



Arboricultural Impact Assessment Report

81 Tamar Street

BALLINA NSW 2478

Prepared for: Ballina Shire Council

Prepared on: 18 June 2020

Prepared by: Bronson Branch (Dip Arboriculture)

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40 cherry street • po box 450 • ballina nsw 2478
t 02 6686 4444 • f 02 6686 7035 • e council@ballina.nsw.gov.au

ballina.nsw.gov.au

Introduction

This report was requested by Robert Hunter, Team Leader Concrete Construction and Drainage Ballina Shire Council. The purpose of this report is to assess a Fig tree in the road reserve and mitigation options to severe roots pertaining to the tree in order to repair the public walkway. Cracks and concrete heaving are present in the walkway in front of the adjacent building at 81 Martin Street, Ballina.

Methodology

A Visual Tree Assessment was conducted from the ground only and no invasive or diagnostic techniques were used when examining the tree. VTA observes the external indications given by the tree at the time of inspection to determine health and the structural integrity of the tree.

A tangent height gauge was used to measure tree height. Diameter at Breast Height (DBH) and other site measurements were taken using a double sided 10m diameter/measuring tape.

DBH was measured at the narrowest point below the whorls or fork in the trunk.

SRZ was calculated by measuring the trunks diameter immediately above ground level.

TPZ and SRZ radius was calculated using the arborlogix.com.au calculator.

No excavations were carried out to locate unseen tree roots.

Observations

Species	Common name	DBH	Height	Canopy Spread	Health	Age	TPZ	SRZ	SULE
Ficus microcarpa var.hillii	Hills Weeping Fig	750mm	10m	20m	average	Semi-mature	9.0m	3.2m	1C

The tree is located in roadside reserve with paving for car parking to the west and east of the tree. The road is hard surfaced to the south 1.5 m from the base of tree. A public footpath is 5.2 m north of the tree. The combined area of the trees confinement is approximately 40m².

The tree appears in average health, abundant with fruit and healthy foliage, no indication of pests or diseases present at the time of inspection. The canopy is dense with no signs of dieback and less than 5% dead wood present.

Previous pruning is evident on the northern side where the tree has a significant reduction to the canopy to create sufficient clearances for overhead power lines.

Several roots with an estimated diameter of 100-150mm are present in the turfed areas south of the foot path. These roots have been scalped by mowing or foot traffic. No roots are visible in the turf between the foot path and the concrete slab of the shop front further to the north. Significant upheaval can be seen in the slab heading in the direction of the shop doorway.

The foot path has repaired damage that aligns with the tree and the slab damage. Disruption further west to the drive way and foot path may or may not be pertaining to the subject tree.

Underground Telstra services are located north west of tree on the southern side of the footpath and north east of the tree in shopfront area.

Discussion

The Fig forms part of an avenue of commemorative plantings along Tamar Street. The Fig is also listed on the Ballina Shire Council Significant Tree Register for historic and visual/Aesthetic Values. Several other trees of similar species are in close proximity to the subject tree and between 20-25 m from the shop front entrance at 81 Tamar Street.

Fig tree roots are known to extend far beyond the drip line and may be found at a distance several times greater than that of the crown extent. It is difficult to say that the damage to the shop is caused by the subject tree. However the upheaval in both the slab and the footpath aligns to the tree and is considered very likely to be pertaining to the tree.

Works to repair the damage in the slab will involve the removal of existing concrete using heavy machinery. The closest extent of the works is estimated to be between 9.1 to 9.6m from the base of the tree. This would mean that all works would be outside the Tree Protection Zone. Tree roots are likely to be encountered and damaged in the process. Fig trees are known to have a high tolerance to disturbance and the ability to adapt to changes in the landscape. It is my opinion that the tree will cope with the disturbance and loss off roots provided correct tree protection measures are adhered to as outlined in Australian Standard 4970-2009 Protection of trees on development sites.

Recommendations

To reduce the impacts from machinery upon the roots encountered it is proposed to firstly identify the location of roots by using careful excavation techniques, such as vacuum excavation. A 300-500mm wide section of the turfed area adjacent to the concrete slab could be trenched and any roots encountered then neatly severed using clean sharp tools such as a reciprocating or hand saw. AQF level 5 Arborist is required to supervise all works and ensure they are carried out to Australian Standards.

Any tree roots exposed during excavations should be kept moist until they can be reburied. Dampened hessian cloth wrapped around larger roots or draped over and into the trench will aid in reducing moisture loss and prevent roots from drying out.

