Tree Report

Liquidamber Trees

Station St
Bangalow

Client: Byron Shire Council

Report compiled by
Northern Tree Care
Burringbar
22nd November, 2011.

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1. Summary

The roots of the tree should be pruned and the paving relaid.

The branches encroaching on the building should be pruned to give at least 1 metres clearance from the building.

Consideration should be given to removing tree # 2 as a management strategy.

Council should install a root barrier to protect the building.

2. Introduction

Northern Tree Care have compiled this report on instruction from Byron Shire Council. There are three (3) Liquidamber trees *Liquidambar styraciflua* growing in the footpath next to the Bottleshop in Byron St, Bangalow.

These trees have caused the pavers to move, creating a trip hazard in the footpath.

This report was compiled by Peter Gray Dip Hort (Arb). of Northern Tree Care. Peter Gray is an arborist with over 15 years experience. He has been providing tree reports for Local Government, State Government and private clients for over 12 years. The information contained in this report is true and accurate to the best knowledge of the author. Best professional judgement was used to make the recommendations contained in this report.

Peter Gray is a trained and experienced practitioner of Quantified Tree Risk Assessment (Ellison 2007) and is a registered consulting arborist with ISAAC *(International Society of Arboriculture Australian Chapter)*.

3. Scope

The three Liquidamber trees growing in the pavement in Station St, Bangalow have caused the pavers to lift in their immediate vicinity. The pavers have been removed.

This report will describe the trees and the effect they are having on the pavement. The options for the on-going management of the trees will be examined and recommendations made.

The trees were assessed during a site visit conducted by Peter Gray on 22nd November, 2011. The trees were assessed visually from the ground. A girthing tape was used to measure the diameter at breast height of the trees and an inclinometer was used to measure the height of the trees.

The Tree Protection Zone and the Structural Roots zone were described as recommended by the Australian Standard AS 4970 - 2009 Protection of trees on development sites.

4. Description

The trees subject of this report are Liquidamber trees *Liquidambar styraciflua*. This is an exotic species that originated in North America. This species is widely used in Australia as an ornamental tree both in private and public areas. The trees are deciduous and the Autumn leaves make a spectacular show when they change colour. The trees will commonly grow to a medium sized tree of 20 ~ 30 metres height. The falling leaves and spiky seedpods can be a nuisance but the nuisance is regarded as being minor. The trees have sound timber and are not particularly prone to failure.

These 3 trees are growing on Council controlled land. They are protected by Council's Tree Preservation Order. Since they are growing on Council land the legislation 'Trees (Disputes Between Neighbours) Act. 2006' does not apply.

The trees are mature aged medium sized trees in good condition (see Table 1. Tree Data). They are growing in the pavement and dominate the area immediately around them. The area of footpath they are growing in is approximately 12 metres x 6 metres (see Attachment 1. Site Plan).

The land on which the trees are growing is flat and the underlying soil it red krasnozem with blue metal cracker dust used as a base for the pavers.

Table 1. Tree Data

Tree #	Species	Age	Condition	Height	DBH	Crown	TPZ	SRZ	Comments
1	Liquidamber *Liquidamber styraciflua*	Mature	Good	12.5	500	7	6	2.8	Co-dominant leader
2	Liquidamber *Liquidamber styraciflua*	Mature	Good	12.5	200	4	2.4	2	Slightly suppressed
3	Liquidamber *Liquidamber styraciflua*	Mature	Good	12.5	480	6	5.8	2.7	Co-dominant leader

The trees have had a raised area around the trunk. The surface of the soil under the paver is below this raised area and below the level of the kerb, driveway and footpath.

The trees roots do not appear to have damaged the concrete curb or the building structure.

The trees provide amenity to the local community and environment. They are a valuable part of the streetscape. They provide shade to the footpath. As part of the urban forest they have significant value.

Tree # 1

This tree has a co-dominant leader from the base of the tree. The junction between the leaders has included bark. There is no sign of decay or borers near the junction. There is a small bump or cut injury at the base of the tree. There are some previous pruning cuts and stubs have been left on the tree.

There are some branches overhanging or touching the adjacent building.

There is a major root at the surface to the north of the tree. The root is approximately 100mm diameter.

