



NORTH WALES TREE CONSULTANCY

Maes Y Pant QTRA 2023

Client:

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1 Introduction and Methodology

1.1 Brief

This report has been compiled at the request of Ian Happs on behalf of Maes Y Pant community woodland. The survey and associated report have been produced by Peter Gardner *BSc Conservation with Forestry, Lantra PTI, Cert Arb L2 (ABC) MArborA* a qualified arboricultural consultant with 13 years industry experience on 28/03/2023. The client has concerns regarding the safety of a group of large pine trees located on the southwest and southeast boundaries of Maes y Pant which border residential properties.

1.2 Scope

- Assess the physiological and structural condition of the agreed trees using ground level Visual Tree Assessment (VTA) method.
- Identify and value targets the surveyed trees could cause harm to.
- Using the Quantified Tree Risk Assessment (QTRA) methodology, assess the risk all pine trees along the southeast and southwest boundary pose to residential property.
- Produce a tree location map of the assessed trees.
- Tag trees with a unique identification tag which corresponds to the site map produced.
- Make management recommendations to lower the risk trees pose to acceptable levels.

This document consists of:

1. Survey findings and recommendations which detail the key finding and work recommendations to lower the risk to acceptable levels.
2. Tree location Map (figure 1) and supplied as a separate PDF, detailing the position of the trees and their unique tag number.
3. Survey data sheet detailing all the onsite measurements, observations and QTRA calculation data.

1.3 Methodology

Visual Tree Assessment (VTA) was used to assess the overall condition of the trees, the height, diameter at 1.5m and general condition were recorded. The data sheet is located in Appendix 2.

The Quantified Tree Risk Assessment (QTRA) method was used to assess the Risk of Harm (RoH) posed to persons or property. This method considers four aspects:

- Target – The term “target” refers to traffic, persons or property most likely damaged or harmed in the event of tree failure.
- Target Range – Defines how long the target is occupied for ranging from constant e.g. a tree within falling distance of a house (the house is always there) to infrequently e.g. a tree in the middle of a field. For persons and vehicles an average constant occupancy period per day is calculated.
- Size – The size of the of the tree or branch most likely to fail.
- The probability of failure (PoF) – This aspect considers, the physiological and structural condition of the tree and site characteristics to estimate the likelihood of the tree or branch failing under normal conditions within the next year.

The data collected for these four aspects is inputted into the QTRA software calculator and the RoH is given as a probability e.g. $<1/1,000,000$. This probability is then compared to the guidance set by the HSE (*Reducing Risks: Protecting People 2001*) which advises on probability thresholds for the risk of death to workers and members of the public. These thresholds range from:

1 in 1,000,000 which the HSE regards as “Broadly acceptable” meaning no work to make the risk lower is necessary,

to

1 in 1000, which is regarded as an “Unacceptable risk” meaning management work is definitely required to reduce the risk of harm

Trees that fall in between these two thresholds are considered “Tolerable”, but this is still a region in which management can be used to reduce the risk with the aim to reduce to the risk to “As Low As Reasonably Practicable” (ALARP). Once the risk is ALARP that indicates that further management to reduce the risk would be disproportionate to the benefit gained either for financial reasons or because the RoH to the persons conducting management is greater than the initial RoH. For more information about the QTRA method please visit www.qtra.co.uk.

The survey will identify the RoH posed by individual trees and tree groups to the “Targets” identified, recommendations of ways to lower the RoH are made if the risk is not “Broadly acceptable” or “Tolerable” by HSE guidance.

It is the client’s responsibility to manage any risk identified. See appendix 1

1.4 Limitations

This survey comes with limitations listed below:

- The assessment for the trees was conducted from the ground therefore issues high in the crown may not be visible, if an aerial inspection is required this will be detailed in *Section 3 Recommended Works*.
- No decay inspection equipment was used therefore the extent of decay in the tree is unknown if further inspection is deemed necessary this will be detailed *Section 3 Recommended Works*.
- No subterranean investigation was conducted during this survey therefore the condition of the roots is unknown. If a subterranean survey is deemed necessary, this will be detailed in *Section 3 Recommended Works*.
- Trees are dynamic living organisms in a dynamic environment and as such can be unpredictable in inclement weather and respond in ways no one could reasonably foresee. **No tree can ever be guaranteed 100% safe**, all trees can fail under extreme conditions therefore the Probability of Failure PoF is calculated for normal cyclical conditions within a timeframe of 1 year.

