An Arboricultural Report on trees and Woodland at Hoyle Copse,

Stoke Gabriel,

Devon

Prepared for

Stoke Gabriel Parish Council

By

Rupert Baker. BSc(Hons), Dip. Arb. (RFS), M. Arbor A.

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Rupert Baker
49 East St
Ashburton
Devon
TQ13 7AQ
Tel 01364 652217
Mob 07875 572487
e-mail 1: rupert_baker@tiscali.co.uk
e-mail 2: elaineandrupert@hotmail.com
www.rupertbaker-treeconsultant.co.uk

Client:
Stoke Gabriel Parish Council, c/o Parish Clerk,
Karen Gilbert,
Jollylane Cottage,
Hexworthy,
Yelverton,
PL20 6SD

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Report prepared by Rupert Baker BSc (Hons), Dip Arb (RFS), M Arbor A.
Is a consultant and plantsman who works in arboriculture, horticulture and forestry, though he also 'gets his hands dirty'. He has over 40 years' experience in these fields, and manages, inspects, and reports on trees and woodlands, and manages, designs, plants and establishes orchards, arboreta and gardens.
He keeps his qualifications up to date with courses, research, and discussion. He is a member of the Royal Forestry Society, Arboricultural Association, and the Tree Register of the British Isles. He carries out tree surveys, assessing for risk using the QTRA system, and surveys in relation to development; veteran tree management, woodland planting and management plans, arboretum and garden design and layout.
He is fully insured for Professional Indemnity and Public Liability in respect of tree and woodland surveys, and for carrying out works for clients.
In addition to his own work, he serves as the Arboricultural consultant to the Royal Horticultural Society (RHS) for the Chelsea, and Hampton Court Flower Shows.

1.0 The Purpose of the report

To carry out an inspection to assess the health and condition of trees growing in the wood, the risks they pose, and to offer advice on the management of the wood, and recommend safety work where necessary. Some of the trees are a potential threat by reason of their proximity to adjacent footpaths, properties and their gardens, and access drives or tracks.

2.0 Summary of findings. There were a few trees with basal decay or other stability issues, some of which should be felled to reduce the risk they pose. Given the high percentage of Ash trees in the wood, and the evident presence of Ash Dieback (Chalara fraxinea), it is likely that you will lose the majority of the Ash in the Copse within the next 2-3years. This will change the look and structure of the copse out of all recognition; and contingency plans for its management should be drawn up. Although Ash is an excellent species for firewood, there is likely to be a glut on the market, so finding a local firewood contractor who would fell and remove the trees in exchange for the wood, whilst an ideal solution, may be difficult. The wood will become dangerous to walk through once Chalara has affected trees sufficiently to show major crown dieback; and you may need to consider closing it to public access until affected trees have all been felled.

3.0 **The methodology and limitations of the report**.

3.1 The inspection of the trees on site was carried out from ground level. The weather at the times of the inspections was bright and sunny with good visibility. The inspection comprised a walkover of the woods with the volunteer warden for the woods, Phil Bolt; with an examination of the above-ground parts of trees noted as having defects or posing a potential threat, together with their rootzones. A visual inspection was carried out, a sounding hammer and probe being used to search for the presence of decay and cavities, and the crowns examined, with binoculars where necessary. Specific trees where there

was a potential issue are noted in the attached tree schedule. Measurements are given in metric, in metres(m) and centimetres(cm). The diameter class of the trees recorded was estimated to allow assessment of risk under the QTRA system, and to provide information for management.

3.2 Following the inspection, a QTRA (Quantified Tree Risk Assessment) was carried out to give an objective appraisal of the risk posed by the trees. The figures from this, together with the trees' dimensions, are appended separately as the tree schedule, with the results discussed in the body of the report.

3.3 The report is valid for a period of eighteen months from the date of survey. The condition of the trees, and their immediate surroundings, can change as a result of climatic conditions, severe weather, and the effect of diseases, pests, and abiotic factors.

