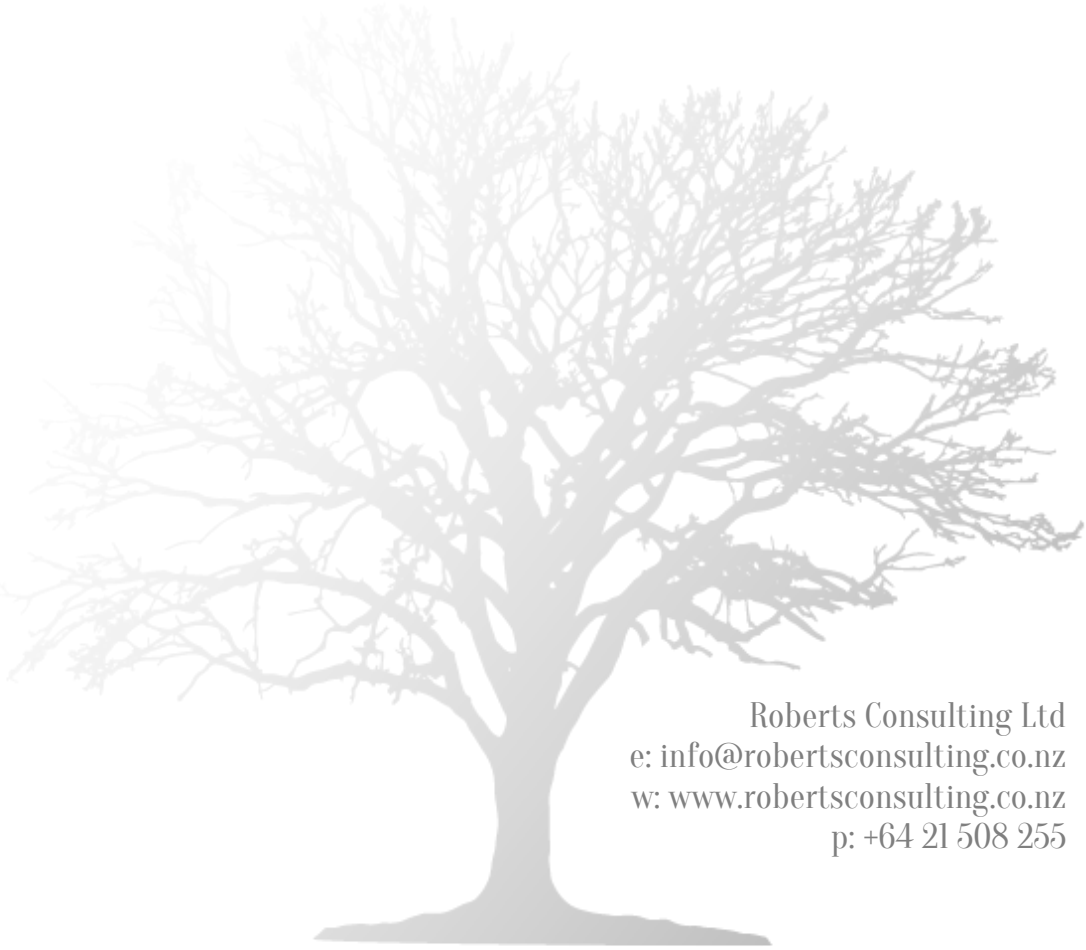
Arboricultural Report

Application to remove scheduled tree T014 (LUC-2024-460)

Prepared for:	Finn Campbell, Dunedin City Council
Prepared by:	Mark Roberts, Roberts Consulting Ltd
Date:	December 3, 2024



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Author:

My name is Mark Roberts and I am the director of Roberts Consulting Limited. Roberts Consulting Limited is an arboricultural collective that provides independent consultancy on arboriculture and tree-related matters including tree risk and hazard assessment, resource consent applications, tree management and maintenance plans, expert witness, Council hearing and mediation, quality and system auditing, and policy and procedure development.

I am an Accredited Member of the Institute of Australian Consulting Arboriculturists, I hold qualifications in horticulture, arboriculture, science (botany), and tree risk assessment. I am a past president of the New Zealand Arboricultural Association and the International Society of Arboriculture and have over 25 years of professional experience.

