

Preliminary Arborist's Report



Figure 1 Tree 2 *Eucalyptus saligna*

Site Address: 12 Frederick St, St Leonards

Client: Dexus Property Group Ltd c/o Donald Cant Watts Corke

Date: April 2016

Prepared by Ian Hills - Assoc. Dip Hort.
Cert III Arboriculture
Diploma Arboriculture

P: 0412 607 658

F: (02) 4393 6590

E: info@accuratetreeassessment.com.au

Table of contents

| | |
|--|----|
| 1.0 Summary | 3 |
| Conclusions | 3 |
| Recommendations | 3 |
| 2.0 Disclaimer | 4 |
| 3.0 Brief | 4 |
| 4.0 Method | 4 |
| 4.1. Documents | 4 |
| 5.0 Site Conditions | 5 |
| 6.0 Tree Assessment | 6 |
| 7.0 Tree Retention Value | 8 |
| 8.0 Discussion | 10 |
| 9.0 Conclusions..... | 12 |
| 10.0 Recommendations | 12 |
| 11.0 Appendices | 13 |
| 11.1. Safe Useful Life Expectancy Categories | 13 |
| 11.2 Plan of Details and Levels (extract) | 14 |
| 11.3 Site Plan..... | 15 |
| 11.5 Calculating Tree retention Value | 16 |
| 11.6. References..... | 16 |
| 11.7 Qualifications – Ian Hills..... | 17 |

Table of images

| | |
|---|----|
| Figure 1 Tree 2 <i>Eucalyptus saligna</i> | 1 |
| Figure 2 Subject site (source Google maps) | 5 |
| Figure 3 Tree 1 <i>Eucalyptus saligna</i> | 10 |
| Figure 4 The southern end of the site is dominated by <i>Casuarina cunninghamiana</i> | 11 |
| Figure 5 Tree 32 <i>Callistemon viminalis</i> | 11 |

1.0 Summary

Accurate Tree Assessment has been commissioned by Greta San Miguel of DCWC to provide an assessment of the trees that will be affected by the construction of the proposed North Shore Private Hospital, East Tower.

The property which is approximately 8 800m² in area is currently occupied by a multi storey carpark and vacant land and is bounded by commercial properties to the North and East, with The North Shore Private Hospital to the West and the Public Hospital to the South.

The site and adjoining properties are vegetated with a mix of exotic species and remnant native trees which are mainly restricted to the perimeter of the respective allotments.

Conclusions

The proposed development will necessitate the removal of all trees from the site. The removal of the trees which can be offset by replacement planting within the proposed landscaping will allow the development to proceed as proposed and will have minimal effect on the local landscape amenity.

Landscaping proposed for the site will adequately offset the removal of trees and vegetation.

The removal of the numerous weed species from the site will be beneficial to the community, as this source of seed will be removed from the area helping to protect any nearby natural areas from weed incursion.

Recommendations

That the removal of all trees and vegetation is approved subject to the provision of replacement planting.

That landscaping is implemented in accordance with the landscape concept plan prepared by TaylorBrammer Landscape Architects Pty Ltd.

That all weed species are removed from the site.

2.0 Disclaimer

This report is to be read and considered in its entirety. The subject trees were inspected from the ground using Visual Tree Assessment methodology, no aerial investigations; underground or internal investigations were undertaken. It is the responsibility of the client to implement all recommendations contained in this report.

The assessment is made having regard for the prevailing site conditions; and does not account for the effects that extreme weather events may have on trees.

Photographs used in this report are originals taken at the time of inspection and are not altered in anyway.

Information contained in this report reflects the condition of the trees at the time of the inspection. As trees are living organisms their condition will change over time, there is no guarantee that problems or deficiencies of the subject trees may not arise in the future. It must be accepted that living in close proximity to trees involves some level of risk.

No investigation into the presence on the site of threatened or endangered species of shrubs, groundcovers, grasses, herbs or orchids has been undertaken.

This report is for the use of the client and Willoughby Municipal Council to assist in determining the current development application and tree management options; distribution to others is not permitted except with the express permission of the author, Ian Hills.

3.0 Brief

Accurate Tree Assessment has been commissioned by Greta San Miguel of DCWC to provide an assessment of the trees that will be affected by the construction of the proposed North Shore Private Hospital, East Tower.

4.0 Method

An inspection of the subject trees was conducted from the ground on 19 April 2016. The assessment of the trees was made using a combination of both the relevant elements of Visual Tree Assessment (VTA) procedure (Matheny & Clark, 1994), (Mattheck & Breloer, 2004) with the aid of a Visual tree assessment form developed by International Society of Arborists in accordance with industry best practice.