By creating a 500mm wide buffer zone in the turfed area along the southern edge of the slab, programmed inspections could detect and re-severe any regrowth roots encountered by means of minor excavation using hand tools to probe, expose and cut. This method is not guaranteed to detect all roots and the installation of a root barrier should be considered. Without the installation of an impermeable barrier to deter root growth the problem is likely to reoccur.

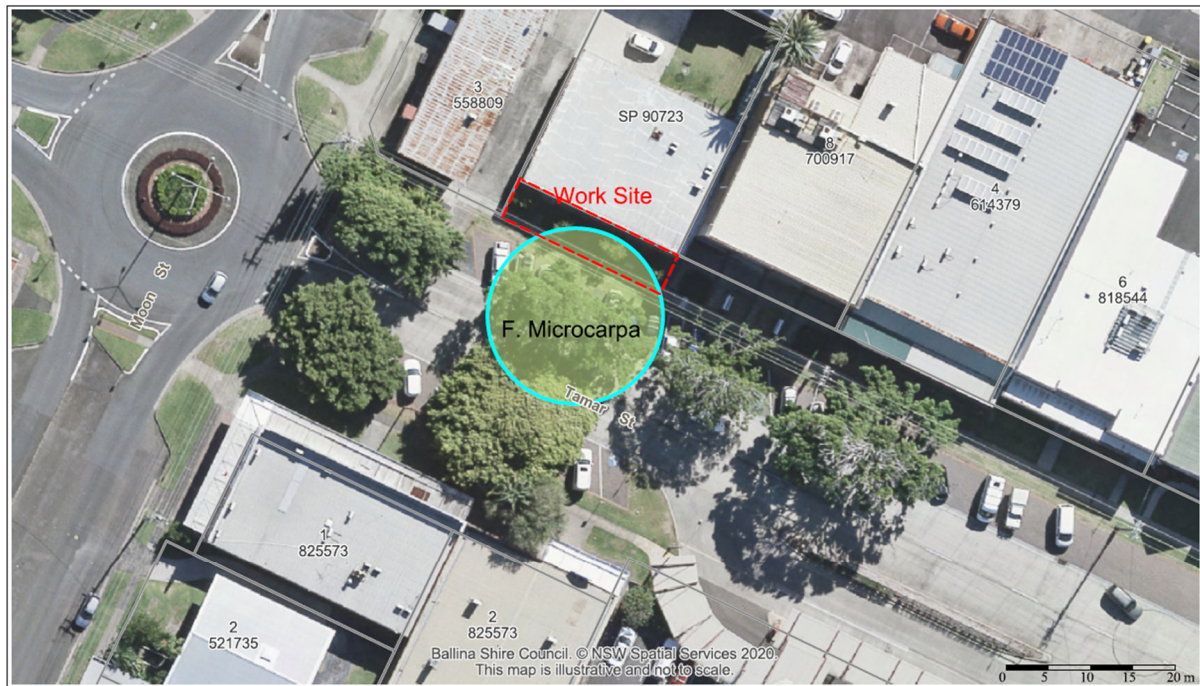
It is important to observe the tree protection measures required in the 9m radius and described in appendix 2. The grassed area will contain Fig tree roots and should be protected from the compaction of heavy machinery. The area must either be excluded or ground protection mats (Track Mats) used to minimise the impacts.

Conclusion

The tree plays an important role in the character of the street. Every effort should be made to ensure the effects from proposed works upon the tree are minimised. The impacts of development upon a tree, can take several years to become evident. Damage to the root system is common cause of tree decline and death and is the most common form of damage associated with development sites. (AS 4970 p24).

Fig trees are known to have a high tolerance to disturbance and the ability to adapt to changes in the landscape. The fig at 81 Tamar St. is a healthy tree with good vigour that has shown previous tolerance to disturbance within its root zone without any current indication of stress or signs of decline. It is my opinion that the tree will cope with the incursion and loss off roots provided the correct protection is given to the remaining area surrounding the tree.

Appendix 1: Site map.



Ballina Shire Council
40 Cherry Street
BALLINA NSW 2478
PO Box 450
BALLINA NSW 2478
1300 864 444
council@ballina.nsw.gov.au
www.ballina.nsw.gov.au



81 Tamar Street, Ballina. Site Map

ballina shire council
geographical information system
Projection: GDA94 / MGA zone 56
Date: 18/06/2020

