

A short history of tree planting and a summary of content from key documents posted on the Newcastle City Council website on investigations into the Laman Street Hills Fig trees

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The Newcastle City Council Tree Asset Management System (TAMS) records 109,000 street and park trees of which 1217 are the Hills Fig (*Ficus microcarpa* var *Hilli*). The Hills Fig public tree population comprises 832 semi-mature trees and 374 mature trees. The majority of the mature trees were planted between 1930 and 1950 as street trees to create avenues or as single rows in centre road medians. The remainder were planted to the perimeters of public parks and reserves. Most if not all the mature Hills Figs in Newcastle were propagated by the Royal Botanic Gardens Sydney from material collected by Walter Hill (1820-1904) the first Superintendent of the Brisbane Botanic Gardens.

In its heyday BHP made extensive plantings of Hills Fig throughout Newcastle to screen its industrial facilities and in response to demands to improve the amenity of the city that was characterised at the time as a barren industrial landscape. As a result the number of mature Hills Fig's on private land might exceed the number on public land.

The Newcastle draft Street Tree Master Plan recently exhibited, gives a fascinating account of the history of amenity planting in Australia's premier industrial city. An extract from the draft plan is included here in order to bring some context to the current debate about the future of 14 Hills Fig trees in Laman Street.

The world of today is a far cry from the 1930s when tree lopping was a routine practice and road shoulders were unsealed so that trees had a modicum of space and access to air and water. But catering to the demands of vehicles, new development and utilities led to Newcastle's street grown figs being repeatedly wounded above and especially below ground.

It is the legacy of wounding and increasing confinement of the critical root spread of what are now very large mature street trees that has led to the situation in Laman Street where the future of the remaining 14 trees is in question following storm induced tree failures and a case history of similar failures in the city.

Before turning to the key documents for Laman Street, it might help to put today's Laman Street tree issues into some context by reading an extract on Newcastle tree planting from the recently exhibited draft Street Tree Master Plan.

A Short History of Tree Planting in Newcastle

Street trees form an important part of the cultural and historic landscape of Newcastle. The type of trees chosen, their location and grouping provide an insight into the past. Tree planting was undertaken to mark events, to celebrate and remember people and as a functional response to land use. Collectively the street tree population in Newcastle exhibits distinctive characteristics of a culture, a way of life and signifies a particular response of people to a place over time.

By the 1930s it was evident that industrialisation had created a landscape that was devoid of vegetation, with Newcastle often referred to as 'Coaly Town' and as being 'drab' in appearance. In 1931 Alderman Parker, the Lord Mayor, commented in response to this industrialised landscape, 'It is on all sides admitted that the city streets sadly lack the beauty and picturesque appearance which well ordered and suitably planted avenues of trees would afford'.

In response, an extensive policy of tree planting and a five year city beautification program was initiated. Alderman Shedden spoke of an intention to create a 'tree sense' in the public, the best way to nurture this being to provide trees for private citizens to plant and attend.

Newcastle's intent to overcome its bleak industrial character has been closely aligned with tree planting programs implemented over time. The 12 individual councils, which were amalgamated to form the Greater Newcastle Council in 1938, had been active in beautifying their areas. The

Newcastle Herald on the 5th of August 1937 reported that 'The suburban councils have planted hundreds of trees.... and it is expected that in a short time the suburbs will do much to explode the belief that Newcastle is a treeless city'.

The historically significant stand of Moreton Bay Fig trees along Islington Park's boundary with the Pacific Highway was first planted in 1880 by Wickham Municipal Council. A group of protesters gathered in 1935 to protect the Figs in Islington Park when they were under threat. The original planting was supplemented circa 1937 to commemorate the golden jubilee of Islington School. In 1941 E.G. Waterhouse, a prominent professor from Sydney University was invited by the Newcastle Tree Planting and Preservation League to inspect the trees in Islington Park. He commented that the grove of figs is 'one mass of greenery, the one landmark on which the eye dwells with pleasure in the otherwise uninspiring city landscape'.

A dense planting of Hills Fig trees along Port Waratah's boundary with Industrial Drive is a prime example of tree planting in response to the industrial environment. When steel was being produced at BHP these figs assisted in absorbing airborne particulates and providing an effective visual screen to the vast industrial complex. As these fig canopies have matured they have merged to form a massive hedge that has outlived BHP and still enhances Industrial Drive today.

Inspired by a trip abroad Alderman Armstrong, President of Newcastle Rotary Club, stated 'Trees planted on main traffic routes into overseas cities gave one a tremendous first impression'. An Avenue of Remembrance first planned in 1961 in association with the Rotary Club was implemented along the Pacific Highway from Hexham Bridge to the abattoir at Mayfield. The avenue had a dual objective to beautify the northern approach to the city and commemorate the early pioneers of Newcastle. In addition Council commenced planting of Hills Figs along the Pacific Highway west of Mayfield. Tree planting along these routes was instrumental in improving Newcastle's presentation to visitors.

