a repeat of that operation. The opportunity can be taken to remove numerous stubs. The crowns of the trees descend on the east (neighbouring) side of the boundary, maintaining privacy at all times of the year since the trees are evergreen.

10. Tree protection plan

Sequencing

- (i) Tree works. See Section 11 *Schedule of tree works*.
- (ii) Erect scaffolding.
- (iii) Demolition of roof and disposal of demolition waste.
- (iv) Construction works.

General

1. No groundworks are proposed.
2. Tree protection fencing is not needed because pedestrian access only is required to the east side of the dwelling, and only to erect scaffolding. The trees will be protected during this work by the retaining wall on the east side of the walkway.
3. T1 Holly is protected by the entrance pillar on the south side.
4. Pads to support the proposed balcony will require very little excavation and are to be dug by hand. Any roots encountered are to be cross-cut cleanly with secateurs or pruning saw, and any cross-cut roots are not to be allowed to dry out.

Erection of scaffolding and erection of temporary roof

The walkway on the east side of the dwelling is paved and 1.15m wide, and will provide satisfactory support for the scaffolding.

Demolition of roof and disposal of demolition waste

The work area for demolition is to be confined to the existing first-floor ceiling, reinforced as appropriate and supplemented with the surrounding first-floor scaffold walkways. Waste is to be removed to the west side of the frontage hardstanding.

Disposal of demolition waste

For removal from the site a mini-skip only is permitted, parked on the west side of the frontage hardstanding. The reason is to avoid the need to raise the crown of T1 Holly.

Construction works

In constructing the new roof I understand that the roof timbers will be assembled individually on site (ie. prefabricated trusses will not be used). The height to the eaves of the east elevation will be 4.5m, and a further 2m is allowed for the temporary roof.

As for demolition, all building materials are to be delivered to the west side of the frontage hardstanding and passed up and stored on the work area of the first floor ceiling and surrounding first-floor scaffold walkways.

11. Schedule of tree works

Works to comply with BS 3998 (2010) Tree work

T3 Holm oak

T4 Holly

T5 Holly

T6 Damson

Raise crowns on west (site) side to height 6m, removing:

- (i) Stubs of limbs at height 4-5m up to 15m diameter (T3 and T4).*
- (ii) Regrowth up to 5cm diameter from previous reduction works.*

Remove growth arising at height 0-2m to length 3m.

Reason: To give satisfactory vertical clearance from proposed second storey and its pitched roof

Note 1: The raised crowns will have very little clearance from the temporary roof, which will be built from below, and 1–2m vertical clearance from the finished roof.

Note 2: Some remedial pruning may be required post-development in the event of minor damage to the lower crown on the west side of T1.

T7 Apple

Prune to give at least 1m horizontal clearance from dwelling.

Note 3: If preferred, this tree could be felled.

12. References

B.S. 5837 (2012). *Trees in relation to design, demolition and construction – Recommendations*. British Standards Institution, London.

Lonsdale, D. (2006). *Principles of tree hazard assessment and management*. Dept. Communities & Local Government and the Forestry Commission. Research for Amenity Trees No. 7. 4th Impression. The Stationery Office, London. ISBN 0-11-753355-6.

Mattheck, C. and Breloer, H. (1998). *The body language of trees: A handbook for failure analysis*. D.E.T.R. Research for Amenity Trees No. 4. 4th Impression. The Stationery Office, London. ISBN 0-11-753067-0.

13. Copyright and limitations

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APPENDIX I: DEFINITION OF TERMS USED IN THIS REPORT

Bats: All bats are European protected species, so that it is an offence to kill or injure a bat, whether deliberately or recklessly, to damage or destroy a roost site even if it is unoccupied, or to disturb a bat while it is occupying a roost.

Potential roost sites in trees include: voids created by woodpeckers and decay; fissures and crevices caused by injury or structural failure, including open or partly closed cracks and storm damage; loose dead bark separated from the underlying wood; and the pockets created by the intertwining stems of rank ivy (if greater in diameter than about 40mm). These features are associated with large and veteran trees but also occur in smaller and younger trees.

Epicormic shoots: Shoots arising from dormant buds in a tree's main stem or framework branches. The shoots develop more or less readily, depending on species, especially if the crown has been pruned or damaged, or is suffering decline.

Geology of Britain viewer: An online service of the British Geological Survey. The solid geology and superficial sediments, at 1:50,000 or smaller scales, can be viewed for any postcode or map reference in the UK.
<http://mapapps.bgs.ac.uk/geologyofbritain/home.html>

Hazel dormouse: The hazel dormouse is a nocturnal and arboreal mouse-like mammal about 15cm long counting the slightly bushy tail. It is found in open woodland with a dense understorey and untrimmed hedges. The dormouse is omnivorous and has many food sources, but hazel (*Corylus avellana*) nuts are favoured prior to hibernation.

Maturity: The stages in the life cycle of a tree. Young or juvenile trees have not yet reached $\frac{1}{3}$ of their expected mature height. Early-mature trees are between $\frac{1}{3}$ and $\frac{2}{3}$ of expected mature height. Mature trees are close to their full height and crown size, these dimensions being determined by the context, while main-stem diameter continues to increase relatively rapidly. In late-mature trees main-stem diameter (which by now is large) increases slowly, accumulated *deadwood* and defects in the aerial part are likely to be evident if the tree is unmanaged, and some crown separation is increasingly likely. Senescent trees are in a decline associated with lessening crown volume, so that the crown becomes sparse or dies back, developing relatively large-diameter deadwood.