2 Section 2 - Survey Findings

2.1 Key points

- 18 individual trees were surveyed and 1 tree group.
- The general health of the Corsican pine population is considered good, no major physiological or structural defects were observed.
- Ground levels have been increased from dumping of garden waste and rubble around trees tagged 240, 243 and 247. Ameliorating these levels is recommended to facilitate the long-term safe retention of the trees.
- All trees and groups surveyed pose an “acceptable” or “tolerable” level of risk to the targets identified.
- Trees tagged 240-250 & 253 are not located within falling distance of the main properties and therefore only pose a risk to sheds, outbuildings, fences and garden furniture.

2.2 Site description

The trees surveyed are located along the southwest and southeast boundaries of Maes Y Pant (figure 1). These trees are located on the rear garden boundary of residential houses on Whiteway Drive, Winchester Way and Pant Lane. A fence line separates the boundary, the southwest boundary trees are located at the bottom of a steep bank that rises to the public footpath within Maes Y Pant.

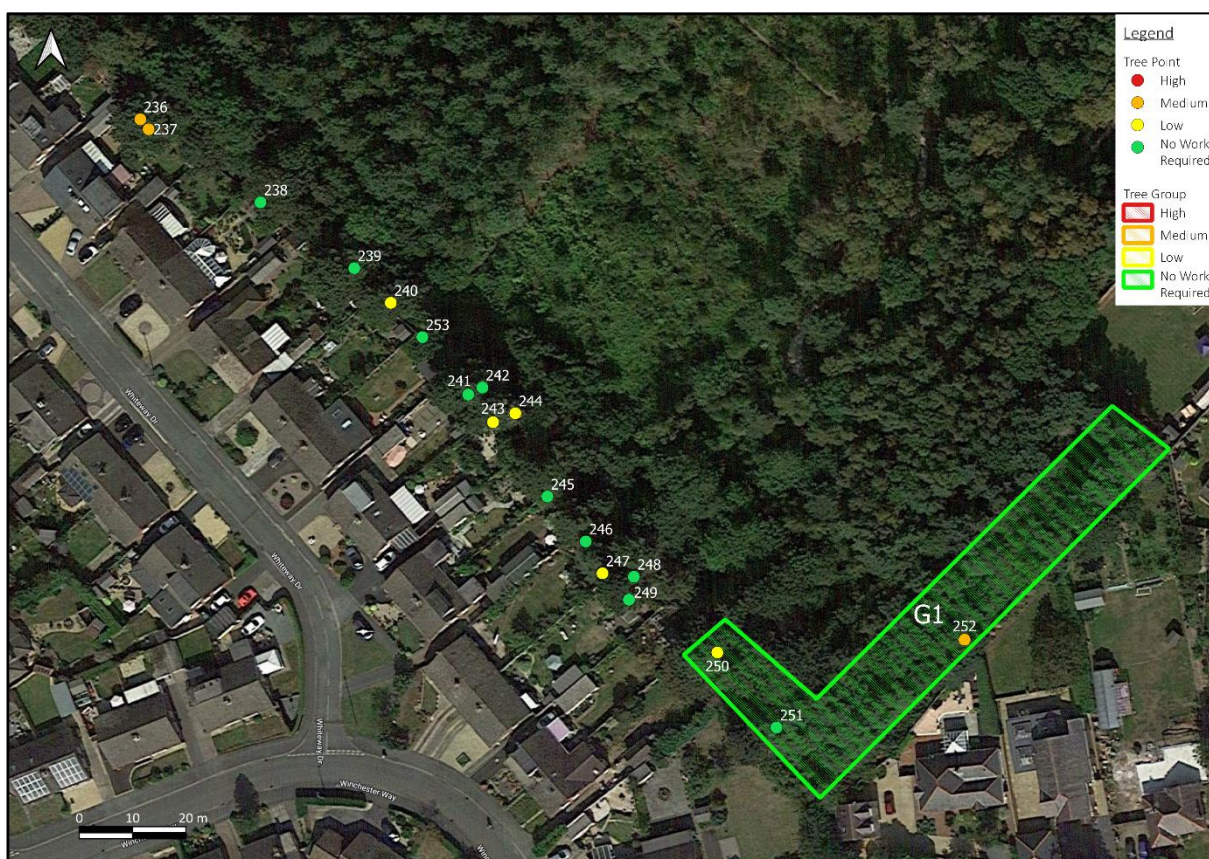


Figure 1 Tree location map

2.2.1 Statutory designations

All trees surveyed are subject to a group Tree Preservation Order ref. WCBC No 1, therefore permission must be obtained from the local authority arboricultural officer before any tree management can be undertaken.