The dimensions of the subject trees have been estimated as access to parts of the site was not possible.

Sounding of some trunks was carried out using a Thor®710 soft faced hammer.

The canopy structure was examined by eye from ground level.

Trees have been identified and each allocated a reference number which has been marked on the survey plan and will be used as reference throughout this report.

4.1. Documents

The client has provided the following documents that have been used in preparation of this report. Documents are listed below and are included in the Appendices to the report.

- Plan of Details and Levels Over Lot 1 in DP 591747 known as 12 Frederick St, St Leonards ref-42243DT , Dated 30/8/15 (appendix 11.2)
- Site Plan prepared by Health Projects International File NSP10 –P-SITE, issue 2 Dated 9/2/2016 (appendix 11.3)

5.0 Site Conditions

The property which is approximately 8 800m² in area is currently occupied by a multi storey carpark and vacant land and is bounded by commercial properties to the North and East, with The North Shore Private Hospital to the West and the Public Hospital to the South.

The site and adjoining properties are vegetated with a mix of exotic weed species such as Cotoneaster, Privet and Camphor Laurel and native trees most of which have been planted which are mainly restricted to the Southern end of the site.

The soil is from the Blacktown soil landscape which is characterised by a Wianamatta and Hawkesbury Shale parent material and can be moderately deep, up to 1 metre. The soil has few structural limitations with moderate reactivity. Trees on the property may not reach their full landscape potential due to low fertility and poor drainage. Site soil has been removed during construction of the elevated carpark and commercial buildings which occupy the site, with the only area of natural soil stabilised by retaining walls and planted vegetation

According to data from the Riverview Observatory which is located 3.2 kilometres from the site the highest wind speeds are experienced from the North-east and South during the summer months. The site is particularly exposed to winds from the North which are concentrated along Reserve Rd by the numerous structures in the vicinity.



Figure 2 Subject site (source Google maps)

6.0 Tree Assessment

| No. | Common Name | Species | DBH (mm) | TPZ (M) | Height (M) | Spread (N+S) X (E+W) | | Vigour | Age Class | ULE | Comments |
|-----|----------------------|---------------------------------|----------|---------|------------|----------------------|----|--------|-----------|-----|---|
| 1 | Sydney Blue Gum | <i>Eucalyptus saligna</i> | 200 | 2.4 | 10 | 5 | 5 | Good | M | 2A | Stunted due to poor growing conditions |
| 2 | Sydney Blue Gum | <i>Eucalyptus saligna</i> | 350 | 4.2 | 14 | 10 | 10 | Good | M | 2A | Good example of the species |
| 3 | River Oak | <i>Casuarina cunninghamiana</i> | 4-500 | 6.0 | 15 | 7 | 7 | Good | M | 2A | Forest form, supported by surrounding trees |
| 4 | River Oak | <i>Casuarina cunninghamiana</i> | 4-500 | 6.0 | 15 | 7 | 7 | Good | M | 2A | " |
| 5 | River Oak | <i>Casuarina cunninghamiana</i> | 4-500 | 6.0 | 15 | 7 | 7 | Good | M | 2A | " |
| 7 | River Oak | <i>Casuarina cunninghamiana</i> | 4-500 | 6.0 | 15 | 7 | 7 | Good | M | 2A | " |
| 8 | River Oak | <i>Casuarina cunninghamiana</i> | 4-500 | 6.0 | 15 | 7 | 7 | Good | M | 2A | " |
| 9 | River Oak | <i>Casuarina cunninghamiana</i> | 4-500 | 6.0 | 15 | 7 | 7 | Good | M | 2A | " |
| 10 | River Oak | <i>Casuarina cunninghamiana</i> | 4-500 | 6.0 | 15 | 7 | 7 | Good | M | 2A | " |
| 11 | River Oak | <i>Casuarina cunninghamiana</i> | 4-500 | 6.0 | 15 | 7 | 7 | Good | M | 2A | " |
| 12 | River Oak | <i>Casuarina cunninghamiana</i> | 4-500 | 6.0 | 15 | 7 | 7 | Good | M | 2A | " |
| 13 | Honey Myrtle | <i>Melaleuca armillaris</i> | 800 | 9.6 | 6 | 4 | 4 | Good | M | 2A | Suppressed by nearby trees |
| 14 | Sydney Golden Wattle | <i>Acacia longifolia</i> | 300 | 3.6 | 4 | 8 | 8 | Good | M | 2A | Growing in embankment |
| 15 | River Oak | <i>Casuarina cunninghamiana</i> | 4-500 | 6.0 | 11 | 6 | 6 | Good | M | 2A | Forest form, supported by surrounding trees |
| 16 | River Oak | <i>Casuarina cunninghamiana</i> | 4-500 | 6.0 | 9 | 12 | 12 | Good | M | 2A | " |
| 17 | River Oak | <i>Casuarina cunninghamiana</i> | 4-500 | 6.0 | 15 | 7 | 7 | Good | M | 2A | " |
| 18 | River Oak | <i>Casuarina cunninghamiana</i> | 4-500 | 6.0 | 15 | 7 | 7 | Good | M | 2A | " |
| 19 | River Oak | <i>Casuarina cunninghamiana</i> | 4-500 | 6.0 | 15 | 7 | 7 | Good | M | 2A | " |
| 20 | River Oak | <i>Casuarina cunninghamiana</i> | 4-500 | 6.0 | 15 | 7 | 7 | Good | M | 2A | " |
| 21 | River Oak | <i>Casuarina cunninghamiana</i> | 4-500 | 6.0 | 15 | 7 | 7 | Good | M | 2A | " |
| 22 | River Oak | <i>Casuarina cunninghamiana</i> | 4-500 | 6.0 | 15 | 7 | 7 | Good | M | 2A | " |
| 23 | River Oak | <i>Casuarina cunninghamiana</i> | 4-500 | 6.0 | 15 | 7 | 7 | Good | M | 2A | " |
| 24 | River Oak | <i>Casuarina cunninghamiana</i> | 4-500 | 6.0 | 15 | 7 | 7 | Good | M | 2A | " |
| 25 | River Oak | <i>Casuarina cunninghamiana</i> | 4-500 | 6.0 | 15 | 7 | 7 | Good | M | 2A | " |
| 26 | River Oak | <i>Casuarina cunninghamiana</i> | 4-500 | 6.0 | 15 | 7 | 7 | Good | M | 2A | " |
| 27 | River Oak | <i>Casuarina cunninghamiana</i> | 4-500 | 6.0 | 15 | 7 | 7 | Good | M | 2A | " |
| 28 | River Oak | <i>Casuarina cunninghamiana</i> | 4-500 | 6.0 | 15 | 7 | 7 | Good | M | 2A | " |
| 29 | River Oak | <i>Casuarina cunninghamiana</i> | 4-500 | 6.0 | 15 | 7 | 7 | Good | M | 2A | " |

