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TREE ASSESSMENT

TEMANBIT COMMUNITY CENTRE

**SINCLAIRE and TYRELL STREETDS
TENAMBIT**

Prepared for

MAITLAND CITY COUNCIL

23rd OCTOBER 2023

**By
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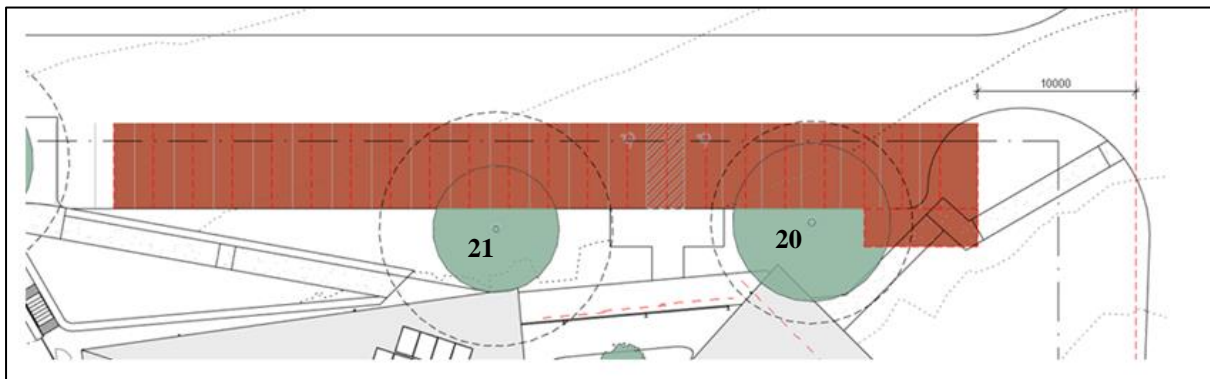
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1. INTRODUCTION

The purpose of this report is to assess the impacts and provide advice on Tree Nos. 20 & 21 where proposed changes to the carpark will encroach into the TPZ & SRZ of the trees.

The assessment is based on the excerpt of the plans provided by Alison Cronin | Senior Project Architect | Maitland City Council below.



2. IMPACTS OF DEVELOPMENT

2.1 Soil Fill

Based on the information provided changes to the carpark are required to elevate the southern alignment in the order of 200-250mm to achieve flatter grades over the carparking area that will result in changed levels at the base of the trees and construction within the TPZ & SRZ.

Whilst ground level is to be raised it is only expected to be minimal (200-250mm) and whilst soil fill can have a negative impact most trees can tolerate some fill up to about 300mm about their base if the roots have not been injured first.

Although ground level may be raised slightly, and new bitumen is to be laid over the root zone as existing bitumen already covers that part of the root zone it is considered that impacts associated with compaction, oxygen supply and associated beneficial fungi and micro-organisms is not likely to be significantly altered.

2.2 Construction

As part of the new resurfacing the existing bitumen and kerb & guttering on the southern side of the trees is proposed to be removed and replaced.

Due to their close proximity to the existing bitumen construction will encroach well into the TPZ & SRZ off the trees. According to Australian Standards – AS 4970 – 2009, Protection of Tree on Development Sites encroachment is considered to be major where construction will encroach into the SRZ or encroach more than 10% into the calculated TPZ of a tree.

Ideally, if possible, the existing bitumen should be retained and new sub-base and bitumen laid directly on top. This will eliminate the need for any excavation works and potential for damage to roots and impacts associated with compaction, oxygen supply and associated beneficial fungi and micro-organisms is not likely to be significantly altered.

However, if existing bitumen and kerb & guttering is to be removed and replaced the main area of concern is damage to roots within the SRZ and excessive damage to roots within the TPZ particularly during the demolition and preparation process of the proposed works

Significant injury can occur during the demolition process as soil is excavated to build the new surface as required.

Typically, most roots are found within the top 900mm of soil, and most of the fine roots active in water and nutrient absorption are in the top 300mm of soil. Large roots can also be encountered close to the surface.