4.0 <u>Site description and description of the trees.</u>

4.1 Hoyle Copse is a secondary semi-natural woodland that has grown up on land that was formerly part of a quarry workings- the eastern section, or a farm orchard (the western section) (see OS 1:2500 maps dating between 1888 and 1954, when it was still rough land and orchard). It stands on an outcrop of Devonian reef limestone of the Brixham Limestone formation, formed 300millioon years ago. Soils here are of the Crwbin Series - shallow 'skeletal limestone' loams, with some deeper deposits on the lower ground and slopes. (source, BGS and SSEW maps, and on-site observation).

4.2 Please see the attached plan for the locations of the individuals and groups of trees found during the inspection to have defects or pose a potential threat to safety

4.3 The copse is exposed to winds from all directions; especially from southerly and SW winds funnelling up the Dart estuary. The land rises from 30 to 60m above sea-level, from SW to NE approximately.

4.4 The woodland has grown up as natural regeneration of un-grazed land, showing species typical of such regen. – Ash, Hawthorn, Field Maple - with some larger mature trees that would once have been field or hedgerow specimens, and one large mature Beech, which would have been a Victorian planting. The Quarry is marked as abandoned on the 1888 map; and the stands of Ash and Hawthorn are very much younger; most trees being of the order of 30-50 years old. It has a network of paths running through it, an old quarry and lime kiln, and several entrances; there is a flat, grassed area on the eastern side.

4.5 The attached Tree Schedule lists the trees, with their diameter at breast height, maturity, condition, risk rating parameters, and a brief description and/or comment. It gives figures for the QTRA assessment of risk. Please refer to the schedule for details of individual trees.

4.6 Several of the trees showed defects sufficient to warrant removal, or careful monitoring; they are listed in the schedule, with an asterisk against each one.

5.0 **<u>The implications of the survey data, and recommendations.</u>**

5.1 This risk was assessed using the QTRA system; the inputs and risk ratings generated are laid out below. Briefly, it involves an inspection to assess the likelihood of a tree, or a part thereof, failing in the following year; combined with an assessment of the size of the part likely to fail (to give a numerical rating to the damage it could inflict when it fails), and an assessment of the likelihood of the target area being occupied by vehicles, pedestrian, or structures. In the case of structures, the value of the structure is taken into account. These ratings are then used to derive an overall annual risk rating. So a decayed tree well away from a target would be given a low rating; one with small limbs likely to fall would also be given a low risk rating; whereas an unstable tree close to a target, be it a road, structure, or people, would be given a high risk rating. See the appendix at the end of the report for a fuller description of the system.

5.2 Recommendations for tree works.

T2 Horse-chestnut 20cm dbh. In grass area to NE of sheds; badly affected by horse-chestnut bleeding canker (Pseudomonas syringae Var. aesculin). Suggest felling

T3 Ash Three-stemmed; 40+cm dbh x 3. Tree stands on bank above track in from Aish Rd, S side of wood. Heavy ivy growth on tree should be cut.

T5 Ash +Holm Oak 40-60cm dbh. A pair of trees growing from a common base, with intermingled root systems. The trees grow leaning to south over a low cliff edge to the adjacent field. Heavy ivy growth on trees should be cut to reduce wind-loading on their root systems

T8 2 Ash, 40cm dbh. North of SW corner, below path; have moved in ground. I recommend felling them to avoid the loss of a section of the path when they collapse.

T9 2 Ash, 10cm dbh. Two small Ash, upper side of path. Both with basal decay; Fell.

G1 Ash, Oak, 10-50cm dbh. Running up to top of steep path; an Oak with regen Ash and Hazel below. One decayed Ash has been marked to fell.

T10 2Ash, 10-25cm dbh. By path down to Hoyle Lane &Cottages. 2 Ash marked to fell by WPD (electricity line company). I suggest contacting them about these trees and the marked one part of T11 below.

T11 3 Ash, 20-40cm dbh. A group of larger ash NW of quarry, by path going north. Two trees with basal decay, marked by me; one marked by WPD at an earlier line survey. All three should be felled; if you can persuade WPD to get their contractors to do it, so much the better (the two marked by me have basal decay and are a threat to the lines as well as to users of the Copse.

