

TREE ASSESSMENT REPORT

Assessment of *Araucaria columnaris* (Cook Island Pine)

Located at: 62-64 Beachcrest Rd WELLINGTON POINT QLD 4160



Prepared for Redland City Council

By

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1. Introduction

VPO 3 was adopted by Council on 6 August 2008. The initial nomination for the Cook Island Pine to be placed under the protection of a Vegetation Protection Order (Local Law 6) came from a member of the community. The property has recently been sold and the new owners have prepared plans for erection of a dwelling, with the retention of this tree in mind. This assessment looks at the current health and structural integrity of the tree as well as the level and strength of long-term protective planning instruments, the social sentiment regarding the tree and, whether or not the tree is likely to survive abiotic and constructional pressures over the short and long term.

2. Assessment Methodology

Using the criteria on the attached form, part 1 of the assessment process involves determining if the tree is significant or non-significant as defined in Local Law 6 *Protection of Vegetation*.

In most cases, a tree that is not assessed as being significant or subject to retention by conditions of development approval, does not require Council approval and therefore does not require any further assessment from Council.

A tree that is assessed as significant or subject to condition of development approval and, is outside the 'permissible damage' exemptions of Local Law 6 *Protection of Vegetation*, is classified as 'Protected Vegetation' and will require further assessment and procedural administration. The level of significance given to a tree assists the assessor in providing a quantifiable value in determining the final outcome of either retention or removal of the tree.

An important component of the report is to assess the habitat significance value of the tree in relation to the broader environment and surrounds. This information will provide a quantifiable and debateable case where the tree is physically worthy of retention, but there are nil to minimal legislative protective instruments covering the property both short and long term.

Part 2 of the assessment involves a Stage 1 Visual Tree Assessment (VTA) as described by Mattheck & Breloer¹. This assessment is from ground level only, assessing the biomechanical integrity of the tree, including for known structural defects, unusual growth characteristics, decay, visible root zone issues, and for visual signs of general poor health such as necrotic foliage, canopy vigour, epicormic growth, parasitic growth attachment, insect and other pathological infestation.

A visual assessment of the surrounding environment is also undertaken, including presence and proximity of powerlines and other services, buildings, fences, water service locations, adjoining developments (existing or proposed) and other environmental, cultural and land-use aspects that may impact on the physical integrity of the tree, or that in turn, may be affected by the tree.

An initial field assessment is carried out by completing the 'Visual Tree Assessment Guide'. This guide has been compiled as a field guide using recognised VTA principles and typical tree defects and other physical properties. The guide divides the tree system into 5 integrated and essential components that are assessed individually:

1. Root Zone
2. Trunk Zone
3. Branch to Trunk Unions (Scaffolds)
4. Canopy Zone
5. Tree Form

Each Zone is listed with a number of typical defects and known hazards to look for during the assessment. The list is a general guide designed to prompt the assessor to identify key aspects of the tree system and to any potential issues that may present hazards. The assessment is not limited to the criteria on the field guide. If a tree exhibits other issues not included on this field guide, they need to be included in final report.

Following the field assessment of each of the 5 tree zones, a risk-rating and a hazard-abatement score is allocated to each of the zones. The tree in its entirety is then given an overall risk-rating and a score for recommended hazard-abatement measures. If any of the *7 Main Defect Categories of High Risk*¹ are identified, those defects are noted in the final field assessment and form a key determining factor in the overall evaluation of the tree and associated actions that may be required. In general, if the root zone does not pass the assessment, a recommendation for tree removal is made. The other 4 zones may be able to have remedial work carried out to remove or reduce those risks to an acceptable level.

Depending on the outcome of the initial root assessment, a further assessment of the root zone *may* be required by way of a 'root mapping report' if the assessor is not satisfied with the root zone integrity. The root mapping report examines in detail, the underground root structure using non-invasive methods to determine the integrity of the root zone.

Part 3 of the assessment involves discussion and analysis of the positive and negative social aspects between the tree and those humans living in close proximity to the tree. To ensure a long-term harmonious relationship between both, it is important to assess and place a value on those relevant social issues that can be applied to determine a final, quantified outcome.

Part 4 of the assessment is the discussion of all the components of the report, followed by the conclusion and final recommendations.