2.2.2 Tree population

Trees tagged 236-251 & 253 are mature and semi-mature Corsican pine (*Pinus nigra* var. *maritima*) ranging from 12-25m in height. Tree 252 and G1 are semi-mature Scots pine (*Pinus sylvestris*) a younger group of more densely arranged stems ranging from 12-14m in height located on the southeast boundary.

No major defects were observed that pose a risk to the residential properties, the needle density within the tree crowns was generally good an indication of good vigour.

2.2.2.1 Deadwood

Only minor deadwood stubs were observed normal for the species and age class, no large dead limbs were observed indicating good structural and physiological condition.

2.2.2.2 Presence pathogens

No evidence of pathogens was observed, needles were inspected specifically *Dothistroma septosporum*, red band needle blight, a pathogen to which pine species are particularly susceptible but no evidence was found. Thinning of needles was observed on several trees (238 & 240) however no direct cause was identified (see 2.2.2.5). All tree bases were inspected for evidence of decay pathogens, none were observed.

2.2.2.3 Exposure

The tree population is subject to prevailing south-westerly winds (figure 1) as a result the majority of stems have a slight lean to the northeast, away from the residential properties. These trees are



Figure 2 236 spiral bark pattern from torsional wind loading

mechanically dependent upon one another in the wind therefore any management of individuals must consider the potential for exposing and destabilising other trees along the boundary which may increase the risk they pose. No wind damaged limbs were observed during the survey indicating the tree crowns are well adapted to the site conditions. Tree 237 and 243 have both suffered wind snap of the main stem leaving a ~10m stem. Tree 236 shows evidence of torsional wind loading on the stem through the spiral bark pattern (figure 2). This is the tree reacting to high wind forces acting on a large lateral branch which is more extreme of the crown than the other lateral branches (figure 3). Reduction of this limb to make a more aerodynamic crown shape will reduce the wind loading on this limb and the torsional wind loading on the main stem.



Figure 3 Tree 236 extreme lateral limb subject to high wind loading

2.2.2.4 Ivy on trees

It is recognised that ivy in trees is important habitat for nesting birds, bats and invertebrates, ivy is also an important winter food source for birds. However, the scope of this survey is to identify the risk the trees pose, while it is undesirable to remove ivy in a woodland context this habitat and food source is not being removed from the woodland as a whole, just from trees that pose a potential risk to property.

This habitat is still available throughout Maes Y Pant therefore the impact on wildlife is expected to be minimal.

Removal of ivy and climbers growing on the trees helps facilitate regular inspection of the trees scaffold and bases enabling quick identification of any changes in condition. Furthermore, prevention of dense ivy developing in the tree crowns ensures that wind loading is kept to a minimum (Lonsdale, 2020; Mattheck, Bethge, & Weber, 2015). Tree 244 has a dense climber and ivy growth that requires removal.

Removal of ivy should always be done outside of bird nesting season (March – August inclusive) with hand tools to prevent damage to the tree. If it is essential to remove ivy within nesting season a qualified ecologist should be employed to supervise the works.

2.2.2.5 Ground level Change

Several trees, 240, 243 & 247 have had the ground level within the rooting zone (RZ) increased through the dumping of garden waste and rubble (figure 4). Significantly increasing the ground level within the



Figure 4 Tree 240 increased ground levels

tree RZ can compact the soil reducing the pore space for oxygen within the soil required by tree roots to survive. This may account for the sparse needle density observed in tree 240 as fine root mortality can be mirrored in the crown through defoliation.

