

Tree survey to BS5837 (2012) with constraints, impacts and Tree protection plan

Castle House, Castle Hill Avenue, Folkestone CT20 2TF

Summary

This report supports a proposal to erect fencing and gates on the frontage of Castle House. The fencing is proposed largely adjacent to the public footway of Castle Hill Avenue.

The site is in a Conservation Area.

Twenty one trees and shrubs are noted, 18 within the ownership of Castle House (most in a low raised bed) and three off-site trees at the roadside edge of the footway that are protected by Tree preservation order (TPO) 12 (2006).

No trees are to be lost to the proposal.

The main tree-related constraint is the encroachment of the fence posts into the Root protection areas (RPAs) of both the non-TPO and TPO trees. The encroachment by area is very little, but the fencing at its closest will be within about 0.3m of the non-TPO trees, risking appreciable root damage. If the posts are too close they also risk future displacement as the trees grow. Expedient guidelines are given, including a possible requirement for arboricultural reportage and supervision.

Several tree protection measures are considered, including barriers/tree protection fencing and trunk protection to illustrate the requirements. The site agent will reconcile these with the control of the pedestrian and road traffic in Castle Hill Avenue during the site works.

Low growth of the non-TPO trees and shrubs has to be pruned back to give sufficient clearance for the construction of the fence.

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1. Objectives

To survey the trees on, and within influencing distance, of the proposed security fencing and gates to the front of Castle House.

To describe the tree-related constraints to the development.

To discuss these constraints and to make recommendations as appropriate.

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' conservation value.*
2. *Tree Constraints Plan.*
3. *Arboricultural Impact Assessment.*
4. *Tree Protection Plan.*
5. *Arboricultural Method Statement.*

Any constraints to development identified in (2) are discussed in relation to the context in (3) to arrive at practical recommendations. Where appropriate, specific measures to avoid damage to trees during site works are set out in (4) and (5).

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

3. Scope

I visited the site on 22 September 2026 and conducted a ground-level visual inspection of the trees within influencing distance of the proposed fencing and gates. 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

G	Group (of trees, shrubs or hedges)
F&HDC	Folkestone & Hythe District Council
RPA	Root protection area
T	Tree
S	Shrub

Dimensions are in metres (m) or centimetres (cm); area is in square metres (m²).

5. Plans and design

The existing and proposed layouts are shown on *Proposed new security fencing and gates to existing front carpark*, Dwg. 008/26/01, dated May 2026, by S.I. Chartered Building Surveyors.

This plan also includes a photo of the fencing specification, which I understand is to be supplied by Jackson's Fencing (see next section).

The *Tree position plan* is a derivative of the proposed layout.

I plotted the positions of T7, T16 and T19 Horse chestnuts, and believe that I have done so with sufficient accuracy for the purpose.

5.1. Fencing specification



Photo 1. The design of the proposed fencing, both ornamental and an enhancement of security. The posts are slender and at a maximum of 3.04m centres.

The main tree-related constraint is the excavation required for the post holes.

6. Planning constraints

I consulted the F&HDC interactive planning map on 24 September 2026. The site is in a Conservation Area and three off-site trees (in the public footway adjacent to the carriageway) are protected by TPO 12 (2006).

No native bird may be disturbed at its nest, which means that works to trees that contain nests are not to be undertaken during the nesting season, conventionally 1 March to 31 July.

6.1. Root protection area

The Root protection area (RPA) is an important tree-related constraint. It is defined as:

The (usually) circular area around the base of a tree, expressed in square metres, that contains sufficient rooting volume to ensure the future well-being of the tree in the event of nearby soil disturbance. RPA radius is the radius of the circle in metres.

In the present case the RPA for most of the trees is difficult to interpret because:

- (i) The roots of the trees in the raised bed are constrained at least to depth 0.5m by the retaining walls and their foundations.
- (ii) Root occupancy is otherwise affected by the sealed surfaces, the indurated foundation of the footway and carriageway, and underground infrastructure surrounding the raised bed.

7. Site description

See Section 8.2 *Photo record of the tree survey*.