While this arboricultural report is not for a Court hearing, I confirm that I have read the Court's Code of Conduct for Expert Witnesses, and this report complies with the instructions of that code. I have considered all the material facts that I am aware of that might alter or detract from the opinions that I express.

This report covers both arboricultural matters and other matters. With regards to arboricultural matters, these are within my area of expertise, however, any comments regarding non-arboricultural matters are to be read as lay comments.

Scope of Work:

I have been contacted by Finn Campbell (DCC Planner, Resource Consents) and asked to provide arboricultural comment on an application to remove the scheduled tree T014 at 33 Preston Crescent, Dunedin. The application raises matters regarding the perceived risk the tree poses from limb failure and issues with drainage and the flooding of the unit that's located next to the tree.

Specifically, I have been asked to

i. Assess the arborist's report
ii. Conduct a risk assessment of this tree
iii. Provide options to consider drainage works around the base of the tree to manage the flooding risk

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1. Summary or fact

1.1 The tree is not in terminal decline, and tree health has not been listed as a reason for removal
1.2 The tree has not had any of the recommended maintenance carried out on it for the past several years
1.3 The tree currently poses a low to moderate risk to people and property, but the risk can be reduced and easily managed
1.4 I did not see anything to suggest that the tree was damaging the foundations of the flat/dwelling at the front of the property and a building report was not provided to confirm or suggest that this was occurring.
1.5 Under certain environmental conditions the tree possibly prevents or reduces drainage from the flat/dwelling at the front of the property

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December 3, 2024

RE: Application to remove scheduled tree T014 (LUC-2024-460)

Finn Campbell
City Planning
Dunedin City Council
PO Box 5045
Dunedin 9058

Dear Finn

Thank you for contacting me and requesting my comments on this application. I have been provided with a copy of the Planning Application LUC-2024-460 (lodged 21 November 2024), which contains an Assessment of Effects written by the applicant (Mr and Mrs A O'Byrne) and the arborist report written by William Hagendorn (Eco Tree Care Ltd).

In regard to this application you have noted that there are matters raised regarding the perceived risk the tree poses from limb failure and issues with drainage and the flooding of the unit that's located next to the tree.

You have asked me to:

i. Assess the arborist's report
ii. Conduct a risk assessment of the tree
iii. Provide options to consider drainage works around the base of the tree to manage the flooding risk

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1. Tree condition assessment of the silver beech (*Nothofagus menziesii*) T014

1.1 In your November 26 email [Subject: LUC-2024-460 33 Preston Crescent] you note that ' [the tree] is not indicated to be in terminal decline'.

1.2 Looking at the arborist report, Mr Hagendorn notes that;

a) The root flare of the tree is present and in good health
b) The canopy has a normal amount of foliage
c) [the] previous pruning cuts show normal signs of reaction wood sealing over older pruning cuts
d) Overall, the tree is in fair health

1.3 I assessed the tree from outside the property on the morning of December 2, 2024. I have assessed this tree on several occasions at the request of the Council (DCC) and its various owners over the past four years (see attached correspondence; November 2020, September 2021, June 2022, June 2023, August 2023).

1.3.1 The tree is looking possibly healthier in terms of vigour and vitality than at any of my previous assessments (image one).

1.3.2 There is dead wood in the tree, but no more (perhaps even slightly less) than was noted in November 2020, September 2021, June 2023, August 2023, mentioned in June 2022 (image two).

1.3.3 The tree was in reasonable health, it had good vigour and vitality. The amount of deadwood in the tree appears to be stable, and despite the poorly positioned, degraded, and un-functioning cable supports, the tree appears to be structurally sound.

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2. (i) Assess the arborist's report

The purpose of the William Hagendorn, Eco Tree Care Ltd report was to; *provide an assessment of the tree in question and procedures if any on preservation or removal of the silver beech tree'.*

The report does not appear to confirm or recommend that the tree be removed. The report does not state that the tree is the cause, or the likely cause of damage to the foundations. That the roots are causing flooding, or that the tree poses an unacceptable risk to people or property.

2.1 Mr Hagendorn provides recommendations that can benefit the tree's health, the Proposed Plan. He recommends that

2.1.1 A monitoring programme should be instigated, some remedial maintenance in the form of end weight reduction pruning be carried out, and a cabling support system could be installed. Mr Hagendorn's recommendations are consistent with my August 2023 recommendations in relation to LUC-2023-177.