2.2.2.6 Proximity to targets

Except for trees 236, 237, 238, the majority of trees are either, only marginally within falling distance of the main properties i.e. only small diameter upper branches would make contact in the event of whole tree failure at the base. Or not within falling distance of the main property, for this reason the risk the trees pose to the main properties is generally low. The most likely targets to be affected in the event of branch or tree failure are garden sheds and fences.

2.2.2.7 Structural defects

Trees 253 (figure 5) and 244 both have bark inclusions at major stem unions, these unions are weak and can fail in high winds (Lonsdale, 2020). However due to the orientation of these junctions and the likely direction of failure they both pose a low risk to the residential properties as they would likely fail away from the properties. For both trees these failures would pose a risk to the footpath however this



Figure 5 Tree 253 included union

risk is considered low because the footpath is not constantly occupied, furthermore it is a weather affected target i.e. the occupancy of the footpath will be lower during extreme weather conditions required to make the stems fail.

2.3 QTRA Assessment criteria

2.3.1 Target Calculation

Trees and groups were assessed for whole tree or branch failure. Targets identified were:

- Residential properties with a constant occupancy – target range 1 valued at £200,000 – £2,000,000
- Garden sheds and summer houses - target range 3 valued at £2,000 - £20,000
- Smaller garden sheds – target range 4 valued at £200 - £2,000
- Garden furniture and fence panels – target range 5 valued at £20 - £200

The Probability of Failure (Pof) is calculated for each individual tree or group based on the assessed physiological and structural condition and other factors influencing the trees/groups stability such as exposure to wind, poor rooting environment, pests and disease and past management. Recommendations for work are based on the following considerations:

- Is the RoH going to increase decrease or stay the same if we do nothing?
- Is the cost of decreasing the RoH disproportionate to the benefit gained?
- Is the RoH as low as reasonably practicable?
- Do we need more information?

A full breakdown of the calculation is detailed in Appendix 2.

This assessment is made for normal cyclical weather patterns within the timeframe of 1 year i.e. is this tree likely to fail with the next year under normal conditions?

2.4 Survey findings summary

Due to the minimal deadwood, no evidence of pathogens, minimal evidence of structural damage from exposure, the general structural and physiological condition of the trees surveyed is considered good. No defects presenting a foreseeable risk to the residential properties were observed. As a result, under the QTRA assessment criteria the Risk of Harm (RoH) posed by all trees was "broadly acceptable" with the exception of tree 252 which was "tolerable" (ref Appendix 1). No trees or groups surveyed posed an unacceptable risk.

Table 1 Summary of survey findings

Category	Tree ID	Group ID
Trees/Groups posing acceptable risk – monitor only	238, 239, 253, 241, 242, 245, 246, 248, 249, 250, 251,	G1
Tree/Groups posing acceptable risk – work recommended	236, 237, 240, 243, 244, 247, 252	none
Trees/Groups posing unacceptable risk – work required	none	none

3 Section 3 - Recommended Works

3.1 Overview

It is important to consider the limitations of the QTRA methodology, it is to be used alongside a long-term common-sense approach to tree management. Lack of appropriate, regular and well-timed management of trees bordering property will likely result in 'crisis management' with increased major work becoming necessary and a high associated cost. The aim of QTRA risk assessment is to make the risk As Low As Reasonably Practicable (ALARP), to achieve this, regular low impact maintenance will ensure the risk remains ALARP and the trees remain an appropriate size for the space in which they occupy. It is always useful to revisit the following questions

- Is the RoH going to increase decrease or stay the same if we do nothing?
- Is the cost of decreasing the RoH disproportionate to the benefit gained?
- Is the RoH as low as reasonably practicable?
- Do we need more information?

The above considered work recommendations have been made for trees which pose an acceptable risk with the aim to facilitate long term retention.

All remaining trees should be regularly monitored and recorded by the client to fulfil their ongoing duty of care under the *Occupiers' Liability act 1957 & 1984* aiming to assess if the tree condition has improved, declined or stayed the same. If further decline is noted in any remaining trees the client should seek advice from a trained arboricultural consultant.

3.2 Trees - Recommended work Low Priority

The following trees have low priority recommendations, the risk these trees pose is already considered to be "broadly acceptable" and therefore these are preventative recommendations to facilitate the safe management of the tree population. **To be complete within 18 months of the survey date.**

Table 2 Trees - Recommended work Low Priority

Tree ID	Recommendation
240	Ameliorate soil levels at base of tree, remove rubble and waste from rooting zone.
243	Ameliorate soil levels at base of tree remove rubble and waste from rooting zone
244	Sever and remove climber and ivy to reduce wind loading and future congestion of crown
247	Ameliorate soil levels at base of tree, remove rubble and waste from rooting zone.