7.1. Geology and soil

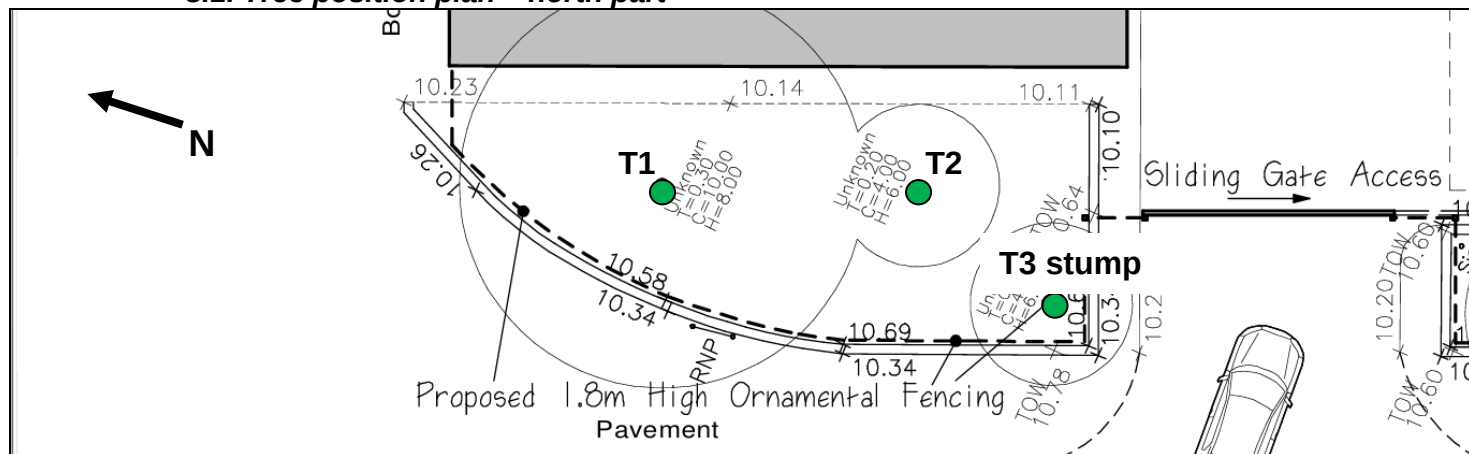
The Geology of Britain Viewer shows that the bedrock at the site is sandstone of the Folkestone formation, overlaid with an outlying deposit of Gault clay and itself overlaid with 'head', clay and silt, often a fertile red-brown silty clay. The depth of the Gault clay and 'head' is not known.

8. Introduction to Tree survey

This section consists of three parts:

- (i) *Tree position plan* (below).
- (ii) Photo record of tree survey (pages 7–8).
- (iii) The *Scheme for retention value*, reproduced from BS 5837 (2012); *Notes* giving further details of the survey method and the *Tree survey schedule* describing the trees surveyed in numbered sequence (all in Appendix II).

8.1. Tree position plan – north part



8.2. Photo record of tree survey



Photo 2. The view eastward of T1 and T2, fastigate hornbeams.

The north end of Castle House can be seen in the background.



Photo 3. The view eastward of T4 Lime on the left (at the north end of the raised bed), with S5 at its base.

T7 (TPO) Horse chestnut is in the middle of the photo, with the suppressed T6 Sycamore to its left and T8 Lime to its right, with S9 at its base.

The large tree partly out of view to the right is in the central reservation of Castle Hill Avenue.



Photo 4. The view eastward showing, from left to right, T10 Lime, T11 Lime with S12 at its base, T13 Sycamore and T14 Sycamore.

The low retaining wall of the raised bed can be seen, and the southern end of the raised bed where it meets the exit from the Castle House carpark.

Castle House is in the background, Castle Hill Avenue is in the foreground.