Over the years, Newcastle's citizens have been divided on the importance of trees in Newcastle. A negative attitude to trees was expressed in an article in the Newcastle Herald March 1941 from a ratepayer in Wickham complaining about the fig trees that lined Albert Street in Wickham Park, 'They are dirty, and make our homes look like rubbish tips. We are always cleaning up the mess they make.' Council's Park Superintendent Mr Richard H Patterson countered, stating the importance of trees for four reasons first their 'beauty', second for their 'sanitary and hygienic value', then for the 'convenience in keeping the city cool'; and lastly for 'their architectural value in creating harmony where non-uniform buildings exist'. Patterson continues, recognising key environmental benefits identified in today's urban forest; 'Who would believe that trees absorbed the surplus carbon dioxide in the air and that they prevented much dust from flying over the city'.

The benefits of trees recognised by Patterson back in 1941 are still relevant today. Council's Urban Forest Policy recognises that quality tree canopy cover across the city provides aesthetic, health, environmental and monetary benefits, helping to offset the negative effects of increasing urbanisation, the heat island effect and climate change.

Newcastle currently benefits from the canopy of trees planted from the 1930s onward, however this canopy has a limited lifespan and there are many parts of the city that still lack trees. The Urban Forest Policy requires that the current canopy is properly managed with due regard for the principles and goals of intergenerational equity, so residents of Newcastle can continue to enjoy the benefits of trees.

Key documents relating to investigations and reporting on the Laman Street Hills Fig trees

December 2006 - [Review of the Root Plate Architecture of Hills Figs in Laman Street](#) (12.3 MB PDF)- To inform Art Gallery redevelopment proposals.

Summary – The report describes exploratory trenching in the road pavement to 8 trees adjacent to the Art Gallery and identified eccentric root plates. It was found that roots have been wounded and structural roots severed near the base of the trees. The trees are confined to small rectangular cut outs. Branch systems are weakened from past lopping resulting in 'cluster wedge' branch formations and branch inclusions.

June 2007 - [Wind loading in Laman Street](#) (7.1MB) – This report focuses on the effects the removal of the Art Gallery can have on the trees on Laman Street and the possible consequence of the wind load on the trees in Civic Park.

Summary - In the absence of the Gallery, the Laman Street trees would experience an increased wind load.

11 July 2007 - [Investigation into stability of three Hill's Weeping Figs along Laman Street, Newcastle](#) (1.1 MB PDF) – This applies to Hills Figs on the western end of Laman Street and one inside the Civic Precinct

Summary – The Hills Fig outside No 41 Laman Street was destabilised by the June 2007 storm and was in the process of gradual whole tree failure. Removal was recommended. Tree 4797 on the northern footpath opposite the Gallery was at risk due to severe crown imbalance and removal was recommended.

7 August 2009 - [Assessment of Hill's Weeping Figs in the Civic Cultural Precinct, Laman Street](#) (2.3 MB PDF) – This brings all the previous case studies and a detailed investigation into one report and estimates a useful life expectancy for all 14 trees.

Summary – This report identified root-plate architecture as the main structural weakness of the Laman Street trees, with trees on the southern side more vulnerable to wind-throw because of mechanical damage to roots. The report also identified crown asymmetry as a contributing structural weakness. Conducted a review of risk mitigation options by way of pruning, cabling and site isolation and concluded they were unsuitable or impractical and that removal and replacement of the trees as a group would secure the best long term outcome.

2 September 2009 - [QTRA Fig Trees Risk Assessment of Fig Trees in Laman Street, Cooks Hill](#) (608KB PDF) – The QTRA is a risk assessment methodology used to determine risk thresholds and assist in determining tree management options. The outcome of this QTRA was 1/19.8 for the 2007 storm event, well below the accepted threshold of 1/10,000.

Summary – Based on the assumption that the trees have a similar probability of failure because of their size, condition, age and growing environment, the probability of failure for the 2007 calendar year is 1/19.8. To achieve the QTRA threshold of 1/10,000 the probability of failure would need to equal 1/3788 and this was considered an unreasonable figure given the case history and detailed reports on the trees. The report reviews all previous reports and management options and concludes that the future of the trees is limited by the likelihood that some of the trees require removal soon if not immediately.

10 December 2009 - [Peer review of Marsden Report by Integrated Vegetation Management](#) (89KB) – This report was commissioned to review of the findings of Dennis Marsden's assessment of the Hills Fig trees.

Summary – The reviewer concludes that the Marsden (2009) report has appropriately used known examples of failure of the same species within the site and near by sites, and related these to the subject trees. The reviewer agrees that pruning and cabling are not appropriate management approaches and that whole of street removal is the most effective method to remove and replant the trees. The visual tree assessment outlined in the Marsden (2009) report has been undertaken in accordance with the internationally recognised VTA method.

11 December 2009 - [Peer review of Marsden Report by Arboreport](#) (86KB PDF) – This report was commissioned to review of the findings of Dennis Marsden's assessment of the Hills Fig trees.