Damage or severance to roots within the SRZ will significantly increase the risk of failure, especially during high winds. Tree roots anchor the tree and their continued function is an important factor in a tree's survival during any construction. Decrease in structural stability will result regardless of species although to what degree depends on many factors such as how many and how close to the tree roots are cut.

Severing of roots on one side of a tree (such as may occur when excavation is past a tree trunk but still within the drip zone), may weaken the tree making it unstable and likely to collapse sometime in the future. Excessive removal of soil from around the root zone can significantly reduce roots anchorage capacity increasing the risk of root crown failure.

Excessive damage to secondary and minor roots within the TPZ is also likely to initiate a decline in tree health and vigour. Excessive removal of smaller absorbing roots can cause immediate water stress. The survival of the tree is linked to its tolerance of water stress and the ability of the tree to form new roots rapidly.

Root failure can occur when the force on the tree from wind or gravity exceeds the strength of the root wood. Key roots that have been cut or extremely compromised may cause failure even under calm conditions.

Due to the close proximity of construction works in relation to the extent of encroachment into their TPZ /SRZ's it is considered that should the works proceed as proposed without regard to roots that the trees are likely to be adversely impacted upon in a manner that could be detrimental to both stability and health & vigour.

However, at this stage as the trees are to be retained and although construction is expected within their TPZ & SRZ's and some soil disturbance may be unavoidable it is possible that the works can be undertaken without adversely impacting on their condition.

This can be achieved by the careful removal of existing bitumen and kerb & guttering and must be undertaken with extreme care and in a manner that will avoid damage to roots.

If no structural roots are encountered and only a few secondary or smaller roots are encountered the trees can be retained and may tolerate the impacts.

However, if roots are encountered within the SRZ and / or numerous roots within the TPZ are encountered works should cease and the project arborist should be consulted. Based on further assessment it can then be determined whether retention and design can be achieved or alternative solutions are required.

However if it is determined that damage to a tree or trees' roots cannot be avoided and no alternative options other than severing of roots is available as the impacts are likely to have an adverse effect on the trees they may then need to be removed.

Whilst it is possible that the trees could be retained and although careful planning and assessment of the potential impacts have been considered and careful excavation procedures to avoid damage to roots may have been undertaken there is no absolute certainty that the tree/s would tolerate the impacts it is still possible that the changed conditions may inadvertently affect their condition in the future.

2.3 Tree Protection

Due to the close proximity of the works to the trees Tree Protection Measures should be put in place to prevent potential damage to trunks & branches.

- As optimal Tree Protection Zones cannot be achieved due to construction constraints 1800mm high chain link temporary fencing installed as close as possible to the edge of construction then incorporate remaining TPZ radius where possible (Figure 1)
- Where fencing may not be appropriate or practical boards and padding should be used for trunk and branch protection that will help to prevent damage to bark when maneuvering and operating machinery near surrounding trees. Boards must be strapped to trees not nailed (Figure 2).