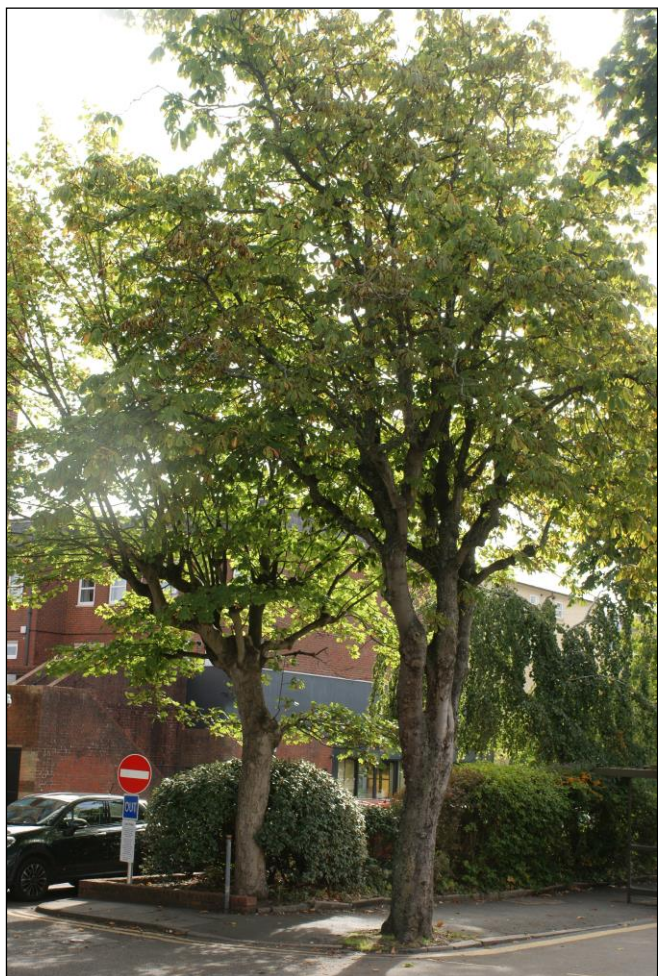


Photo 5. The view southeastward of T16 (TPO) Horse chestnut in the foreground, with T15 Sycamore behind, and the almost continuous S17 extending to the right towards T18 Weeping beech.

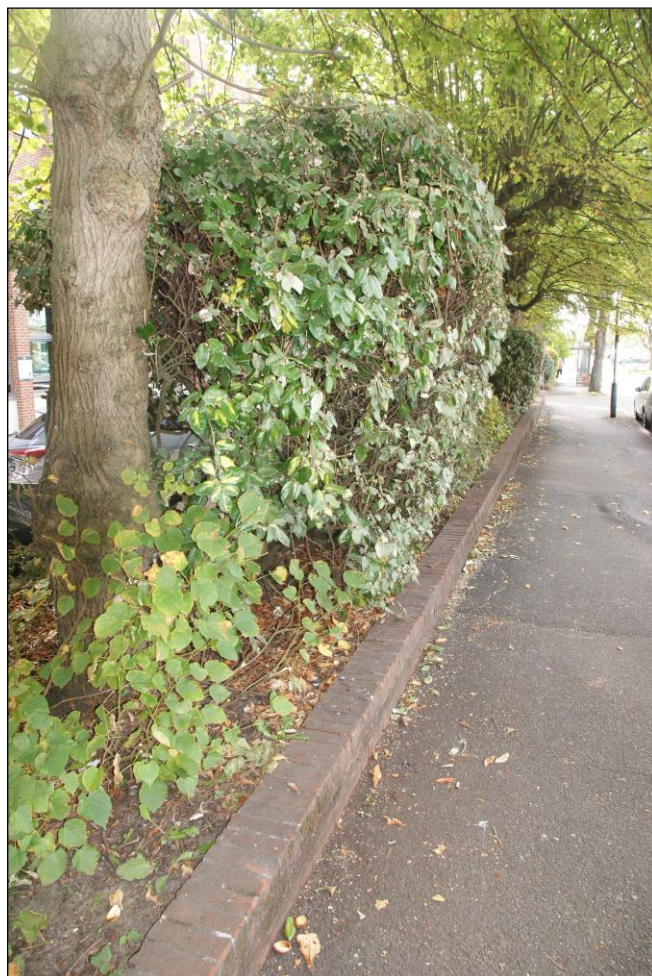


Photo 6. The view southward along the western boundary of Castle House, showing the raised bed on the left and the public footway of Castle Hill Avenue on the right. The fencing is proposed to be adjacent to the inner face of the low brick retaining wall.