Tree Assessment (Cont)

| No. | Common Name | Species | DBH (mm) | TPZ (M) | Height (M) | Spread (N+S) X (E+W) | | Vigour | Age Class | ULE | Comments |
|-----|----------------------|---------------------------------|----------|---------|------------|----------------------|----|--------|-----------|-----|--|
| 30 | Olive | <i>Olea sp</i> | 300 | 3.6 | 6 | 6 | 6 | Good | M | 2A | Undesirable species |
| 31 | Olive | <i>Olea sp</i> | 300 | 3.6 | 10 | 10 | 10 | Good | M | 2A | Undesirable species |
| 32 | Weeping Bottlebrush | <i>Callitemon viminalis</i> | 250 | 3.0 | 7 | 5 | 5 | Good | M | 2A | Visible in the streetscape |
| 33 | Sydney Golden Wattle | <i>Acacia longifolia</i> | 250 | 3.0 | 4 | 8 | 8 | Good | M | 2A | Growing in the embankment |
| 34 | River Oak | <i>Casuarina cunninghamiana</i> | 4-500 | 6.0 | 15 | 7 | 7 | Good | M | 2A | Forest form, supported by surrounding trees |
| 35 | River Oak | <i>Casuarina cunninghamiana</i> | 4-500 | 6.0 | 15 | 7 | 7 | Good | M | 2A | “ |
| 36 | River Oak | <i>Casuarina cunninghamiana</i> | 4-500 | 6.0 | 15 | 7 | 7 | Good | M | 2A | “ |
| 37 | River Oak | <i>Casuarina cunninghamiana</i> | 4-500 | 6.0 | 15 | 7 | 7 | Good | M | 2A | “ |
| 38 | River Oak | <i>Casuarina cunninghamiana</i> | 4-500 | 6.0 | 15 | 7 | 7 | Good | M | 2A | “ |
| 39 | Sweet Pittosporum | <i>Pittosporum undulatum</i> | 250 | 3.0 | 9 | 6 | 6 | Good | M | 2A | Indigenous species, appears structurally sound |
| 40 | Camphor Laurel | <i>Cinnamomum camphora</i> | 400 | 4.8 | 6 | 4 | 4 | Poor | M | 4A | Undesirable species |
| 41 | Brush Box | <i>Lophostemon confertus</i> | 400 | 4.8 | 8 | 5 | 5 | Good | M | 2A | Appears structurally sound |
| 42 | Brush Box | <i>Lophostemon confertus</i> | 400 | 4.8 | 9 | 5 | 5 | Good | M | 2A | Appears structurally sound |