5.3 Re-inspection.

Given the relatively low level of target associated with the Copse, a three-year interval would normally be suggested. However, the presence of Chalara Fraxinea (Ash Dieback) means that the condition of many of the trees in the copse is almost certain to change for the worse over a much shorter time period. I'd suggest the trees close to significant targets should be re-examined at a future survey during the late spring/early summer of 2022. Assuming that Chalara does start affecting the Copse sooner than that, I would be happy to assist in assessing the level of risk, and suggesting ways in which the risk, and the subsequent replanting or regeneration of the wood could be managed.

5.4 Chalara Ash Dieback (aka Hymenoscyphus fraxineus)

This pathogen has now established itself in Devon, and was evident on some trees in your woods. Evidence from abroad (Denmark) where the disease has been established for longer, suggests that affected trees become infected with Honey-Fungus (Armillaria mellea agg.) as a secondary pathogen; this can quickly render them unstable. Experience on a highway site in Torridge District was that trees so affected become fragile and break up on felling; being too unstable to risk sending a climber up if dismantling, and potentially hazardous to fell. Current advice is to wait until symptoms are clearly present – to avoid felling potentially resistant trees; and then fell them promptly, whilst they are still reasonably stable.

6. Arboricultural Constraints

6.1 Legal Constraints:

The trees are not covered by a Tree Preservation Order, and no permission is needed before carrying out work. Because those recommended for felling are dangerous, the Forestry Act limits on felled metreage before a licence is needed are not applicable.

6.2 Ecological considerations

It is an offence to disturb nesting birds, or to injure or disturb bats or damage their roosting sites. Prior to carrying out any work on the trees, the contractors carrying out the work should examine them to ensure that there are no nests or roosts present in the tree.

5.3 Specification for Tree Works

Any specific tree work operations shall be carried out as per BS3998:2010 and any amendment or re-enactment thereof.

Rupert Baker BSc (Hons), Dip Arb (RFS), M Arbor A 19th June 2019

QTRA Table for specific trees in Hoyle Copse, surveyed 26th April 2019

Tree No.	Genus & species	dbh	Age	Cond	SULE	Target	Impact	Failure	Risk	Comments & recommendations
T1	Ash, Fraxinus excelsior	100	OM	F	5-10	3	1	4	1:400k	A fine old veteran; hollow, and heavily crown-reduced. Appears sound enough to retain at present. See report re Chalara and its effect on Ash in general.
T2 *	Horse-chestnut Aesculus hippocastaneum	20	YM	P	0-5	3	3	4	<1:1m	In grass area to NE of sheds; badly affected by horse-chestnut bleeding canker (Pseudomonas syringae Var. aesculin). Suggest felling
T3 *	Ash	40+ x 3	M	F	10+	3	2	5	<1:1m	Heavy ivy growth on tree should be cut. Tree stands on bank above track in from Aish Rd, S side of wood.
T4	Ash	80	M	G	20+	3	2	5	<1:1m	A large mature specimen in a glade on N side of path; appears sound and healthy at present.
T5 *	Ash +Holm Oak (Quercus ilex)	40-60	M	G	40+	4	1	5	<1:1m	A pair of trees growing from a common base, with intermingled root systems. The trees grow leaning to south over a low cliff edge to the adjacent field. Heavy ivy growth on trees should be cut to reduce wind-loading on their root systems
T6	Oak, Quercus robur	90	M	P-F	10+	3	1	4	1:400k	Large mature tree with nest-boxes. Basal decay from Ganoderma resinaceum; bracket on path side. Monitor.
T7	Oak	90	M	P-F	10+	3	1	4	1:400k	Down slope towards corner; lower side of path. Basal decay from Ganoderma resinaceum. Monitor.
T8 *	2 Ash	40	M	P	0-5	4	P	3	1:300k	North of SW corner, below path; have moved in ground, I recommend felling them to avoid loss of path when they collapse.
T9 *	2 Ash	10	M	P	0-5	3	3	3	1:500k	Two small Ash, upper side of path. Basal decay; Fell.
G1 *	Ash, Oak	10-50	YM-EM		0-5	3	3	3	1:500k	Top of steep path; an Oak with regen Ash and Hazel below. 1 decayed Ash marked to fell
T10 *	2Ash	10-25	YM	P	0-5	3	3	4	<1:1m	By path down to Hoyle Lane &Cottages. 2 Ash marked to fell by WPD (electricity line company) They need a reminder!