Photo 7. The view eastward showing the south end of S17 and T18 Weeping beech in shadow on the left.

The large T19 (TPO) Horse chestnut is in the public footway adjacent to the carriageway of Castle Hill Avenue.

On the right is the broad crown of T21 Cherry, with the small and half-dead T20 Cherry barely visible by the left edge of T21's crown.

The southern part of Castle House is in the background on the left.

9. Tree-related constraints and impacts *See Tree position and constraints plan*

9.1. Loss of trees – None

9.2. Root protection area (RPA) encroachments

Two groups of trees are distinguished, those non-TPO trees on the frontage, which could be as little as 0.3m from the proposed fencing, and the three TPO trees, which are about 2m distant.

The excavations for the fencing and gates are confined to the post holes. While these will be within the RPAs of most or all of the trees, if they are dug with an auger the area of excavation will be small. However, if very close, say within 1m, there is a risk that a large (structural) root will be damaged.

Frontage trees

The fencing posts are specified to be at 3.04m centres. The panels could be reduced in length, as they will be for short spans near gates and corners, to keep the posts away from the trees as appropriate. However, to vary the span on the frontage would be aesthetically undesirable.

Impacts

I suggest the following expedient guidelines:

- (i) No post-hole within 0.5m of a frontage tree. This guideline also ensures that the posts will not in future be directly displaced by the growth of any of the trees.
- (ii) A requirement for arboricultural reportage/supervision in the event that a root thicker than 25mm is damaged within 1m of a tree.
- (iii) A tree inspection in the growing season following the construction of the fencing. If any tree is damaged or disturbed to the extent that it is evident in a loss of vigour or vitality in the crown, it would be good practice to reduce the crown of the tree to reduce its water demand and promote recovery.

Alternatively, all the frontage trees could be reduced to their previous topping points, considered as a maintenance operation. While not urgent, to undertake this operation now would be within good arboricultural practice.

TPO trees – T7, T16, T19 Horse chestnuts

These trees are about 2m from the proposed fencing, and as roots generally taper rapidly from the trunk the risk of serious damage is low.

Impacts

The greatest impacts of the proposal relate to the protection of the trees during site works – see next section.

10. Tree protection and methods

10.1. Tree/shrub works

Non-TPO trees

Cut back shrubs and any low growth from the trees to give up to 0.3m clearance from the proposed fence line.

Reason: To facilitate access.

10.2. Sequencing

- (i) Site facilitation pruning to be completed before any other site works.
- (ii) Erection of fencing/barriers for tree protection/pedestrian control, and trunk protection, before any other site works except tree works.
- (iii) Construction.
- (iv) Removal of fencing/barriers.

10.3. Tree protection/pedestrian control barriers – TPO trees

Much of the post-hole auger and other construction traffic is assumed to operate from the public footway. Tree protection barriers or fencing are therefore to be installed on the east (Castle House side) of the TPO trees. If the whole length of the frontage is to be secured, and the specification of tree protection fencing shown in Appendix I is to be used, the fencing panels must be side-strutted for impact resistance. The fence line must remain on the pavement, that is, it must not cross the unsurfaced ground at the base of the TPO trees.

Alternatively, individual trees could be isolated using barriers such as those shown in Photo 8.



Photo 8. Evo barriers, an option for protecting the TPO trees T7, T16 and T19 Horse chestnuts.

They can be filled with water for high impact resistance.

The site agent should have discretion over details of pedestrian and road traffic control, which may influence the specification and layout of these tree protection measures.

10.4. Trunk protection

Non-TPO trees

The fencing construction works will be very close to the non-TPO trees, indicating the need for trunk protection. The height of the protection depends on the height to the first branch, up to 1.3m. A suitable design is shown in Figure 1 below.