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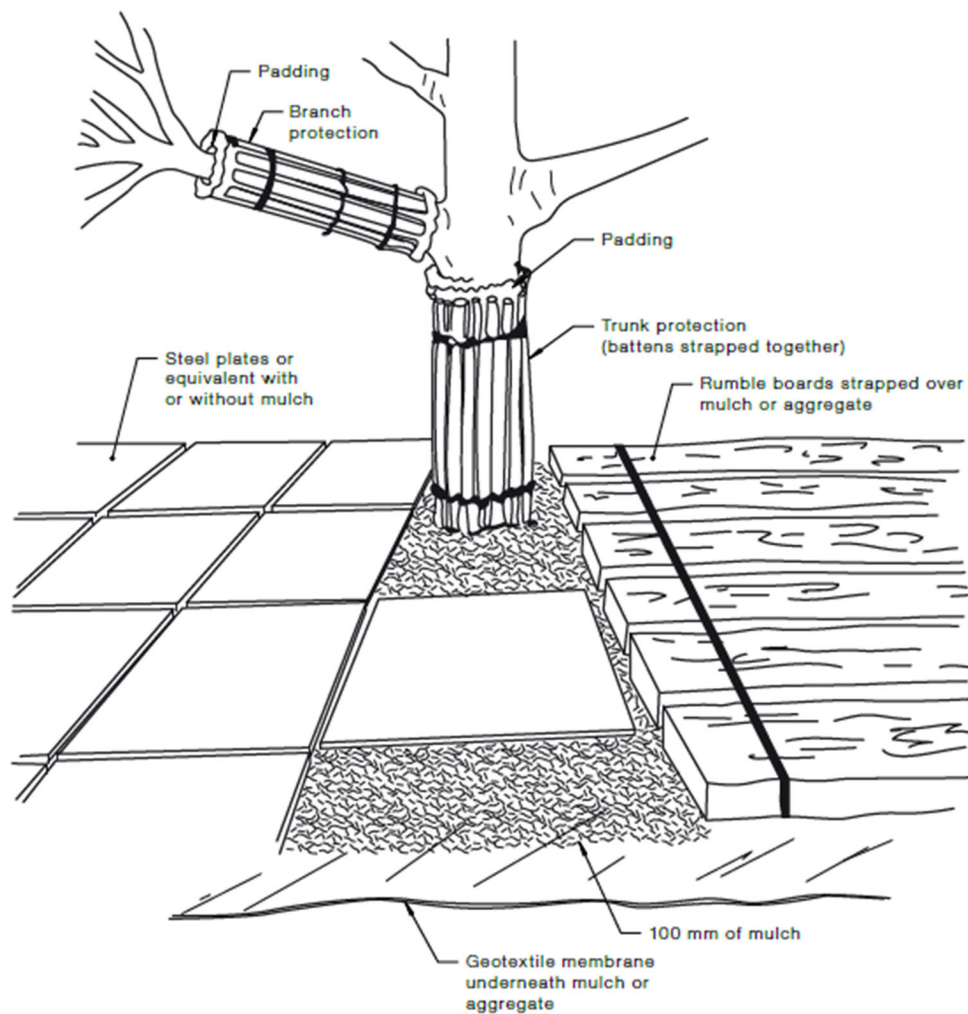
Appendix 2: AS 4970-2009 (section 4) tree protection measures.

4.2 ACTIVITIES RESTRICTED WITHIN THE TPZ

Activities generally excluded from the TPZ include but are not limited to—

- (a) machine excavation including trenching;
- (b) excavation for silt fencing;
- (c) cultivation;
- (d) storage;
- (e) preparation of chemicals, including preparation of cement products;
- (f) parking of vehicles and plant;
- (g) refuelling;
- (h) dumping of waste;
- (i) wash down and cleaning of equipment;
- (j) placement of fill;
- (k) lighting of fires;
- (l) soil level changes;
- (m) temporary or permanent installation of utilities and signs, and
- (n) physical damage to the tree.

Appendix 2.1: AS 4970-2009 (section 4) other protection measures.