DBH = Diameter at 1.4 metres above ground level

TPZ = Tree Protection Zone (calculated in accordance with AS4970 – Protection of Trees on Development Sites)

SRZ ULE = Useful Life Expectancy (Barrel, J -1993-95) see appendix 11.1

Age class – J = Juvenile, SM =Semi-mature M = Mature, OM= Over mature

Vigour - P = Poor, F = Fair, Av = Average, G =Good

7.0 Tree Retention Value

| No. | Species | Sustainability | | | Landscape Significance Rating | Retention Value | Encroachment Level | |
|-----|---------------------------------|-------------------|-----------|-------------|-------------------------------|-----------------|--------------------|------|
| | | Health and Vigour | Condition | Suitability | | | | |
| 1 | <i>Eucalyptus saligna</i> | Good | Good | Low | 15-40 years | 3 | Moderate | High |
| 2 | <i>Eucalyptus saligna</i> | Good | Good | High | 15-40 years | 2 | High | High |
| 3 | <i>Casuarina cunninghamiana</i> | Good | Good | High | 15-40 years | 3 | Moderate | High |
| 4 | <i>Casuarina cunninghamiana</i> | Good | Good | High | 15-40 years | 3 | Moderate | High |
| 5 | <i>Casuarina cunninghamiana</i> | Good | Good | High | 15-40 years | 3 | Moderate | High |
| 7 | <i>Casuarina cunninghamiana</i> | Good | Good | High | 15-40 years | 3 | Moderate | High |
| 8 | <i>Casuarina cunninghamiana</i> | Good | Good | High | 15-40 years | 3 | Moderate | High |
| 9 | <i>Casuarina cunninghamiana</i> | Good | Good | High | 15-40 years | 3 | Moderate | High |
| 10 | <i>Casuarina cunninghamiana</i> | Good | Good | High | 15-40 years | 3 | Moderate | High |
| 11 | <i>Casuarina cunninghamiana</i> | Good | Good | High | 15-40 years | 3 | Moderate | High |
| 12 | <i>Casuarina cunninghamiana</i> | Good | Good | High | 15-40 years | 3 | Moderate | High |
| 13 | <i>Melaleuca armillaris</i> | Fair | Fair | High | 5 -15 years | 3 | Moderate | High |
| 14 | <i>Casuarina cunninghamiana</i> | Good | Good | High | 15-40 years | 3 | Moderate | High |
| 15 | <i>Casuarina cunninghamiana</i> | Good | Good | High | 15-40 years | 3 | Moderate | High |
| 16 | <i>Casuarina cunninghamiana</i> | Good | Good | High | 15-40 years | 3 | Moderate | High |
| 17 | <i>Casuarina cunninghamiana</i> | Good | Good | High | 15-40 years | 3 | Moderate | High |
| 18 | <i>Casuarina cunninghamiana</i> | Good | Good | High | 15-40 years | 3 | Moderate | High |
| 19 | <i>Casuarina cunninghamiana</i> | Good | Good | High | 15-40 years | 3 | Moderate | High |
| 20 | <i>Casuarina cunninghamiana</i> | Good | Good | High | 15-40 years | 3 | Moderate | High |
| 21 | <i>Casuarina cunninghamiana</i> | Good | Good | High | 15-40 years | 3 | Moderate | High |
| 22 | <i>Casuarina cunninghamiana</i> | Good | Good | High | 15-40 years | 3 | Moderate | High |
| 23 | <i>Casuarina cunninghamiana</i> | Good | Good | High | 15-40 years | 3 | Moderate | High |
| 24 | <i>Casuarina cunninghamiana</i> | Good | Good | High | 15-40 years | 3 | Moderate | High |
| 25 | <i>Casuarina cunninghamiana</i> | Good | Good | High | 15-40 years | 3 | Moderate | High |
| 26 | <i>Casuarina cunninghamiana</i> | Good | Good | High | 15-40 years | 3 | Moderate | High |