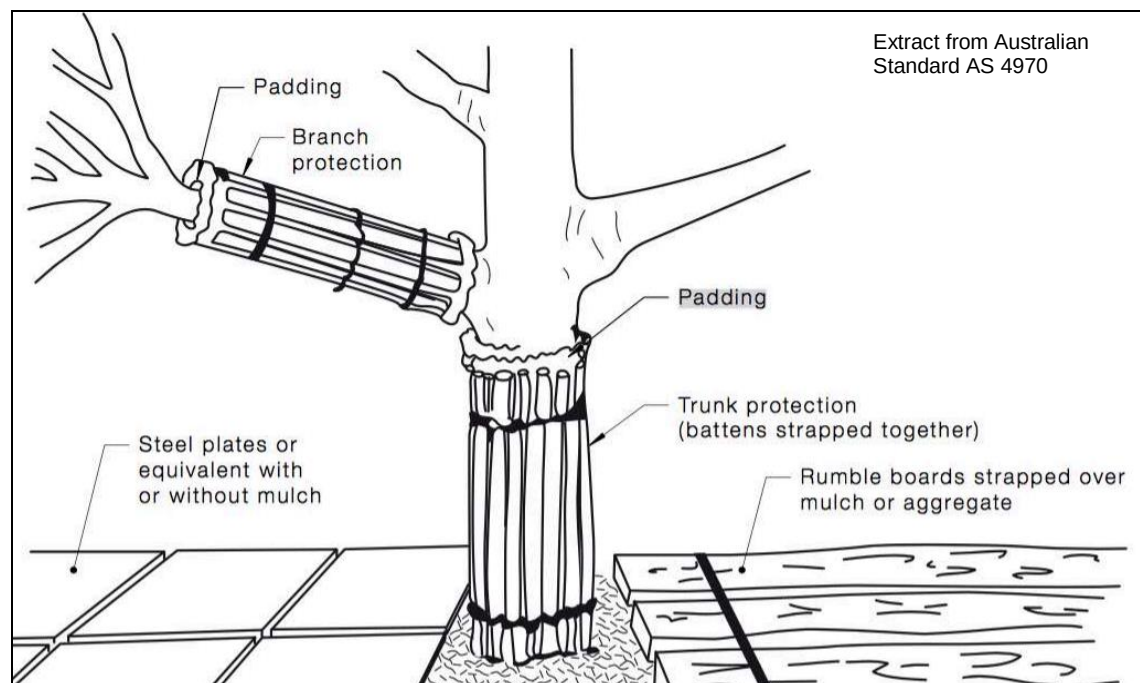


Figure 1. A suitable design for trunk protection. The protection must be thick enough to give some impact resistance and to entirely cover the root buttresses at the base of the tree. It should also be conspicuous to increase the visibility of the trees.

TPO trees

Trunk protection is required to height 1.3m, whether from fencing on the east side of the trees or from the design shown in Figure 1 above.

10.5. Ground protection

If machine movements are confined to the hard surfaces, namely the carpark of Castle House and the public footway of Castle Hill Avenue, pedestrian construction traffic only will be required for the fence line itself. On balance, ground protection is not recommended, especially on the raised bed where panels or plywood would be difficult to fit, may not be entirely stable and are sometimes slippery.

10.6. Arboricultural supervision

F&HDC may require notice of works, photographic evidence of compliance, reportage of actual root damage etc., or it may monitor in person or specify independent arboricultural supervision by planning condition.

10.7. Miscellaneous

No spillage of liquids harmful to tree roots is permitted on any part of the site, including fuel and cement washings, and fires are not permitted.

Post holes are to be lined with a membrane; leachate from uncured concrete is toxic to tree roots.

11. References

Lonsdale, D. (1999). *Principles of tree hazard assessment and management*. Research for Amenity Trees No. 7, 4th Impression 2006, Department for Communities & Local Government and the Forestry Commission. The Stationery Office, London.

Mattheck, C. & Breloer, H. (1994). *The body language of trees: A handbook for failure analysis*. Research for Amenity Trees No. 4, 4th Impression, Department for the Environment, Transport & the Regions. The Stationery Office, London.