Nesting season: Conventionally from 1 March to 31 July, although subject to variation from year to year depending on the weather.

Root protection area (RPA): The circular area around the base of a tree, expressed in m², that contains sufficient rooting volume to ensure the future well-being of the tree in the event of nearby soil disturbance (as on a development site). RPA radius is the radius of the circle.

Shrinkable soil: Soils that shrink on drying (and swell on re-wetting) are shrinkable. Several kinds of stiff clay have high shrinkability, giving a risk of *structural movement*.

Slow-worm: A legless lizard up to about 0.5m long resembling a small snake. Slow-worms are native to Europe and western Asia and are found throughout Britain. They are not venomous but bite their prey. They prefer to hide under various objects warmed by the sun rather than to bask in the open.

Sounding mallet: A mallet for tapping at a woody stem which might be defective, particularly the base of a tree trunk. The sound helps to reveal the presence of internal defects.

Structural movement: A shift in a structure, typically causing cracks in the event of differential movement.

Tree risk: The risk that a tree causes damage or injury if it (or part of it) suffers structural failure. Tree risk is a composite of several variables. A hazard has the capacity to cause harm, which may be more or less serious depending on the magnitude of the hazard (for instance the weight of a branch and the height from which it would fall). Probability is the chance that a hazard eventuates, and is influenced by the loading at potential points of structural failure, the nature of any structural defects, the extent and effectiveness of any compensatory growth, and site factors. A target is anything within range of a hazard, i.e. within the target area, that could suffer injury or damage if the hazard eventuates. Tree risk comprises (hazard magnitude × probability × target value × occupancy).

Wildlife and Countryside Act 1981: The main Act giving protection to wildlife and supplemented by other Acts including the Countryside and Rights of Way Act 2000. The Act makes it an offence to kill or injure any wild bird (excluding game birds), damage or destroy the nest of any wild bird while being built or in use, or take eggs.

APPENDIX II: TREE SURVEY

(i) Scheme for retention value: Extract from BS 5837 (2012)

A: High quality and value, anticipated retention span at least 40 years.

1. Arboricultural value 2. Landscape value 3. Cultural/conservation value

B: Moderate quality and value, anticipated retention span at least 20 years.

1. Arboricultural value 2. Landscape value 3. Cultural/conservation value

C: Low quality and value, anticipated retention span at least 10 years. Not to be retained where they represent a significant constraint to the development.

U: Undersize (below 15cm diameter) or valueless (any existing value lost within 10 years).

(ii) Notes

Note 1: The scheme above is a guide. Conservation value relies on subjective assessments which are often debatable and context-dependent; see text.

Note 2: 'Crown radius' noted in the *Tree Survey Schedule* is the horizontal distance the crown extends from the trunk of the tree or, where stated, across the boundary into the site.

Note 3: A notional RPA is an estimate based on experience (in the absence of satisfactory guidance), as for a hedge or recently coppiced tree.

Note 4: Trunk diameter was measured 1.5m above the ground unless otherwise stated.

Note 5: Any collective or variable measurement is summarized as the maximum. For example, the maximum main-stem diameter of T1 is 25cm ('to 25').

(iii) Tree Survey Schedule – Hollybank, Station Road, Hythe CT21 5PR. Surveyed September 2017.

Tree/ Group	Species	Diam (cm)	Ht. (m)	Crown radius (m)	Head- room (m)	Value	RPA radius (m)	Comments
T1	Holly (<i>Ilex aquifolium</i>)	MS to 25 c. 40 GL	10	4	2	TPO	4.0	Early-mature (see <i>maturity</i>), pleasing feature at roadside entrance, well furnished with berries. Descending branches (ie. giving relatively low headroom) have value in partially screening the dwelling from the road.
T2	Hawthorn (<i>Crataegus monogyna</i>)	MS to 20 c. 30 GL	3	to 3 (1.5 into site)	2	C	3.0	Early-mature. Pruned with decapitating cuts to constrain size, now with unruly form and some <i>epicormic shoots</i> arising from the framework branches.
T3	Holm oak (<i>Quercus ilex</i>)	32	14	4-5 into site	4	TPO	3.8	Mature. Crowns overtop the dwelling footprint by 2-3m and descend to give 1-2m vertical clearance from the pitched roof.
T4	Holly	24	12	4-5 into site	4	TPO	2.9	
T5	Holly	26 (ht 1m)	12	4-5 into site	4	TPO	3.1	
T6	Damson (<i>Prunus</i> spp.)	25 (ht 1m)	9	4-5	4	C	3.0	Late-mature. Ivy. Formerly topped at height 2-5m, crown light, numerous low stubs with fruiting bodies of the decay fungus <i>Phellinus</i> .
T7	Apple (<i>Malus domestica</i>)	c. 20	6	3	2	U		Late-mature or senescent. Vigour low, appreciable die-back. May recover to some extent if pruned hard, but close to north side of dwelling and therefore in perpetual shade.

T=tree; G=group; Diam=main-stem diameter; Ht=height; MS=multi-stem; GL=ground level; RPA=root protection area.