Tree Retention Value (Cont)

| No. | Species | Sustainability | | | Landscape Significance Rating | Retention Value | Encroachment Level | |
|-----|---------------------------------|-------------------|-----------|-------------|-------------------------------|-----------------|--------------------|------|
| | | Health and vigour | Condition | Suitability | | | | |
| 27 | <i>Casuarina cunninghamiana</i> | Good | Good | High | 15-40 years | 3 | Moderate | High |
| 28 | <i>Casuarina cunninghamiana</i> | Good | Good | High | 15-40 years | 3 | Moderate | High |
| 29 | <i>Casuarina cunninghamiana</i> | Good | Good | High | 15-40 years | 3 | Moderate | High |
| 30 | <i>Olea sp</i> | Good | Good | Low | 15-40 years | 5 | Low | High |
| 31 | <i>Olea sp</i> | Good | Good | Low | 15-40 years | 5 | Low | High |
| 32 | <i>Callitemon viminalis</i> | Good | Good | High | 15-40 years | 3 | High | High |
| 33 | <i>Acacia longifolia</i> | Good | Good | High | 5 - 15 years | 3 | High | High |
| 34 | <i>Casuarina cunninghamiana</i> | Good | Good | High | 15-40 years | 3 | Moderate | High |
| 35 | <i>Casuarina cunninghamiana</i> | Good | Good | High | 15-40 years | 3 | Moderate | High |
| 36 | <i>Casuarina cunninghamiana</i> | Good | Good | High | 15-40 years | 3 | Moderate | High |
| 37 | <i>Casuarina cunninghamiana</i> | Good | Good | High | 15-40 years | 3 | Moderate | High |
| 38 | <i>Casuarina cunninghamiana</i> | Good | Good | High | 15-40 years | 3 | Moderate | High |
| 39 | <i>Pittosporum undulatum</i> | Good | Good | High | 15-40 years | 2 | High | High |
| 40 | <i>Cinnamomum camphora</i> | Fair | Fair | Low | < 5 years | 5 | Very low | High |
| 41 | <i>Lophostemon confertus</i> | Good | Good | High | 15-40 years | 2 | High | High |
| 42 | <i>Lophostemon confertus</i> | Good | Good | High | 15-40 years | 2 | High | High |

Vigour – based on production of new growth and wound occlusion Av = Average, P = Poor, F = Fair.

Condition – based on structural faults or diseases, or provides comparison to an archetypal example of the species.

Suitability - High = adequate space to accommodate future growth and growing conditions suited to the species, Medium = inadequate space and good growing conditions, Low = inadequate space and poor growing conditions.

Retention Value – combines Landscape significance and sustainability to rank the trees value (Refer Appendix 11.3)

Encroachment level – low = up to 10% and generally acceptable (AS4970-2009), moderate = 10-25% and may become acceptable pending minor amendment of the proposal, high = greater than 25% and will require extensive amendment of the proposal, the cost of which may be prohibitive.

8.0 Discussion

The construction of the proposed North Shore Private Hospital East Tower will necessitate excavation of the subject site from boundary to boundary to construct footings suitable for a building of this nature. It appears obvious that all existing vegetation will need to be removed from the site to meet this requirement.

Of the 42 trees assessed in this report there are 4 that are locally occurring native species; Trees 1 and 2 Sydney Blue Gum (*Eucalyptus saligna*), Tree 33 Sydney Golden Wattle (*Acacia longifolia*) and Tree 39 Sweet Pittosporum (*Pittosporum undulatum*).

Sydney Blue Gum and Sweet Pittosporum are both representative species of Blue Gum High Forest which is a critically endangered plant community protected by the Threatened Species Conservation Act 1995. The presence of these species on the site however is of little environmental value due to the isolation from other areas of bushland and the severe disturbance caused by construction and excavation.

The Southern end of the site is dominated by a stand of River-Oak (*Casuarina cunninghamiana*) this species is commonly found throughout The Northern Territory, Queensland and Eastern NSW where as its name suggests it grows around rivers and other water bodies. The tree is often planted to stabilise stream banks and other areas where erosion is a problem; it is assumed that this is the case for the subject site with the trees planted on the steep embankment in conjunction with a number of low retaining walls. The trees have formed a dense canopy over the area where they have form a mono-culture due to their allelopathic nature which sees the build- up of a dense mat of needle like leaves making it difficult for other species to become established.

The other main feature of the site vegetation is the proliferation of weed species such as Camphor Laurel, Privet and Cotoneaster. These species are considered undesirable due to their propensity for colonising bushland at the expense of native trees and shrubs. The species are listed in section 5.7 of in Willoughby Council' s Tree and Bushland Management Plan and can be removed as exempt development.