12. Copyright and limitations

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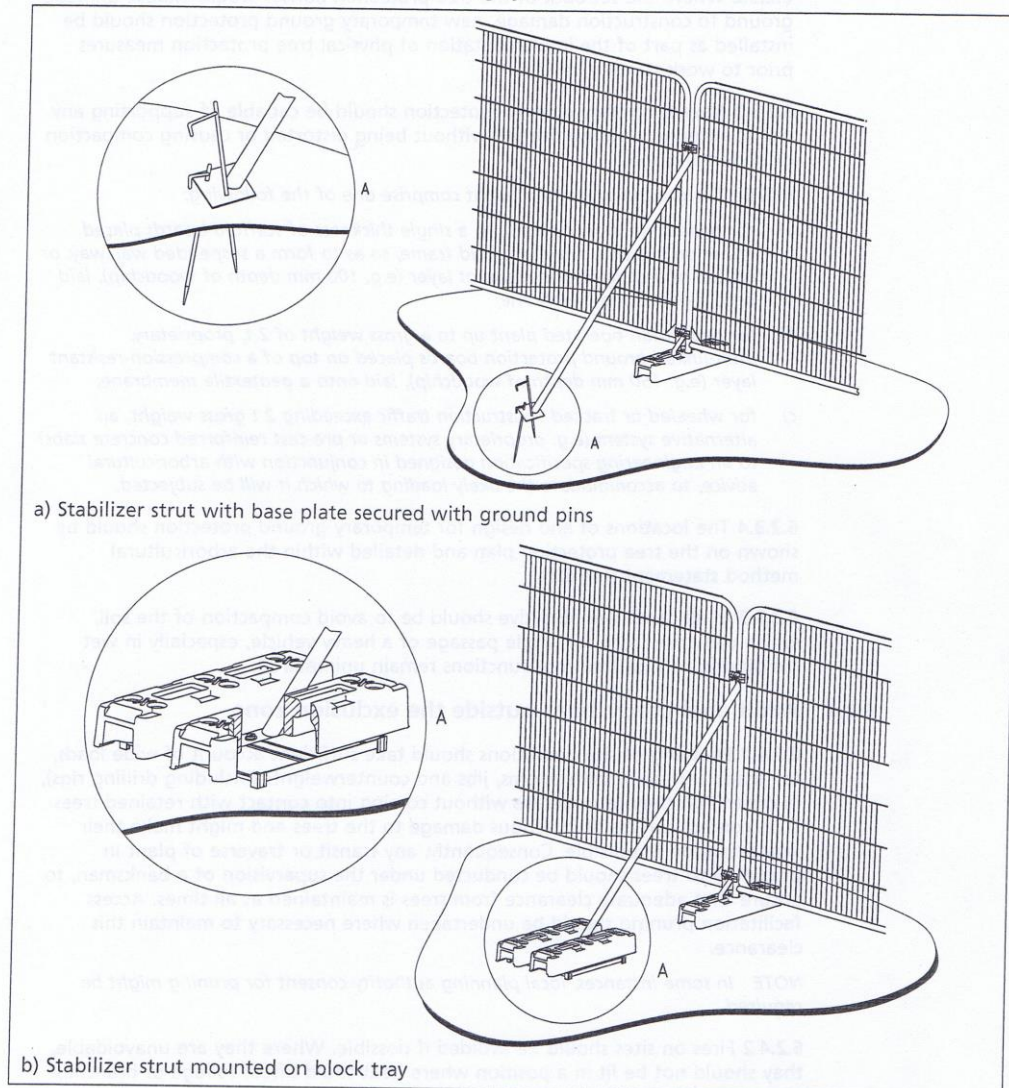
APPENDIX I:

Extract from BS 5837 (2012). Default specification of tree protection fencing

BRITISH STANDARD

BS 5837:2012

Figure 3 Examples of above-ground stabilizing systems



6.2.3 Ground protection during demolition and construction

6.2.3.1 Where construction working space or temporary construction access is justified within the RPA, this should be facilitated by a set-back in the alignment of the tree protection barrier. In such areas, suitable existing hard surfacing that is not proposed for re-use as part of the finished design should be retained to act as temporary ground protection during construction, rather than being removed during demolition. The suitability of such surfacing for this purpose should be evaluated by the project arboriculturist and an engineer as appropriate.