¹ Mattheck C and Breloer H (1994) "The Body Language of Trees A handbook for Failure Analysis"
HMSO London

² Pokorny D Jill, "Urban Tree Risk Management: Guide to Program Design and Implementation" USDA
Forest Service

3. The Tree

The subject tree is a Cook Island Pine (*Araucaria columnaris*). The tree is estimated at >100 years old, based on the growth characteristics and local community estimations of the original land-settlement and planting that took place at that time. Cook Island Pines originate from the Cook Islands in New Caledonia and were imported into Australia by early settlers and explorers. The Cook Island Pine is a strong-rooted, straight, robust tree, able to withstand the severe weather conditions common to coastal areas in cyclonic regions like the South Pacific. If they are growing in a hospitable environment, with minimal interference, they generally do not pose any issues.

4. Part 1 – Trees significance (local law and planning regulations)

From a significance perspective, this particular specimen provides a visual amenity and sense of character to its environment due to its age and visual dominance. Local residents have expressed concerns regarding its future. It has cultural significance, although its exact origins and history cannot be verified, only generalised according to the well-documented regional history of the Cook Island Pine. There is currently a VPO (Vegetation Protection Order) on this tree, placed on the tree due to its significance and the threat from development or subdivision of the property. Apart from this VPO, there are no other planning overlays regulating the long-term protection of this tree. There is currently a proposal to erect a 2-storey dwelling on the property. There is no proposal to subdivide the property at this point. The strength of a VPO is only as strong as the Council of the day. Removal of this tree requires the Council to make a determination to revoke the VPO following the required public submissions and notification stage as per Local Law 6 procedures.

Summary:

The tree is rated as having high-retention-value with an adequate Local Law 6 protective status.

Part 2 – Tree assessment (physical)

Site attributes (immediate and surrounding)

The tree is situated in the middle of the western boundary of the 800m² property, approximately 3 metres from the rear boundary. The tree is approximately 22 metres from the dwelling at the rear adjoining property, approximately 11 metres from the dwelling on the southern adjoining property and approximately 16 metres from the dwelling on the eastern adjoining property. The site is reasonably level, red clay-based structure and appears to be well-drained. Overhead powerlines run along Beachcrest Road, but are well away from the canopy of the tree and not an issue.

Conclusion: The tree is sited in a location that provides adequate distances from dwellings and other existing structures. The site does not indicate any water-logging or other issues that may potentially affect the tree.

Root Zone:

The root zone as assessed from the ground surface appeared natural and well developed with no indications of root/soil movement, decay around root flare, fungal bodies, physical damage, poor drainage, or any other sign indicating existing or potential root issues. The height of the tree, canopy spread and trunk specifications and taper indicate a strong and sound root zone. There were no indications of interference to or around the root zone. The point of root attachment, root flare and butt showed no visible sign of typical issues. It was determined that a further sub-ground inspection was not warranted at this stage due to the lack of typical indicators.

Conclusion: No structural or health issues identified with root zone.

Trunk Zone:

The trunk of this tree presented as sound and acceptable for a Cook Island Pine of this age and form. The trunk is straight, tall and of normal diameter and sequential taper. Exudates present on lower trunk are typical of *Araucaria*, particularly of this vintage and can be caused by fungal or insect pest common to these trees. They are not considered an issue at this stage.

Conclusion: No issues identified with trunk zone.

Branch to Trunk Unions:

A visual inspection of the lateral limb unions revealed normal attachment for a tree of this vintage. Many of the older limbs have decayed and fallen off – a natural growth characteristic of these trees. New epicormic growth has emerged from the radial growth band around the tree and spaced up the trunk. Natural fungal fruiting bodies (*Auricularia auricular-judae*) are visible at ends of many of the decayed limbs. This fungus is a natural and common dead-wood consumer on many Australian trees. It does not indicate that the tree is 'rotten'. At the top of the trunk, it is bifurcated – a common occurrence with *Araucaria* spp. and is not an issue.

Conclusion:

Tree requires minor deadwood removal as part of regular maintenance. No other issues identified.

Canopy Zone:

The canopy as viewed from the ground showed a symmetrical and normal formed canopy that is showing normal signs of ageing and limb abscission. The canopy is in proportion to trunk diameter and taper, root zone size and general form. There is a quantity of deadwood present in the canopy, consistent with a tree of this age that has been allowed to senesce naturally and has had no maintenance carried out. Overall, the canopy did not exhibit

any issues that would create a higher than normal risk associated with these trees.

Conclusion: Acceptable crown and canopy that only requires minor maintenance to remove some of the excess deadwood.

Tree Form:

The tree form presents as normal with no unusual growth characteristics.

Overall Summary:

For a mature, urban specimen of this vintage and size, the tree is visually sound, of good form and structure. With good management, the tree will have a long S.U.L.E (safe useful life expectancy) of 1A.