It is recommended that the approved removal of trees is undertaken by a suitably qualified and insured contracting arborist in accordance with the Workcover Code of Practice for the Arboriculture industry, with care taken not to injure any trees or vegetation not specifically identified for removal.



Figure 3 Tree 1 *Eucalyptus saligna*



Figure 4 The southern end of the site is dominated by *Casuarina cunninghamiana*



Figure 5 Tree 32 *Callistemon viminalis*

9.0 Conclusions

The proposed development will necessitate the removal of all trees from the site. The removal of the trees which can be offset by replacement planting within the proposed landscaping will allow the development to proceed as proposed and will have minimal effect on the local landscape amenity.

Landscaping proposed for the site will adequately offset the removal of trees and vegetation.

The removal of the numerous weed species from the site will be beneficial to the community, as this source of seed will be removed from the area helping to protect any nearby natural areas from weed incursion.

10.0 Recommendations

That the removal of all trees and vegetation is approved subject to the provision of replacement planting.

That landscaping is implemented in accordance with the landscape concept plan prepared by TaylorBrammer Landscape Architects Pty Ltd.

That all weed species are removed from the site.



Ian Hills - Consulting Arborist

11.0 Appendices

11.1. Safe Useful Life Expectancy Categories

1: Long SULE: Trees that appeared to be retainable at the time of assessment for more than 40 years with an acceptable level of risk.

- (a) Structurally sound trees located in positions that can accommodate future growth.
- (b) Trees that could be made suitable for retention in the long term by remedial tree care.
- (c) Trees of special significance for historical, commemorative or rarity reasons that would warrant extraordinary efforts to secure their long term retention.

2: Medium SULE: Trees that appeared to be retainable at the time of assessment for 15–40 years with an acceptable level of risk.

- (a) Trees that may only live between 15 and 40 more years.
- (b) Trees that could live for more than 40 years but may be removed for safety or nuisance reasons.
- (c) Trees that could live for more than 40 years but may be removed to prevent interference with more suitable individuals or to provide space for new planting.
- (d) Trees that could be made suitable for retention in the medium term by remedial tree care.

3: Short SULE: Trees that appeared to be retainable at the time of assessment for 5–15 years with an acceptable level of risk.

- (a) Trees that may only live between 5 and 15 more years.
- (b) Trees that could live for more than 15 years but may be removed for safety or nuisance reasons.
- (c) Trees that could live for more than 15 years but may be removed to prevent interference with more suitable individuals or to provide space for new planting.
- (d) Trees that require substantial remedial tree care and are only suitable for retention in the short term.

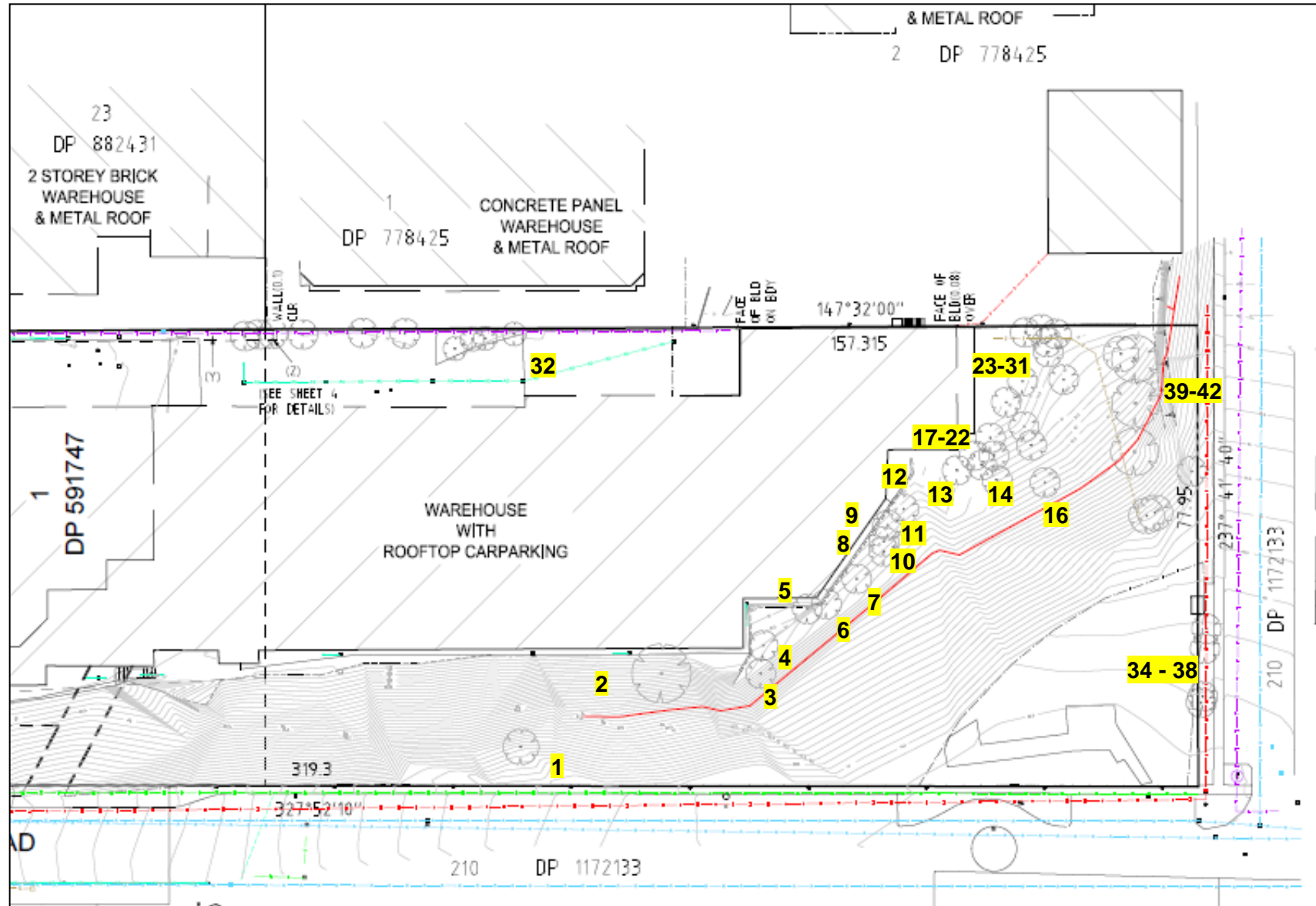
4: Remove: Trees that should be removed within the next 5 years.