APPENDIX II: TREE SURVEY

(i) Scheme for retention value

The conventional scheme for retention value is set out in BS 5837 (2012) as follows:

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: Very low retention value.

(ii) Notes

Note 1: 'Crown radius' noted in the *Tree Survey Schedule* is the horizontal distance the crown extends from the trunk of the tree. Where one radius is given either the crown is symmetrical or the given radius is that extending towards the interior of the site (generally the most relevant).

Note 2: Trunk diameter was measured 1.5m above the ground unless otherwise stated.

(iii) Tree Survey Schedule – Castle House, Castle Hill Avenue, Folkestone CT20 2TF. Inspected September 2026.

Tree/ Group	Species	Diam (cm)	Ht. (m)	Crown radius (m)	Head- room (m)	Value	RPA radius (m)	Comments	Photo
						B		Collective assessment for all the trees on the Castle House frontage excluding the TPO trees.	
T1	Fastigate hornbeam	29	9	5	2	B	3.5	Early-mature, crown extends for 3m over the public footway. Slightly overbearing, headroom could be increased. Trunk diameter measured 0.5m above ground level.	2
T2	Fastigate hornbeam	24	10	3	1–2	B	2.9	Early-mature. Slender crown. Trunk diameter measured 0.5m above ground level.	2
T3								STUMP without regrowth.	
								All the trees in the raised bed T4–T14, as well at T15, were topped at height 5–8m and estimated 6-8 years ago. The regrowth is slender and rapidly grown, diameter mainly 1–6cm.	
T4	Lime	40	17	5	2.5	B	4.8	Early-mature, dense globular crown.	3
S5	Shrub		2					Trimmed to height 2m and to edge of raised bed.	3
T6	Sycamore	26	12	0 over footway	2.5–3	C	3.1	Early-mature. Suppressed and crown unbalanced to east owing to competition from neighbours, mainly T7 Horse chestnut.	3
T7	Horse chestnut	62	20	6	6–8	TPO	7.4	Mature, condition good, 2m from raised bed.	3
T8	Lime	42	19	4	2.5	B	5.0	Early-mature. Crown unbalanced owing to competition from neighbouring trees, especially T7 Horse chestnut. Crown extends to outer edge of public footway.	3
S9	Shrubs		1-3					Trimmed to height 1–3m and to edge of raised bed.	3
T10	Lime	37	18	5	3	B	4.4	Early-mature. Pleasant compact form. Crown extends beyond footway, about 1m over the carriageway.	4
T11	Lime	47	18	5	2.5	B	5.6	Early-mature. Pleasant, compact form.	4
S12	Shrub		2					Trimmed to height 2m and to edge of raised bed.	4
T13	Sycamore	30	15	2	2–4	B	3.6	Early-mature. Vigour low. Spindly, narrow crown.	4
T14	Sycamore	51	14	2.5	3	B	6.1	Early-mature. Crown compact, relatively dense.	4
T15	Sycamore	40	16	1.5	2.5–3	B	4.8	Early-mature. Crown unbalanced to the east owing to competition from T16 Horse chestnut.	5
T16	Horse chestnut	53	18	3.5	6	TPO	6.4	Mature. Fine specimen	5
S17	Shrubs		1.5–2					Mixed shrubs trimmed to height 1.5–2m, more or less continuous over a 15m length of frontage.	7
T18	Weeping beech	16	8	0 over footway	1	B	1.9	Juvenile. Good condition, pleasing form.	7
T19	Horse chestnut	66	18	5	8	TPO	7.9	Mature, fine specimen. Crown extends to west side of carriageway.	7
T20	Cherry	9	5	0–1	1.5	U	–	Spindly, half-dead.	7
T21	Cherry	39	8	5	1.5	B	4.7	Late-mature, broad crown. Large wound on west side at height 1.5m, no decay detected by forcible probing.	7

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