T11 *	3 Ash	20-40	M	P	0	3	2	3	1:100k	Group of ash NW of quarry, by path going N. Two trees with basal decay, marked by me; one marked by WPD at an earlier line survey. All three should be felled.
T12	2 Ash	20-40	M	P	5-10	3	2	4	1:500k	A pair of trees with old fire damage at the base; monitor for ingress of basal decay.
T13	Ash	25	EM	P	0-5	3	2	3	1:100k	Basal decay NW side; consider felling in next 2 years.
T14	Beech Fagus sylvatica	90	M	G	10+	3	3	5	<1:1m	A fine large specimen; rather surface rooted; sound at base.

NB: SULE ratings for Ash trees ignore the effects of Chalara Ash Dieback; some few of your trees may be resistant to the disease. See report

Notes:

Genus and species: starts with common name where one exists, then botanical name. Where the same species re-occurs on the schedule, common name only is used thereafter

dbh: diameter at breast height (1.3m above ground) in centimetres.

Age Class –YM -Young-Mature; EM – early-mature; M: Mature; OM: Overmature.

Condition – G= Good; P= Poor; F= Fair; D= Dangerous. P-F = an intermediate stage.

SULE: Safe Useful Life Expectancy. How long the tree is likely to remain both safe and providing a positive aesthetic benefit in its current state. A tree rated with a SULE of 40+ years may well live for centuries; but no human can predict this accurately. The SULE timeframes are given assuming that any recommended works are carried out.