2.2 Mr Hagendorn's was also asked to comment on the potential damage to the foundation of the flat/dwelling at the front of the property due to roots from the tree.

2.2.1 Mr Hagendorn notes that 'in order to determine if there is any damage or risk to the foundation of the front flat a root inspection is required'. He does not provide any additional information.

2.3 Looking at images included in Mr Hagendorn's report;

2.3.1 The brickwork on the dwelling can be clearly seen in Figures 3, 4, and 5. The lines of bricks appear to be both vertically and horizontally aligned. The walls of the dwelling appear to be straight and true.

If the foundations had moved I would not expect that to be the case.

2.3.2 The footpath next to the dwelling can be seen in Figures 3, and 4. In his report, he notes that the footpath is being raised by the roots. I did not notice this at the time of my assessment.

I cannot recall seeing any cracks nor can I see obvious cracks in the sections of the footpath shown in his images. If the roots were lifting the footpath, I would expect to see cracks in what appears to be a single slab of concrete running the full length of the dwelling.

2.4 In regard to the tree possibly contributing to flooding. Mr Hagendorn notes [that] 'there is a possibility that the root system is contributing to the funnelling of some rainfall towards the front flat'.

2.4.1 Looking at image 3 included in Mr Hagendorn's report there is the drain at the north-western corner of the dwelling. The drain is more or less at the front of the property and the lowest point of the section. The drain sits above the down-pipe which collects water from the roof of the dwelling. The drain opening appears to be at or slightly above ground level.

If the tree's root system was contributing to the funnelling of some rainfall towards the front flat, I would expect the water to flow into the opening of that drain and be taken away.

2.4.2 Mr Hagendorn notes [that] an insurance company has suggested that flooding is occurring in the flat due to the close proximity of the tree and its roots. There is no detail or explanation on how the insurance company has determined that the roots are the primary cause of the flooding.

2.5 In regard to the potential risk if any that the tree poses to the occupants of the dwelling and/or the dwelling. Mr Hagendorn notes;

2.5.1 That 'the tree has been previously risk assessed by a qualified arborist and given a low-risk rating. And, that 'there is no way I can quantify the legitimate feelings of fear and concern expressed by the tree owner'.

2.5.2 He notes that there have been concerns raised of potential risk to the previous and future occupants of this flat. That there are codominant stems with possible included bark, and that there is potential for decay but he was unable to confirm the extent or even if any decay were present.

Mr Hagendorn does mention deadwood, and hangers throughout the canopy. These could pose a risk to people and property, but if they were removed any risk associated with them would also be removed.

2.6 The report concludes that he trusts that the information provided will be used to preserve the tree, or if deemed necessary to remove and replace the tree.

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3. (ii) Conduct a risk assessment of the tree

I am trained and qualified in using the three most commonly accepted international tree risk assessment methodologies; Quantified Tree Risk Assessment (QTRA), Tree Risk Assessment Qualification (TRAQ), and the Tree Risk-Benefit Management and Assessment system called VALID. I am a registered International Society of Arboriculture TRAQ trainer and I teach this methodology throughout Australia and New Zealand.

3.1 I assessed the tree using two methodologies to provide a quantitative (numerical) rating (QTRA) and a quantitative (trait-based) rating (TRAQ).

3.1.1 Using QTRA the risk posed by the tree in terms of catastrophic tree failure onto people and/or property was 1/100,000.

At this score the risk is considered 'tolerable' but risk reduction should be considered.

3.1.2 Using TRAQ the risk posed by the tree in terms of catastrophic tree failure onto people and/or property was 'Low' for the next four (4) years.

Although the TRAQ risk rating was Low, mitigation in the form of maintenance could still be carried out to maintain a low-risk rating going forward.

3.2 Both risk systems have the ability to identify and recommend options for managing risk.

QTRA is a tree asset management tool. At Tolerable, risk reduction benefits should be considered against the cost of implementing risk reduction (i.e. work spent on reducing the risk should lower the risk rating). TRAQ is a tree risk management tool with the ultimate goal of managing the tree at an acceptable level of risk. Some form of risk mitigation is normally recommended with TRAQ.