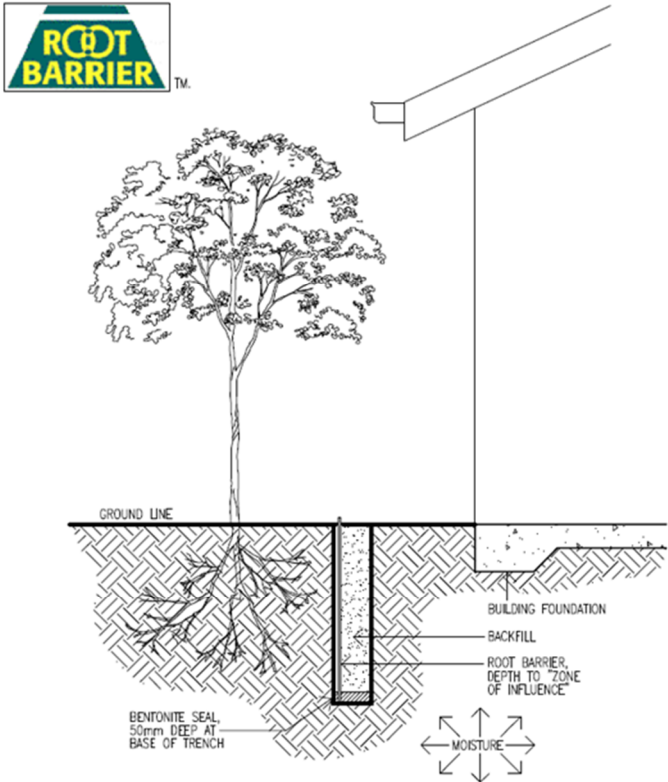


NOTES:

- 1 For trunk and branch protection use boards and padding that will prevent damage to bark. Boards are to be strapped to trees, not nailed or screwed.
- 2 Rumble boards should be of a suitable thickness to prevent soil compaction and root damage.

FIGURE 4 EXAMPLES OF TRUNK, BRANCH AND GROUND PROTECTION

Appendix 4: Typical root barrier installation specifics



ROOT BARRIER FOR TREES

**DESIGN & INSTALLATION GUIDELINES
(INCLUDING TYPICAL)**

NORMALLY PLACED BETWEEN THE TREE AND WHATEVER YOU WISH TO PROTECT. TRY **NOT** TO SURROUND THE TREE. OUR PREFERRED METHOD IS PLACING THE ROOT BARRIER ALONG BESIDE THE PATH, BUILDING, PIPE ETC SO THAT THE TREE ROOTS CAN NOT GAIN ACCESS TO THE STRUCTURE. **TO STABILISE MOISTURE IN REACTIVE CLAYS UNDER THE STRUCTURE A DEEPER BARRIER IS REQUIRED.**

DEPTH
DETERMINED BY AERATION OF THE SOIL. IN "NORMAL" UNDISTURBED SOIL VERY LITTLE GROWTH OCCURS DEEPER THAN 1 METRE.

SEAL
SODIUM BENTONITE OR OTHER ROOT GROWTH INHIBITOR IS USED TO SEAL THE BOTTOM OF THE TRENCH AND BIND THE BOTTOM OF THE ROOT BARRIER TO THE UNDISTURBED SOIL. IN SUMMARY, TAKE THE BARRIER DOWN TO SOIL THAT NOTHING CAN GROW IN AND BIND THE ROOT BARRIER TO IT.

LENGTH
SUFFICIENT TO STOP THE ROOTS GOING AROUND THE EDGE OF THE BARRIER, NORMALLY 1 OR 2 METRES OUTSIDE THE DRIP LINE OF THE TREE.
INSTALL ROOT BARRIER IN ONE PIECE.

TREE CARE
WORKING IN FROM THE DRIP LINE, (THE EDGE OF THE LEAVES) THE CLOSER YOU GET TO THE TRUNK THE HIGHER THE RISK OF DAMAGING OR DESTABILISING THE TREE. 50% OF THE DISTANCE FROM THE DRIP LINE TO THE TRUNK (20% OF THE TREE'S TOTAL ROOT PLATFORM) IS REGARDED AS THE CLOSEST YOU CAN CUT WITHOUT MAJOR RISK TO PLANTS HEALTH. IF IT IS NECESSARY TO CUT CLOSER THAN HALFWAY TOWARDS THE TRUNK, IT WOULD BE ADVISABLE TO ENGAGE THE SERVICES OF AN ARBORIST TO ASSESS THE TREE PRIOR TO THE WORK BEING CARRIED OUT, AND TO HELP NURSE THE TREE THROUGH THE PERIOD OF INSTALLATION.

BARRIER PLACEMENT

1. DIG A 100mm WIDE TRENCH TO THE REQUIRED DEPTH, INSERT ROOT BARRIER. ENSURE 50mm OF ROOT BARRIER IS LEFT ABOVE FINISHED GROUND HEIGHT (THIS IS TO ALLOW FOR SETTLEMENT AND MAY BE TRIMMED OFF LATER).
2. TRIM EXPOSED TREE ROOTS TO LEAVE A CLEAN CUT, TREAT WITH FUNGICIDE IF REQUIRED.
3. BACK FILL THE BASE OF THE TRENCH PLACING A LAYER OF BENTONITE, THEN BACK FILL USING SPOIL FROM THE TRENCH.
4. ROOT BARRIER SHOULD BE TRIMMED TO JUST BELOW LAWN MOWER HEIGHT BUT ABOVE GROUND (TOP OF ROOT BARRIER MUST BE EXPOSED ON COMPLETION).