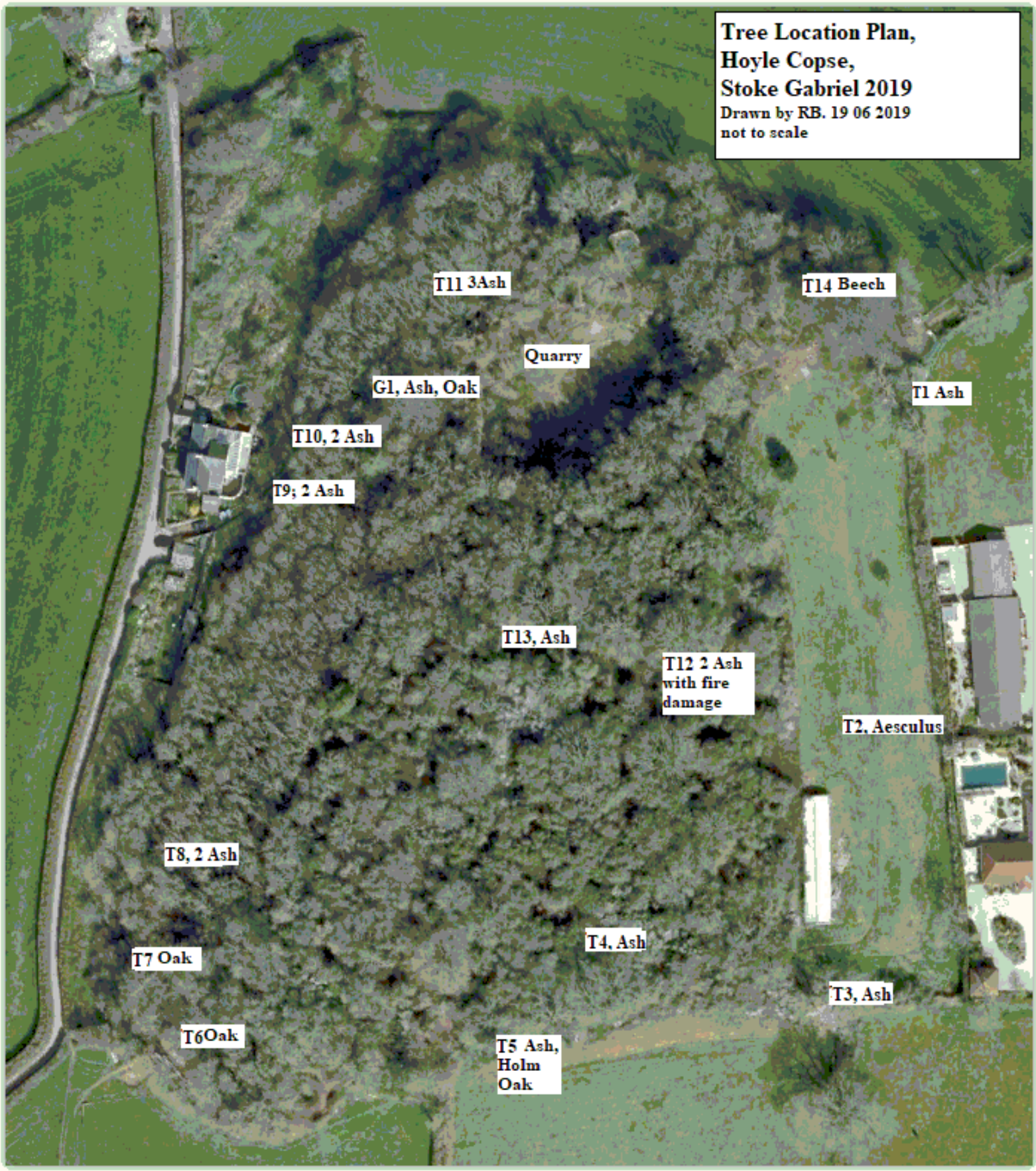
QTRA Parameters:

Target: the statistical rating of the degree to which the tree/s have a target within falling distance, be it a building, people, or vehicles. See report for derivation of target figure.

Impact: the rating given to the size of the tree or part of the tree likely to hit the target if it fails – ie how much damage it is likely to cause.

Failure: the likelihood of the tree failing within the next year

Risk: the overall risk of the tree (or part of it) failing *and* causing damage or harm within the next year.


Tree Location Plan,
Hoyle Copse,
Stoke Gabriel 2019
Drawn by RB. 19 06 2019
not to scale
T11 3Ash
T14 Beech
Quarry
G1, Ash, Oak
T1 Ash
T10, 2 Ash
T9; 2 Ash
T13, Ash
T12 2 Ash with fire damage
T2, Aesculus
T8, 2 Ash
T4, Ash
T7 Oak
T3, Ash
T6Oak
T5 Ash, Holm Oak

What is Quantified Tree Risk Assessment? A Non-technical Summary

1.0 Tree safety management is a matter of balancing the Risk of Harm from falling trees with the benefits from trees. Although it may seem counter intuitive, the condition of trees should not be the first consideration. Instead, tree managers should first consider the usage of the land on which the trees stand, which in turn will inform the process of assessing the trees. Quantified Tree Risk Assessment (QTRA) applies established and accepted risk management principles to tree safety management in accordance with ISO 31000:2009, *Risk management – Principles and guidelines*, which is published by national standards agencies. By quantifying the Risk of Harm as a probability, QTRA enables the tree manager to manage the risk from tree failure to widely accepted risk thresholds.

2.0 Using the QTRA approach, the land-use (people and property) upon which trees could fail is assessed and quantified first. This enables tree managers to determine whether or not and to what degree of rigour a survey or inspection of the trees is required. Where necessary, the tree or branch is then considered in terms of both size (potential impact) and probability of failure. Values derived from the assessment of these three components are combined to calculate the risk of harm as a probability, which can then be compared to advisory levels of risk acceptability.