3.2.1 The risk reduction works that could be done to reduce or maintain the level of risk are basically Mr Hagendorn's recommendations and/or those listed recommendations in relation to LUC-2023-177.

3.2.2 In my June 2023 report for LUC-2023-177, having identified potential risks in the tree I note that; ' the risk associated with those hazards can be managed because they have previously been managed for at least 10 years.

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4. (iii) Provide options to consider drainage works around the base of the tree to manage the flooding risk

The O'Byrnes note that the flooding event of October 3 and 4 was due to 'record rains'. The Building Research Association of New Zealand (BRANZ) recommend that building design should be able to cope with the maximum expected rainfall for the area. The National Institute of Water and Atmospheric Research (NIWA) described the October 4 rain event as the 'wettest day in over a century' (since April 1923). Many drainage systems across Dunedin could not cope with the amount of rain that fell on that day. The volume of water was more than the maximum expected rainfall, and there was more rain than the drainage systems were designed for.

4.1 I am unable to comment on what rainfall the drainage system at the dwelling is designed for. We cannot say with certainty that there will or will not be another rain event equal to that of October 4, 2024, within the next 50 years (50 years being the expected life of a domestic drainage system).

4.2 The O'Byrnes say that the flood was due to drainage issues caused because the tree's root system slopes back towards the home and does not allow the excess water to escape. I am unsure if that was the sole reason for the flooding on October 4.

4.2.1 Looking at the images included in the application, there does appear to be considerable amounts of leaf litter and tree debris (small twigs and flakes of bark) on the ground. It is possible that the build-up of this could have slowed or blocked the movement of water into, or out of the drain at the base of the downpipe. If that were the case then removing leaf litter and tree debris from around the base of the tree and footpath could reduce the flooding potential and/or severity of possible future flood events.

4.3 If the roots have raised the footpath and/or the surrounding soil level to the point where surface drainage has been slowed or reversed (which I am unsure about) then;

4.3.1 Due to the limited area available it would be unrealistic to raise the soil level without compromising the health and stability of the tree, or increasing soil moisture around the base of the dwelling.

4.3.2 Due to the distance between the base of the tree and the building it would be unrealistic to dig new drains without compromising the health and stability of the tree

4.4 If general maintenance on the tree was carried out, and up to 25% of the leaves and branches were removed (i.e. recommended condition 2 of LUC-2023-177) then there would be 25% less of the tree to intercept any falling rain. When a tree 'intercepts' rain the flow of rain is slowed which can reduce peak-loading, but can also extend the effective duration of the rain event.

4.4.1 The possible positive effects of tree pruning on flood management are negated by the negative effects of tree pruning on flood management.

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5. Summary

5.1 The tree has not had any of the recommended maintenance carried out on if and as a result, some of the previously identified dead and dying branches have fallen from the tree.

5.2 The William Hagendorn, Eco Tree Care Ltd report does not appear to confirm or recommend that the tree be removed. The report does not state that the tree is the cause or the likely cause of damage to the foundations. That the roots are causing flooding, or that the tree poses an unacceptable risk to people or property.

5.3 The tree currently poses a low to moderate risk to people and property, but the risk can be reduced and easily managed

5.4 I did not see anything to suggest that the tree was damaging the foundations of the dwelling at the front of the property and a building report was not provided to confirm or suggest that this was occurring.

5.5 Under certain environmental conditions the tree possibly prevents or reduces drainage from the dwelling.

5.6 There are limited options for drainage works around the base of the tree that do not potentially compromise the tree or potentially compromise the dwelling.

As per your request, I have provided a relatively concise report. If you require an explanation of any of the recommendations provided or documentary evidence to support any of the content in this report please do not hesitate to ask.

Yours sincerely

Mark Roberts
Roberts Consulting Ltd

Images:

Image one: Comparative images of scheduled beech tree T014 showing the thickness and distribution of foliage. Image **A** taken on September 10, 2021, image **B** taken on December 2, 2024.

Image Two: Comparative images of scheduled beech tree T014 so the declining limbs on the southern side of the tree. Image **C** taken 26 November, 2020, image **D** taken on December 2, 2024.