Summary – The review concludes that the Marsden (2009) report demonstrates clearly, through the use of established arboricultural conventions and the analysis of casebook history, that the trees should be removed in order to minimise the risk of failure.

8 March 2010 - [Social Impact Assessment Stage 1 - Hills Figs Trees, Laman Street, Newcastle](#) (244KB PDF) – This report undertakes a literature survey to inform the benefits of trees to the community. It proposes a Social Impact matrix that would be informed by the consultation process.

9 March 2010 - [Laman Street Hills Figs QTRA and Review](#) (269KB PDF) – This QTRA was conducted following implementation of Council's risk abatement strategy for Laman Street. The outcome of this QTRA was a risk of harm of 1/14,400. This is within an acceptable limit subject to the continued implementation of the risk management strategy.

9 March 2010 - [Heritage Assessment and Recommendations](#) (1.5MB PDF) – The report is an assessment of heritage significance for the stand of fig trees in Laman Street between Darby and Dawson Streets.

12 March 2010 - [Quantified Tree Risk Assessment \(QTRA\), Root Investigation Report and Memo](#) (1.2MB PDF) – A collation of the revised QTRA report taking into account the implementation of the risk abatement strategy, the root plate structure investigation using ground penetrating radar technology and trenching and social and heritage assessments.

Summary – The review finds that:

- The Simonsen (2009) QTRA risk of harm of 1/19.8 for the 2007 storm event provides a reasonable assessment of the quantified risk of harm associated with the trees.
- The ground penetrating radar does not correlate with actual root distribution as found in previous excavations.
- The Laman Street Traffic Control Plan of 23/12/09 is appropriate.
- The risk management strategy as implemented leads to a calculated risk of harm of 1/14,400 subject to the continued implementation of the current risk management strategy.

16 March 2010 - [Heritage Assessment and Recommendations](#) (1.6MB PDF) – This report is the final assessment of the heritage significance of the fig trees (amended 9 March version).

19 March 2010 - [Independent Arborist Presentation](#) – Earthscape Horticultural Services Laman Street Community Workshop (from page 37).

Summary – The arborist agrees that the methodologies applied for assessing the trees, the findings, assumptions and conclusions on root and crown architecture, tree stability and recommendations for management are appropriate. He concludes that given the age and nature of the trees, failures are expected to continue and that as more failures occur there will be an increase in the risk of failure in adjacent trees.

1 July 2010 - [Quantified Tree Risk Assessment and Review](#) (288KB) – The revised Laman Street QTRA report of July 2010 was assessed based on information compiled by Councils asset management staff and compliance section. The information revealed that the road closure measures and parking restrictions were not effective and that cars were parking in the street and pedestrians were traversing across the closed off area. The QTRA as revised was 1/400 which equates to high risk. The acceptable minimum is 1/10,000.

9 July 2010 - [Feasibility Study - Tree Restraint](#) (183KB) – The THS report is in relation to the feasibility of using physical structures to restrain the trees in the event of a failure. The author was keen to find a solution however when calculations were completed it became evident that this was not feasible. The determination took into account the cost, size of structures required and the logistics of installation that would require large drilling equipment.

12 August 2010 – [Trenching Investigation of Hills Fig](#) (927KB) – A report on the implications of Hunter Water pipe repairs that severed a 110 mm diameter root on the south-east side of tree 12025 adjacent to the library entrance.

Summary - The investigation found that the tree, like others in Laman Street did not have a radial root plate. The report concluded that on balance, it was unlikely that the root severance had increased the likelihood of whole-tree failure during normal day to day conditions.

13 September 2010 - [Fauna Habitat Assessment](#) – An assessment of the habitat values of the Hills Fig trees in Laman Street and an assessment of the impacts of their removal on native fauna.

11 November 2010 - [Court Judgement](#) on Parks and Playgrounds Movement Inc's application to stop the removal of the fig trees from Laman Street. [Read a short synopsis of the court findings.](#)

December 2010 - Report on the feasibility of a pull test on the Laman Street trees (333KB) – Prepared by Total Height Safety Pty Ltd.

Summary – The review concluded that pull testing was possible but unlikely to provide accurate data to assess the trees future stability. It was found that the indicated forces required to test the stability of the trees would likely result in the loss of some of the trees and the community would need to be prepared for stem and tree failure should the tests proceed.

July 2011 - Memo to Councillors on Laman Street Risk Identification and Management (90KB PDF) – A summary of Council's approach to risk management of the Laman Street trees.

July 2011 - Branch Failure in Laman Street (30KB) – A memo dated 15 July 2011 of recent branch failures in Laman Street.

Summary – On 16 June 2011 a maximum wind gust of 70km/hr was recorded from the south-east. At that time three branches failed, two exceeding six metres in length, fell to the footpath on the northern side of Laman Street and one of three metres length fell from a tree on the southern side. Expert reports to Council as confirmed by Dr Ken James of ENSPEC warn that branch failure is an increasingly likely occurrence due to increased wind exposure following removal of adjacent trees.