ROOT BARRIER SUPPLY AND/OR COMPLETE INSTALLATION AVAILABLE, CONTACT ROOT BARRIER, PHONE 1300 136 644. WWW.ROOTBARRIER.COM.AU

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Image: <https://rootbarrier.com.au>

Appendix 5: Tree images



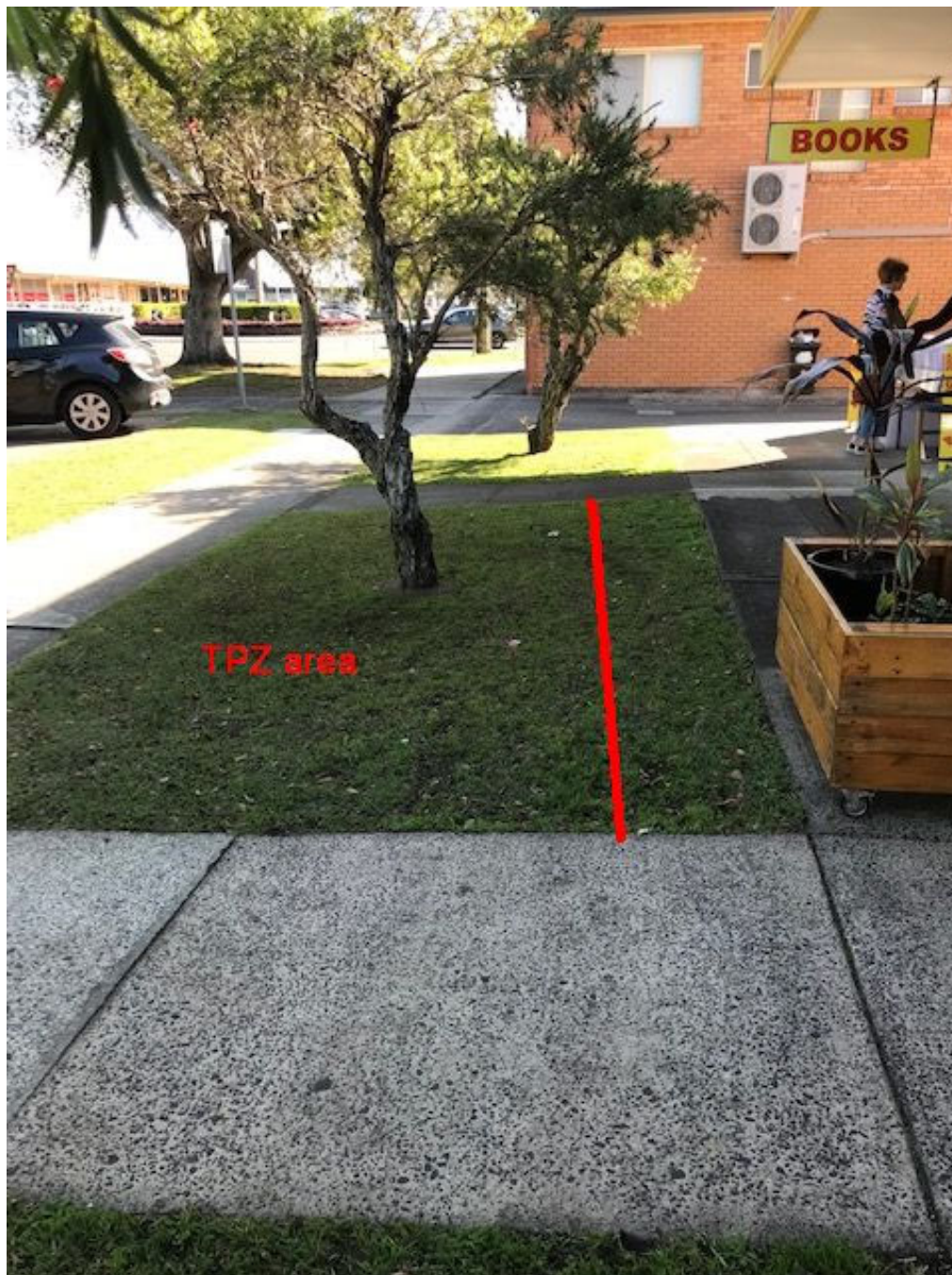
Root system, foot path and turfed areas looking north towards work site. B. Branch 16/06/2020

Appendix 5: Tree images



Concrete slab damage. B. Branch 16/06/2020

Appendix 5: Tree images



TPZ 9.0m from base of tree. B. Branch 16/06/2020