Correspondence:

November 2020

Begin message:

From: Mark Roberts
Subject: Re: COM-2018-4 - Significant Tree - 33 Preston Crescent
Date: 27 November 2020 at 13:09:27 NZDT
To: Nic Jepson

Hi Nick

There is some confusion around this one - but in response to your Nov 25 ask, the tree is fine. The tree is currently in good health and is not exhibiting any issues as a result of pruning works undertaken in 2017

and now for the confusing bit…

The further works that were most likely carried out by The Treeman / Gary McFarlane, involved the installation of a number cable braces. The braces were not/are not made of suitable materials and some of these have now failed (image attached). The cables were probably never needed, but because they were installed the tree may have become reliant on them and now there is an increased risk of branch failure (slight, but probably higher than if the cable supports were never installed in the first place)

There are also a number of branches cut off over a sleep-out at the front of the property (these can be seen in both of the attached pictures) - these cut branches differ from those that you indicated in email (on the 2019 Google Street View). Based on the location of cuts, I do not believe that Gary or an arborist did these. These cuts look to be about 3 years old, they fit with the complaint time-line and they differ from the consented works given in LUC-2017-9.

Looking at the 'explanation of the complaint' I can't tell if the concern is Gary's suspect cables or the cut branches over the sleep-out - but I can say that the tree is in good heath

And just because nothing is ever simple with trees; the owners (who I believe are the same as in 2017) want the tree to be trimmed and are under the impression that they have an application in with the Council. I wouldn't object to this (the tree is in good health and could do with getting the doggy cut branches removed and some real cable bracing installed). When I was looking at the tree the owner said that they were going to 'chase the Council up' - I'm not sure what this means

Regards
Mark

September 2021

From: Mark Roberts
Sent: Friday, 10 September 2021 4:29 p.m.
To: Jeremy Grey
Subject: Re: Protected tree concerns re 33 Preston Crescent, Belleknowes [#DDD44I]

Hi Jeremy

as requested, I have been over to number 33 Preston Cres and had a look at the silver beech (T014). It doesn't look any different from when I last looked at it, if anything it looks better. So, no emergency works are required and in my opinion it is not showing any signs of falling over any time soon.

That said (which I'm sure I said last time), it could do with a bit of work (remove some dead branches and fix up some sub-standard pruning cuts), there is also some support cables in it - I suspect that they never needed to be installed (one is broken and one is only just a few threads - so I doubt its supporting much), they might be able to be removed or replaced.

If they applied for consent to have it pruned (Crown Cleaned and selective Crown/branch end Reduction) I would recommend the application is granted - its a healthy tree. In my mind I suggested this to them last year and I provided them with the application form and I provided them with the Tree Fund form… but maybe I didn't.

When you contact them, I suggest you have the Consent Application Form and the Tree Fund Form at hand and send them a copy.

Done - have a good weekend
Take care

June, 2022

Begin message:

> From: Mark Roberts
> Subject: Re: 33 Preston Crescent, Belleknowes_T014
> Date: 14 June 2022 at 17:39:35 NZST
> To: Nicola Petrie
>
> Hi Nicola - I have spoken with Anna today and we had a quick chat about her scheduled tree (T014)
>
> The tree could do with some work and I have sent her the form (Anna being Cc'ed into this email). I have suggested that she applies for some Crown Reduction Work - that the work will not remove more than 25% of the live foliage of the tree and that the 'Crown Reduction' work will be on selective branches and involve end weight reduction and no internal branches will be removed.
>
> I didn't say - but if.. Anna were to tick the 'Other' box and request that the un-functioning cable supports in the tree are removed and those that are under tension are replaced with proper tree bracing cables then that would be a good thing for the tree.
>
> Kind regards
> Mark

June, 2023

RE: Application to remove scheduled tree number T014 (LUC-2023-177)

Dear Elisabeth,

As per your May 30 request for comment, I have been to number 33 Preston Crescent, Dunedin to inspect the scheduled tree T014 which is described in the 2GP tree list (Appendix A1.3) as a Silver beech (*Nothofagus menziesii*). The purpose of the visit was to determine if the tree was in terminal decline and to undertake Standard Tree Evaluation Method (STEM) assessment.