Plate 1

Tree # 1

Plate 2

Tree # 1
Bump injury

Plate 3

Tree # 1

Tree branches are touching the building.

Tree # 2

This is the smallest of the three trees. It has been suppressed by the two adjoining trees. It is in good condition and has a single leader trunk.

There is no evidence of any decay or borer in this tree.

Some of the branches from this tree are growing within 1 metre of the building.

There is 1 root growing on the surface of the ground the the south west of the tree. It approximately 50mm in diameter.

Plate 5

Tree # 2

Plate 6

Tree # 2
Surface root

Tree # 3

This tree has a co-dominant leader from the base of the tree. It has included bark in the junction. There is another major branch arising from one of the leaders at approximately 1 metre from the ground.

There is no evidence of any decay or borer in this tree.

Some of the branches from this tree are encroaching over or touching the building.

There are two major surface roots growing from this tree. One to the north is approximately 100mm in diameter and one to the south west is approximately 75mm in diameter.

There is also some mat roots east to the building. These roots are small in diameter. The mat of roots does reach the building but because the roots are fine it is not considered likely they would cause any damage to the building. The mat roots have lifted the pavers however.

Plate 7

Tree # 3
Tree roots to the south west.

Plate 8

Tree # 3
Tree root to the north.

Plate 9

Tree # 3
Root mat.

Plate 10

Concrete kerb

5. Appraisal

Trees A - Z (Barrell 2006) assesses these trees as important. They are protected by the Council's TPO, they have amenity value to the community and have little nuisance from their leaves or seeds. Even though they are exotic trees they are not considered to be a weed species. They are in good condition and are not considered to be unsafe. Trees # 1 and 3 have included bark junctions but this is common in this species and mature aged trees in good condition rarely fail in this area.

The trees are lifting the pavers on the footpath. This creates a dangerous trip hazard. This is a serious problem as Council is responsible for maintaining a safe footpath on this busy road.

The area the trees are growing in is small for 3 trees of this size. Tree # 2 is being suppressed by the other two trees and all of the trees have branches touching or close to the adjoining building. The TPZ and SRZ of the trees is the whole of the area between the kerb and the building.

The roots growing on the surface make up only a small proportion of the roots of the trees. They are estimated to be less than 10% of the trees' roots. These are the roots that are causing the pavers to lift.

It would be possible to remove the roots that are lifting the pavers without doing significant harm to the trees. In our opinion this would constitute an encroachment of less than 10% of the TPZ which is acceptable under the Standard.

Trees in urban areas often have problems associated with them because of the competition for space and the fact that the trees are growing and changing (Urban J. 2008).

6. Recommendations

Trees are dynamic living entities. As tree owners and managers this should be taken into account. Strategies that allow for this process to take place and still have the best possible outcomes for the trees and the community should be employed.

These trees have been assessed as important trees. They are also causing damage to the footpath pavers in their immediate vicinity. In order to stike a balance between the need to maintain the pavement in a safe condition and the retention of the streetscape, it is recommended that the roots causing the pavers lift be removed and the paving relaid. The roots causing the damage should be cut with a saw or an axe. The roots should be cut back to the raised area around the base of the tree and that raised area be maintained.

It is unlikely the roots will damage the building or the kerb in the medium term (5 ~ 10 years). Protection to the building should be provided by the installation of a root barrier, provided this does not interfere with any underground services. The root barrier should be installed to approximately 1 metre depth as close to the building as practicable (see Attachment 2. Root Barrier Plan).

The tree branches that are encroaching on the building should be pruned off to give at least 1 metre clearance to the building. The pruning should be carried out by an arborist qualified to at least Certificate 3 in Arboriculture. The pruning should be carried out in accordance with the recommendations of the Australian Standard AS 4373 - 2007 Pruning of amenity trees.

Trees in groups will naturally suppress weaker specimens to make room for the increasing size of the surviving trees. Consideration should be given to the removal of tree # 2. This would decrease the competition for space both above and below the ground. Because it is following the trees own natural growing habit it would not detract from the amenity of these trees. It is likely to improve the long term (10 plus years) viablity of the remaining trees.

7. Disclaimer

The information contained in the report is true and accurate to the best knowledge of the author. Best professional judgement was used to make recommendations. However no responsibility is taken by the authors of this report for any action which might be taken in reliance on it.