3.3 Trees – Recommended work Medium Priority

The following trees have medium priority recommendations, the risk these trees pose is either "broadly acceptable" or "tolerable", however these risks are imposed on the public and management would help lower the risk to ALARP (see appendix 1). **To be completed within 12 months of survey date.**

Table 3 Trees - Recommended work Medium Priority

Tree ID	Recommendation
236	Reduce lateral at 8m to appropriate growth point at first 90 degree kink to decrease torsional wind loading and increase light to garden manage long-term. (Figure 6)
237	Inspect condition of junction at stem snap out at 8m to determine structural integrity of branch junctions.
252	Reduce overhanging limbs by up to 3m to prevent failure over summer house (Figure 7)



Figure 6 Tree 236 reduce limb at 8m to appropriate growth point, red arrow as guide



Figure 7 Tree 252 reduce crown over hanging shed by up to 3m, re line as guide

The survey findings and calculations are valid for 12 months from the survey date which is 28/03/2023 valid until 28/03/2024. If you wish to discuss any aspect of this survey further, please do not hesitate to get in touch

A re-inspection by a trained professional is recommended in 3 years or one year if significant decline or damage is noted.

All works should be carried out by suitably qualified, insured arborists in accordance with BS3998:2010
Tree Work – Recommendations

Appendix 1 – QTRA Decision framework

Version 1.10

QUANTIFIED TREE RISK ASSESSMENT - RISK DECISION INFORMING FRAMEWORK

Risk Thresholds	Description	Action
1/1 000	Unacceptable Risks will not ordinarily be tolerated	• Control the risk • Periodically review the risk
	Unacceptable (where imposed on others) Risks will not ordinarily be tolerated	• Control the risk • Periodically review the risk
1/10 000	Tolerable (by agreement) Risks may be tolerated if • those exposed to the risk accept it, or • the tree has exceptional value	• Control the risk unless there is broad stakeholder agreement to tolerate it, or the tree has exceptional value • Periodically review the risk
	Tolerable (where imposed on others) Risks are generally tolerable	• Assess costs and benefits of risk control • Control the risk only where a significant benefit might be achieved at a reasonable cost • Periodically review the risk
1/1 000 000	Broadly Acceptable	• No action currently required • Periodically review the risk

Costs and Benefits of Risk Control.

Risk control measures bring benefits in terms of reducing or eliminating a risk, but those benefits come at a cost that should, in broad terms, be balanced against the benefits of risk control. For guidance on considering costs and benefits, please refer to the Quantified Tree Risk Assessment Practice Note, available at to <http://www.qtra.co.uk/cms/index.php?section=25> (due to be updated October 2013).

Based on the tree owner/manager accepting the principles set out in the Quantified Tree Risk Assessment Practice Note and or any other specific instructions, the risk assessor will take account of the cost/benefit balance when providing management recommendations.