3.0 The method moves the management of tree safety away from labelling trees as either 'safe' or 'unsafe', thereby requiring definitive statements of tree safety from either tree surveyors or tree managers.
Instead, QTRA quantifies the risk of significant harm from tree failure in a way that enables tree managers to balance safety with tree value and operate to predetermined risk thresholds.

4.0 By taking a QTRA approach to tree risk, tree managers commonly find they spend less resources on assessing and managing tree risk, whilst maximising the benefits their tree populations provide. Furthermore, in the event of a 'tolerable' or 'acceptable' tree risk being realised, they are in a robust position to demonstrate that they have acted reasonably and proportionately.

5.0 Briefly, it involves an inspection to assess the likelihood of a tree, or a part thereof, failing in the following year; combined with an assessment of the size of the part likely to fail (to give a numerical rating to the damage it could inflict when it fails, based on its likely weight), and an assessment of the likelihood of the target area being occupied by vehicles, pedestrian, or structures. In the case of structures, the value of repairs to the structure is taken into account. These ratings are then used to derive an overall annual risk rating. So a decayed tree well away from a target would be given a low rating; one with small limbs likely to fall would also be given a low risk rating; whereas an unstable tree close to a target, be it a road, structure, or people, would be given a high risk rating.

6.0 The ratings produced by the system give the likelihood of a tree or a part of it failing, *and* causing damage or injury, in the following year. It should be noted that trees with low risk ratings may still fail or shed limbs; but their target rating will be sufficiently low that, even if they do fail, they are unlikely to cause damage or injury.

7.0 In safety terms, one must apply the Tolerability of Risk framework (ToR) to QTRA. There are three threshold values. A Risk of Harm (RoH) less than 1:1,000,000 is broadly acceptable and already 'As Low As Reasonably Practicable' (ALARP). A RoH of 1:1000 or greater is unacceptable and should not ordinarily be tolerated. Between these two thresholds, the RoH may be tolerable if it is ALARP; but a Risk of Harm of 1:10,000 or worse will not be Tolerable where it is imposed on others, such as the public.

7.1 Where risks are in the range 1:10,000 to 1:1m, management decisions must be made, considering the benefits and costs of risk control, including the benefits provided by trees that might be lost to risk control measures.

8.0 A description of each parameter:

Target rating. This is calculated in relation to the degree of occupancy by people and passing vehicles, and the presence of potential targets such as property, which have a repair or rebuild cost, or an intrinsic value. The targets and rates of use within reach of the trees were assessed during inspection,

Impact rating This relates to the size of the tree or piece of tree most likely to fail; on the basis of that the level of damage or injury that is likely to arise will be proportional to the size of the failed part. They are banded into diameters: rating 1= 450mm+ diameter, rating 2= 250-450mm, rating 3= 100-250mm, rating 4= 25-100mm. Trees are rated according to their species, crown architecture, and condition; so a large oak with sound unions, sound at the base, but with evidence of past limb-loss might be given an impact rating of 3 on the basis of the size of branch most likely to fail.

Probability of Failure rating: This records my assessment of the likelihood of failure of the tree or its relevant part within the next year, set out in bands, and based on an assessment of the tree's condition. The bands increase by a factor of ten each time – from Band 1, 1:1-1:10, to Band 6, 1:100,000-1:1million.

9.0 Risk rating – Risk of Harm.

Is a compound of the above inputs, to give an overall risk of the tree or a part failing, hitting someone or something, and causing damage or injury, in the next 12 months, worked out by an algorithm developed as part of the system, relating to a range of outcomes calculated using Monte Carlo simulations (a statistical method of improving the realistic accuracy of probabilities).

10.0 When controlling risks from falling trees, the benefit of reduced risk is obvious, but the costs of risk control are all too often neglected. For every risk reduced there will be costs, over and above the financial cost of implementing the control measure. Other costs include the transfer of risks to tree-workers; and most trees confer benefits in aesthetic, habitat, or historical terms, the loss of which should be considered as a cost when balancing the costs and benefits of risk control.