5. Part 3 – Social Aspects

The new owner purchased the property well aware of the status of the tree and the resultant restrictions the tree would place on development of the 800m² site. Liaison has been on-going with the new owners and they have accepted the tree as being retained and protected. Their house plans have made allowances for the root zone of the tree and the slab design has been engineered for the tree.

Summary:

The tree is significant, socially acceptable and a physically worthy specimen for retention.

6. Part 4 – Discussion, conclusion and recommendations

Discussion:

The tree is significant due to its historical value and link to early settlers in Ormiston and the visual amenity and sense of place the tree provides by its dominant presence. The tree is clearly visible from Moreton Bay and, like many other Araucarias in the Redlands, is valued for this prominent land mark feature. From discussions with local residents, the tree is valued and a decision to approve its destruction needs to be considered thoroughly.

Although the VPO (Vegetation Protection Order) protects the tree from 'theoretical' damage, it cannot protect against the abiotic factors that will result once the dwelling and associated structures are built on the property. Due to the loss of access to the tree and the visibility of the lower part of the tree, the long-term health and well-being of the tree will be outside the control of Council or any other person wishing to monitor the trees health.

The tree from a structural integrity and general health perspective at the time of assessment presented very well and did not exhibit any issues that would

warrant doubt or concern about possible failure or other high-risk issues in normal seasonal weather conditions. It is fair to reason that no tree can be assessed against the unpredictable and severe conditions experienced under non-seasonal storm conditions such as recently experienced.

Had evidence of trunk or root issues been found, the outcome would have differed. In all other respects, no issues were found with the tree. Due to the visible trunk strength and root zone and a balanced, healthy canopy density, it is highly improbable that the tree will ever clear-fall as a result of storm. Limb drop from the tree would be minimal due to the short length and light density typical of senescent Cook Island Pine limbs. From a physical perspective, the only remedial works required are removal of deadwood and inspection of the upper canopy.

From a social perspective, the property has recently sold and the new owners have accepted that the tree is to be retained.

As the tree is physically, socially, significantly and ecologically worthy of retention, the decision to remove, retain or modify the tree will need to be a carefully balanced discretionary decision.

Conclusion:

Based on this assessment, it is the opinion of the assessor that the tree be retained and the VPO (Vegetation Protection Order) maintained. Remedial pruning will need to be undertaken as per the guidelines of AS4373-2007 *pruning of amenity trees*. Before building commences, a TPZ (Tree Protection Zone) should be erected in accordance with the guidelines of AS4070-2009 *Protection of Trees on Development Sites*, bearing in mind the SRZ requirements recommended in the standards. (Due to the narrow canopy form of columnar species, the drip-line cannot be used as an indicator of a TPZ)

The options identified for this situation are:

- a) *Grant approval to remove the tree;*
- b) *Do not grant approval to remove the tree and, where required;*
- c) *Carry out remedial pruning to minimise potential risks, or;*
- d) *That the tree-owner obtains an independent Arborist report on the structural integrity of the tree if not satisfied with Council's decision.*

Recommendations:

- **Do not grant approval to remove the tree and;**
- **Carry out remedial pruning to minimise potential risks as identified in this report, or,**

- **That the tree-owner obtains an independent Arborist report on the structural integrity of tree if not satisfied with Councils decision.**

Appendix A

Photographs



Photograph 1 (showing root flare)



Photograph 2 (looking west towards residence on adjoining property)



Photograph 3 (exposed surface root 8 metres from trunk)

Photographs 1 to 3 show the trees root zone. There are no visual issues with this zone that would warrant a further and more comprehensive assessment. In photograph 3, a root from the tree is visible above ground, located 8 metres from the trunk. Araucaria spp. typically has extensive, shallow root systems, sensitive to disturbance. This specimen has a TPZ (tree protection zone) of around 12 metres. The SRZ (Structural Root Zone) is quite large for these trees due to their great height and shallow root system. They require a larger SRZ than the guidelines outlined in AS4970-2007 Protection of Trees on Development Sites, due to the growth characteristics and root-plate dynamics and strength required by these trees. This particular specimen would require a SRZ of around 6 metres.



Photograph 4 looking east showing weeping on trunk caused by insect damage, common to *Araucaria* spp.



Photograph 5 looking south and showing weeping on trunk caused by insect damage, common to Araucaria spp.



Photograph 6



Photograph 7



Photograph 8



Photograph 9

Jews Ear Fungi is common to Araucaria spp. and does not constitute a 'decayed tree'. This fungus consumes deadwood as can be seen in this photograph.



Photograph 10



Photograph 11



Photograph 12

Appendix B

Location map of *Araucaria columnaris* referred to in this report