Appendix 2 – Survey Data Sheets

Client	Ian Happs	Surveyor	Peter Gardner
Site	Maes Y Pant	Date	28/03/2023

Tag No.	Species	Age Class	Height (m)	DBH (mm)	Tree Data Comments	QTRA Calculations							Management	
						Target	Part Assessed	Target Value range	Reduced mass	Size Range	PoF	RoH	Work Recommendations	Priority
236	Corsican pine <i>Pinus nigra</i> var. <i>maritima</i>	Mature	22	690	Dominant of 2 trees crown biased SW, good needle density. Large lateral 8m SW side branch is horizontal for ~ 6m then kinks 90 degrees to vertical with small diameter lateral branches present potential for torsional loading on limb, no evidence. Codominant stem 10m SW 2 x codominant stems 12m No deadwood of concern Well-formed unions throughout Clockwise spiral bark pattern evidence of torsional loading on stem RZ transected by property patio to SW no evidence of basal decay	Property	Branch	3	100%	Property	5	<1/1m	Reduce lateral at 8m to appropriate growth point at first 90-degree kink to decrease torsional wind loading and increase light to garden manage long-term.	Medium
237	Corsican pine <i>Pinus nigra</i> var. <i>maritima</i>	Semi Mature	12	510	Previously snapped main leader at 8m lateral S side has taken apical dominance. Remaining crown consists of large diameter laterals biased over property condition of top junction undetermined snap out likely inlet for decay, previous pruning work over garden has reduced loading. Dense needles throughout No deadwood of concern Stem slight lean to E away from property RZ transected by property fence	Property	Branch	3	100%	Property	6	<1/1m	Inspect condition of junction at stem snap out at 8m to determine structural integrity.	Medium
238	Corsican pine <i>Pinus nigra</i> var. <i>maritima</i>	Semi Mature	20	540	Crown biased E away from property Slightly sparse needle density possible sign of stress or exposed position 18m from property conservatory No overhanging branches No large diameter lateral branches Stem ivy covered to 10m Stem lean to E away from property Ivy severed at base, no sign of basal decay	Property	Whole Tree	3	100%	Property	6	<1/1m		NWR
239	Corsican pine <i>Pinus nigra</i> var. <i>maritima</i>	Mature	25	960	Dominant open crown good needle density Crown consists of medium diameter lateral branches mainly located on the SW side over the property, branch junctions are well formed throughout. Lateral branches not within falling distance of property only garden shed No deadwood of concern Small branch loss at 4 and 5m W Stem slight lean to S RZ transected by fence and garden shed No sign of basal decay	Property	Whole Tree	1	100%	Property	7	<1/1m		NWR
240	Corsican pine <i>Pinus nigra</i> var. <i>maritima</i>	Semi Mature	16	560	Crown consists of small/ medium diameter laterals biased SW over property. Needle density slightly sparse, evidence of ground level change at base, dumped building waste may be a cause. Branches overhang property fence by 2m pose low risk Junctions well-formed throughout Ivy on stem to 6m No sign of basal decay	Property	Whole Tree	1	100%	Property	7	<1/1m	Ameliorate soil levels at base of tree, remove rubble and waste from rooting zone	Low

253	Corsican pine <i>Pinus nigra</i> var. <i>maritima</i>	Semi Mature	20	490	Compact crown not overhanging property Good needle density Medium diameter bark inclusion of codominant stems at 11m of no concern due to likely direction of failure to NE away from property Straight stem in good condition Historical cambium wounding E from ground level to 1m with resin deposits No sign of basal decay	Property	Whole Tree	1	100%	Property	7	<1/1m		NWR
241	Corsican pine <i>Pinus nigra</i> var. <i>maritima</i>	Mature	22	690	Dominant tree within group of 4x pines Crown biased SW due to suppression from adjacent trees Lateral branches extending 2m over property garden junctions are well formed and pose low risk No deadwood of concern 3x codominant stems 12m unions are in good condition and natural bracing is present Ivy on stem to 6m Rooting matrix shared with adjacent pines no sign of basal decay Stem is 28m from main property and 15m from outbuilding	Property	Whole Tree	2	100%	Property	7	1/1m		NWR
242	Corsican pine <i>Pinus nigra</i> var. <i>maritima</i>	Mature	20	620	Crown forms part of group with adjacent pines Crown biased NE due to suppression from adjacent trees Good needle density Lateral branches are small diameter throughout crown posing no risk to property Codominant stems at 10m, no bark inclusion Ivy covered to 10m No sign of basal decay	Property	Whole Tree	3	100%	Property	6	1/1m		NWR
243	Corsican pine <i>Pinus nigra</i> var. <i>maritima</i>	Semi Mature	10	490	Main leader snapped out at 10m leaving stout tree Lateral branches overhang garden by 4m No deadwood of concern Stem slight lean to SW towards property Climber and ivy adding to wind sail of tree Ground level change around base, building rubble and garden waste No sign of basal decay	Property	Whole Tree	3	100%	Property	6	<1/1m	Ameliorate soil levels at base of tree, remove rubble and waste from rooting zone Sever and remove climber to reduce wind loading on tree	Low
244	Corsican pine <i>Pinus nigra</i> var. <i>maritima</i>	Semi Mature	20	590	Crown space shared with adjacent pines Crown biased SE away from property Crown consists of small diameter lateral branches not within falling distance of property Codominant stems medium diameter ratio bark inclusion at 4m, likely direction of failure to E away from property, stem is also sheltered from westerly winds by adjacent trees Climber present adding to wind sail Stem lean to NE away from property No sign of basal decay	Property	Whole Tree	3	100%	Property	7	<1/1m	Sever and remove climber and ivy to reduce wind loading and future congestion of crown	Low
245	Corsican pine <i>Pinus nigra</i> var. <i>maritima</i>	Mature	20	610	Crown biased NW good needle density Lateral branches not within falling distance of property No deadwood of concern Well-formed junctions throughout Stem lean to E away from property compensatory compression wood formed on E side of stem No sign of basal decay	Property	Whole Tree	3	100%	Property	7	<1/1m		NWR
246	Corsican pine <i>Pinus nigra</i> var. <i>maritima</i>	Mature	20	590	Low value targets Crown consists of small diameter lateral branches overhanging shed roof Good needle density Crown biased NW Stem slight kink at 1.5m slight lean to N No sign of basal decay Tree not within falling distance of main property 30m away	Property	Whole Tree	4	100%	Property	7	<1/1m		NWR