This report remains the property of the authors and Byron Shire Council. It may not be used or reprinted without their express permission.

Peter Gray agrees to be bound by the Expert Witness Code of Conduct.

8. Bibliography

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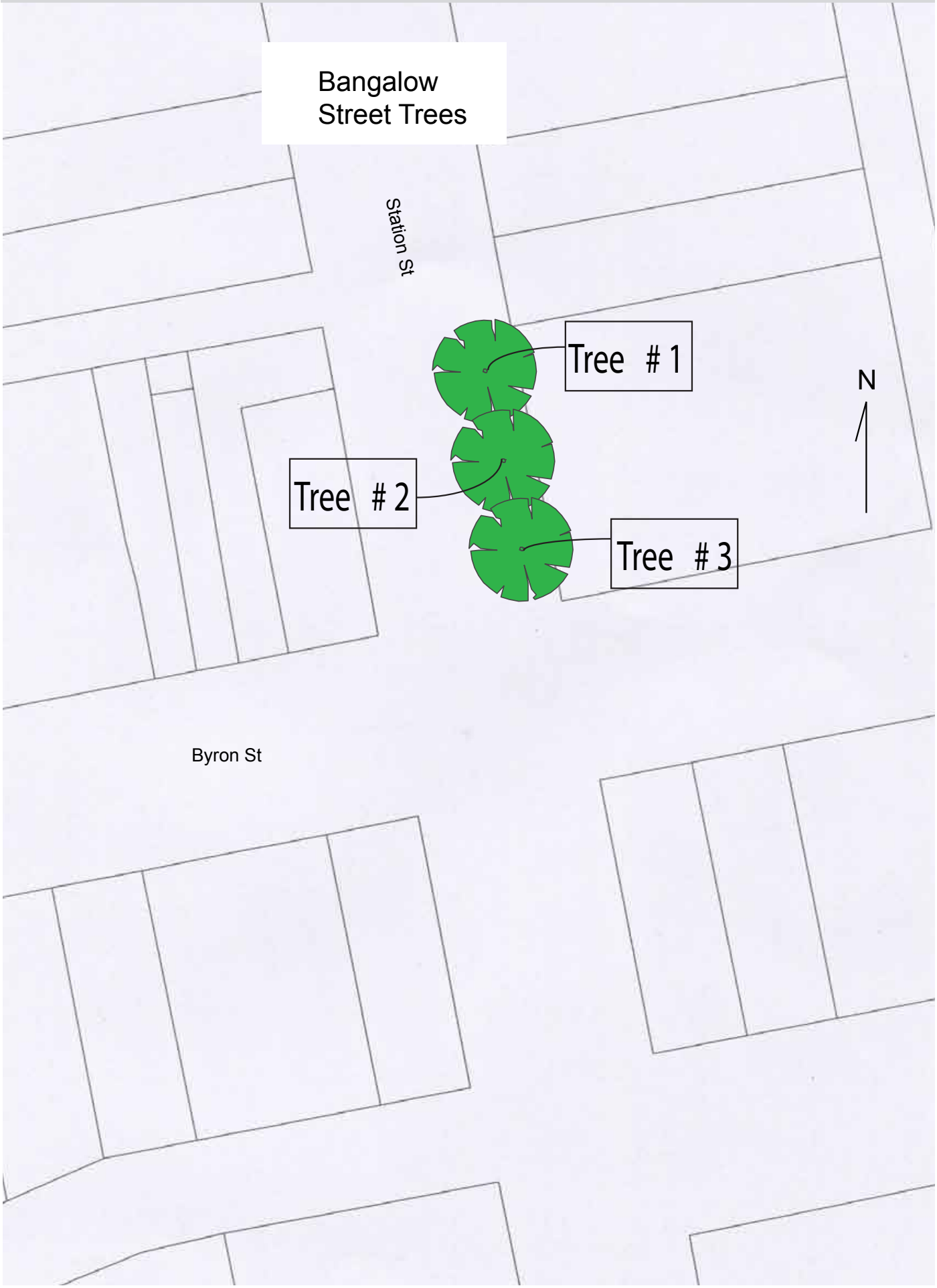
9. Attachment 1. Site Plan



10. Attachment 2. Root Barrier Plan

Root Barrier
for Liquidamber trees in
Bangalow.