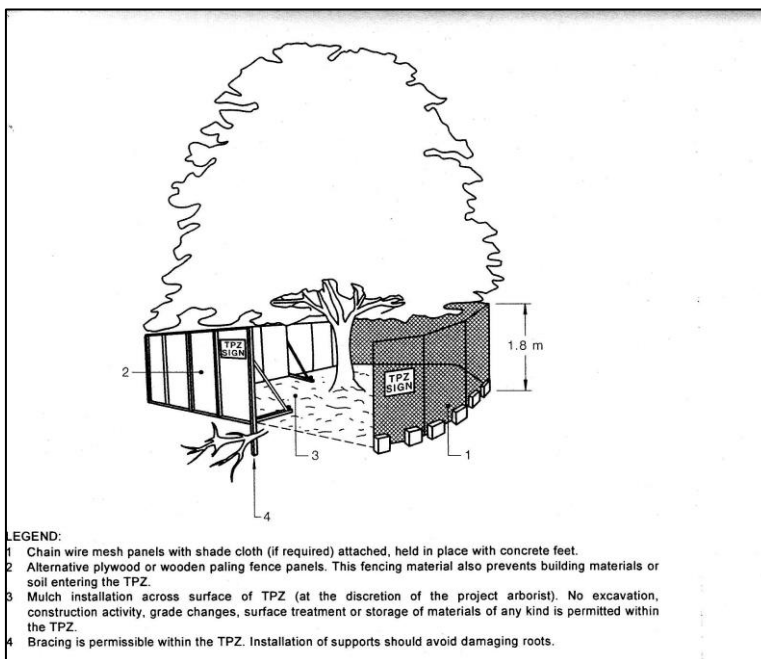


Figure 1 - Example of TPZ fencing

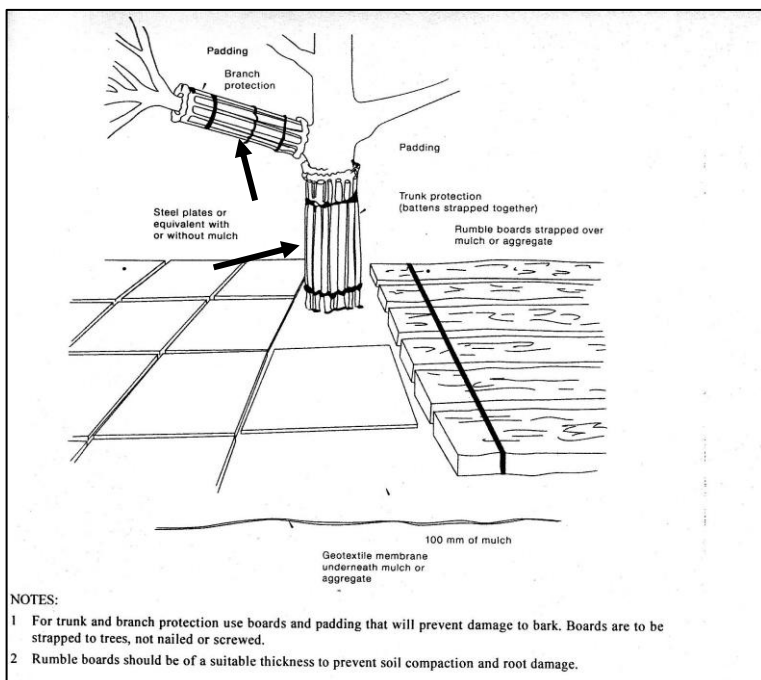


Figure 2 – Example of trunk & branch protection

3. RECOMMENDATIONS / OUTCOMES

- The trees should tolerate a small amount of fill of up to 200-250mm provided roots have not been injured first.
- If possible, the existing bitumen and kerb & guttering should be retained, and new sub-base and bitumen laid directly on top.
- If existing bitumen and kerb & guttering is to be removed and replaced removal must be undertaken with extreme care and in a manner that will avoid damage to roots.
- If roots are encountered within the SRZ and / or numerous roots within the TPZ are encountered works should cease and the project arborist should be consulted. Based on further assessment it can then be determined whether retention and design can be achieved, or alternative solutions are required.
- Due to the close proximity of the works to the trees Tree Protection Measures should be put in place to prevent potential damage to trunks & branches.

4. REFERENCES

Australian Standards AS 4970 – 2009 Protection of Tree on Development Sites
Standards Australia Sydney

Matheny, Nelda and Clark, James R. 1998, Trees and Development: A Technical Guide to Preservation of Trees During Land Development, International Society of Arboriculture Champaign, USA.

5. DISCLAIMER

The conclusions and recommendations contained in this report refer to the tree's condition on the day of inspection only. The report is to be read and considered in its entirety. All care has been taken using the most up to date arboricultural information in the preparation of this report.

The report is based on visual inspection only and as such not all defects may have been detected. No guarantee can be given nor can it be predicted that branch failure or uprooting (windthrow) would not occur as a result of high winds and /or excessive rainfall and other unpredictable events. Tree health and environmental conditions can change at any time

Report by



Diploma of Arboriculture

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