247	Corsican pine <i>Pinus nigra</i> var. <i>maritima</i>	Mature	20	590	Compact crown, crown area shared with adjacent pines Codominant stems, junctions in good condition Few lateral branches, no target Stem fluted reactive growth around base of stem No sign of basal decay dumping of waste in RZ Tree not within falling distance of property	Property	Whole Tree	4	100%	Property	7	<1/1m	Ameliorate ground condition around base to maintain tree in good condition	Low
248	Corsican pine <i>Pinus nigra</i> var. <i>maritima</i>	Semi Mature	19	625	Crown biased NE away from property due to suppression from adjacent trees Crown consists of small diameter lateral concentrated NE side no deadwood of concern Stem lean to NE away from property No sign of basal decay Tree not within falling distance of property	Property	Whole Tree	3	100%	Property	7	<1/1m		NWR
249	Corsican pine <i>Pinus nigra</i> var. <i>maritima</i>	Mature	22	650	Crown biased SW over garden asymmetric due to suppression from adjacent trees Needle density good Well-formed junctions throughout Laterals are small diameter posing low risk No sign of basal decay	Property	Whole Tree	3	100%	Property	7	<1/1m		NWR
250	Corsican pine <i>Pinus nigra</i> var. <i>maritima</i>	Semi Mature	22	530	Crown asymmetric due to historical suppression from removed trees leaving tree exposed High crown at 10m Junctions in good condition Stem in good condition No sign of basal decay Tree not within falling distance of property	Property	Whole Tree	5	100%	Property	7	<1/1m		NWR
251	Corsican pine <i>Pinus nigra</i> var. <i>maritima</i>	Mature	22	740	Dominant tree in woodland boundary Crown biased SW towards property lateral branching concentrated to SW side junctions in good condition not within falling distance of property Stem lean to SW 16m to nearest building top 6m withing falling distance Base in good condition buttresses beginning to form, no landscaping conflicts with rooting zone. No sign of basal decay	Property	Whole Tree	1	100%	Property	7	<1/1m		NWR
252	Scots pine <i>Pinus sylvestris</i>	Semi Mature	12	445	Crown asymmetric biased SE over garden shed Majority of growth overhangs property and is subject to wind loading from SW, suppression from adjacent trees has forced unbalanced crown shape that will likely suffer branch loss in the future. Junctions are well formed and there is no major deadwood of concern Stem and base in good condition	Property	Branch	3	100%	Property	4	1/300k	Reduce overhanging limbs by up to 3m to prevent failure over summer house.	Medium
G1	Scots pine <i>Pinus sylvestris</i>	Semi Mature	14	350	Group of semi mature Scots pine stems with undeveloped crowns No defects present of concern No basal decay present in group Group in good condition posing low risk	Property	Whole Tree	2	100%	Property	6	<1/1m		NWR

References

Lonsdale, D. (2020). *Principles of Tree Hazard Management*. Stone House: Arboricultural Association.

Mattheck, C., Bethge, K., & Weber, K. (2015). *The Body Language of Trees, Encyclopedia of visual tree assessment*. Karlsruhe: Karlsruhe institute of Technology.

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