- (a) Dead, dying, suppressed or declining trees because of disease or inhospitable conditions.
- (b) Dangerous trees because of instability or recent loss of adjacent trees.
- (c) Dangerous trees because of structural defects including cavities, decay, included bark, wounds or poor form.
- (d) Damaged trees that are clearly not safe to retain.
- (e) Trees that could live for more than 5 years but may be removed to prevent interference with more suitable individuals or to provide space for new planting.
- (f) Trees that are damaging or may cause damage to existing structures within 5 years.
- (g) Trees that will become dangerous after removal of other trees for the reasons given in (a) to (f)
- (h) Trees in categories (a) to (g) that have a high wildlife habitat value and, with appropriate treatment, could be retained subject to regular review.

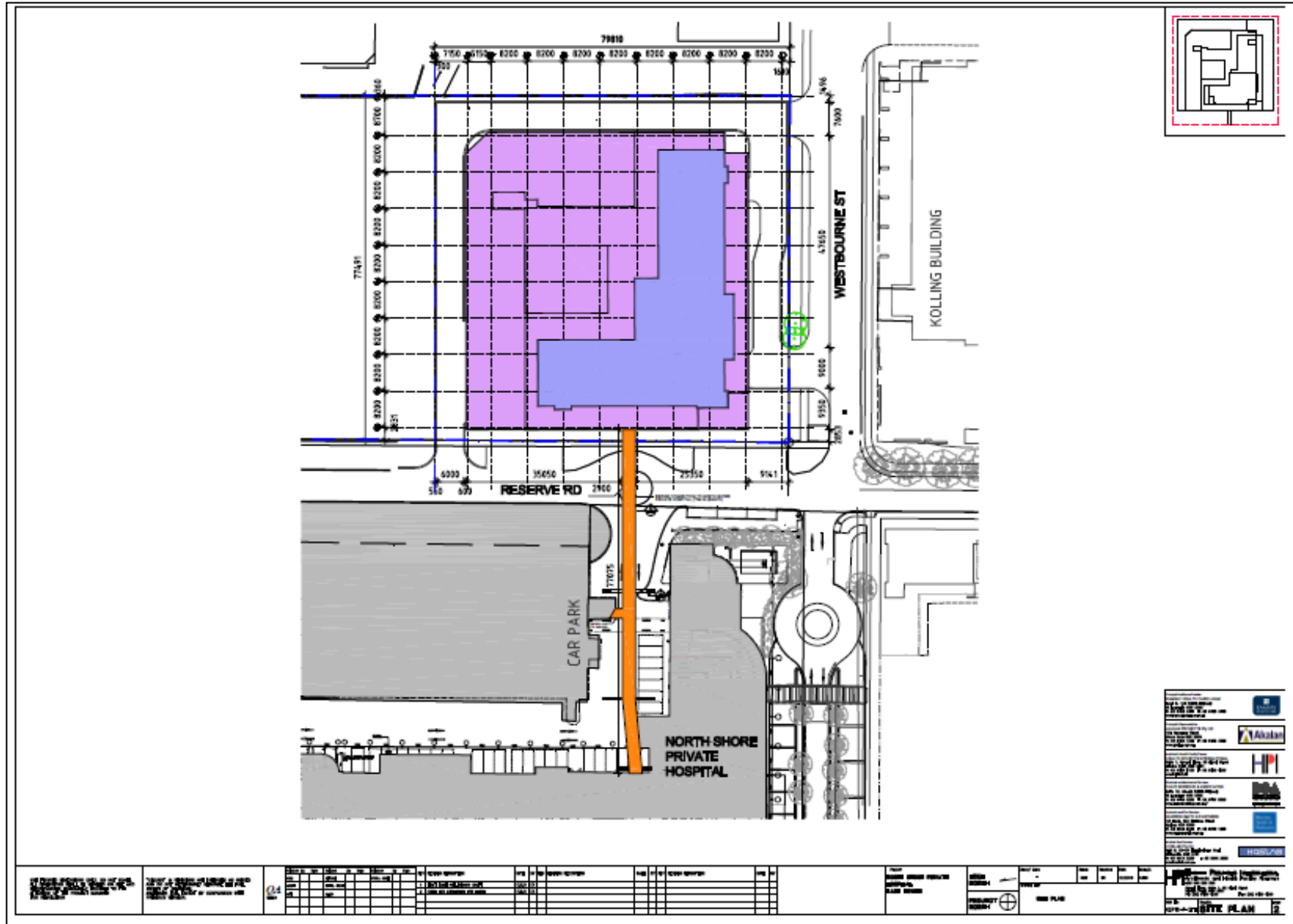
5: Small, young or regularly pruned: Trees that can be reliably moved or replaced.

- (a) Small trees less than 5m in height.
- (b) Young trees less than 15 years old but over 5m in height.
- (c) Formal hedges and trees intended for regular pruning to artificially control growth.

11.2 Plan of Details and Levels (extract)



11.3 Site Plan



11.5 Calculating Tree retention Value

| Tree Sustainability | Landscape Significance Rating | | | | | | |
|-----------------------|-------------------------------|---|----------|----------|-----|-----|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Greater than 40 years | High Retention Value | | | Moderate | | Low | |
| 15 to 40 years | High Retention Value | | Moderate | | Low | | |