I have previously assessed this tree at the request of the Council and/or the tree owner in November 2020, September 2021, and again in December 2022.

In response to your requests.

Is the tree in terminal decline?

No. There is sufficient vigour and vitality within the tree to suggest that it is unlikely to die of natural causes in the near future (the near future in this context is perhaps 20 to 30+ years).

STEM assessment.

I have conducted a STEM assessment the tree came in at 144 points (table one).

According to the STEM methodology, three (3) specialist skill sets are required. Arboriculture for Condition, a Landscape Architect for Amenity, and an Historian for Notable. I have completed the Condition and Amenity sections of the form. I am not aware of any specific Notable (historic, cultural, and/or scientific) attributes connected with this tree.

Note, a) I was not provided with the current/qualifying STEM evaluation form for this tree. b) I am not a landscape architect - the DCC would typically have a landscape architect complete the Amenity section of the STEM evaluation.

Comments in relation to public safety

> Concerns in relation to risk and safety are raised in the application under Assessment of Effects on Environment (AEE) and Assessment of Objectives and Policies. I saw nothing to suggest that people or property were at imminent risk from this tree. And therefore, this tree does not meet the threshold for removal under 'emergency works'.
>
> There were several hazards in the tree which were also there at the time of my first visit in 2020. Those hazards had been previously worked on and the cables that were used to manage those hazards had degraded (my involvement at that time was to comment on the condition of the cables). The fact that they were there, and that they had degraded indicates to me that the risk associated with those hazards can be managed because it had previously been managed for at least 10 years.

Meaningful assessment by the arborist

The arborist, Dan Mason, Owner/Operator of DM Tree Services Ltd has provided two maintenance options for the tree. 1) A crown reduction and dead wood to maintain the tree's shape and strength. And 2) to remove the tree.

Based on option 1) Mr Mason must have thought that there was sufficient vigour and vitality within the tree for it to be retained. That with some pruning and deadwood removal the tree's shape and strength could be maintained.

Application LUC-2023-177 to remove scheduled tree number T014

In my opinion, the tree is not in terminal decline
In my opinion, the tree is not in at risk of extreme failure
In my opinion, any re-evaluation of STEM is irrelevant. T014 is listed on the District Plan. In the same way that a new tree cannot be added to the District Plan because it has reached a numeric threshold, an existing tree cannot simply be removed because it no longer does.

August 2023

RE: Application for MAINTANENCE on scheduled tree number T014

Dear Elisabeth,

As per your July 25 email request for comment, on the variation of Consent Application LUC-2023-177 from a tree removal to a tree maintenance application.

The variation, from Adam O'Byrne [Email Monday, 24 July 2023. Subject: Re: FW: please forward the report], is for 'a fairly robust prune to remove the branch that has been cabled and all of the other dead branches. It would also be helpful to prune some of the canopy that is shading the flat to allow more light through.' Using the standard application the description of the proposed work would be for Crown Cleaning and Crown Reduction.

When assessed for my June 3, 2023, report the tree was in reasonable health but exhibited vigour and vitality below what would be expected for the age and species. I have no reason to believe that the condition of the tree has changed since that date.

Arboricultural comment

Based on the current vigour and vitality of the tree, and its previous pruning history a fairly robust prune is more likely to create a branch failure situation and increase the chances of branches falling onto property and perhaps people. Trees need a certain amount of internal branch structure to dissipate kinetic energy – in engineering terms this is called mass damping.

A robust prune would also reduce the amount of photosynthetic tissue of the tree which it needs to produce strength and improve structural integrity.

However, the removal of deadwood and the reduction in length of selected branches could bring about a desirable balance between tree health, safety, and improved light.

Recommendations in relation to the revised application LUC-2023-177

I support the revised application for maintenance on the DCC scheduled tree T014. The Silver beech (*Nothofagus menziesii)* at number 33 Preston Crescent, Dunedin. The following works will have a less than minor effect if the following recommendations and conditions are applied and complied with.

1.1 Condition 1. All proposed work must be carried out by an experienced and qualified arborist in accordance with recognised arboricultural practices and amenity tree pruning standards.

1.2 Condition 2. Pruning may consist of Crown Cleaning and Crown Reduction work only. Collectively all pruning activities shall not remove more than 25% of the live foliage of the tree.