| 5 to 15 years | High Retention Value | | Moderate | | Low | | |
| Less than 5 years | High Retention Value | | Moderate | | Low | | |
| Dead or Hazardous | High Retention Value | | Moderate | | Low | | |

(Source NUFTM) Modified by A Morton from Couston and Howden (2001) Tree retention values table Footprint Green Pty Ltd Australia)

11.6. References

Clark R.J & Matheny N (1998) Trees & Development – A technical guide to Preservation of trees during land development: International Society of Arboriculture

Mattheck C., Breloer, (1999) The Body Language of Trees – a handbook for failure analysis 5th ed., London: The Stationery Office, U.K

Barrell, J. (1993-95) 'Pre-planning Tree Surveys Safe Useful Life Expectancy (SULE) is the Natural Progression' Arboricultural Journal Vol. 17, PP 33 - 46, Academic Publishers, Great Britain.

Standards Australia. 2009 'Australian Standard 4970-2009 Protection of Trees on Development Sites' Standards Australia GPO Box 476 Sydney NSW 2001, Australia.

Australian Government, Bureau of Meteorology 2016 [Online]
Available at http://www.bom.gov.au/climate/averages/tables/cw_066131.shtml accessed 20 April 2016]

NSW Office of Environment and Heritage, eSpade 2016 [Online]
Available at: : <http://www.environment.nsw.gov.au/Salisapp/resources/spade/reports/9030bt.pdf> [accessed 20 April 2016]

Google Maps 2016 [online] Available at: <http://maps.google.com.au/maps> [accessed 19 April 2016]

11.7 Qualifications – Ian Hills

Associate Diploma Horticulture - Ryde TAFE 1984

AQF3 Horticulture (Arboriculture) - Ourimbah TAFE 1998

AQF5 Diploma Horticulture (Arboriculture) - Kurri Kurri TAFE 2009 (Dux) Cert No. 5934155