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VOLUME 2

D

APPENDIX D

Arboricultural Assessment, Tree Management Solutions (2020)

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223 Kohimarama Road & 7 John Rymer Place, Kohimarama

Arboricultural Report

Report commissioned by: Ryman Healthcare Ltd

Consultant: Andrew Barrell, Tree3 Ltd

Dated: 27 January 2020

Contents

1.0 Introduction

1.1 I have been engaged by Ryman Healthcare Limited ("Ryman") to prepare an arboricultural assessment relating to a proposed comprehensive care retirement village ("Proposed Village") at 223 Kohimarama Road and 7 John Rymer Place, Kohimarama, Auckland ("Site").

1.2 The Site is currently bare with an eclectic mix of native and exotic vegetation..

1.3 I carried out an initial site visit on 15 November 2018 to gather information to produce a preliminary tree audit (dated 10 December 2018 and appended as Attachment 1 at the end of this report for reference purposes only). I carried out further site visits on 18 June and 10 October 2019 to assess the proposal and gather relevant information. Weather conditions were fine during each visit and I had unhindered access to the Site each time.

1.4 The aim of this report is to provide background information relating to vegetation on and adjacent to the Site, identify the main areas where conflicts between development and vegetation may occur and provide guidance and recommendations to manage any such conflicts to maximise the useful life expectancy of retained vegetation..

1.5 The findings of this report are based on the abovementioned site visits and the site plans provided by Ryman. I have included screenshot copies of these plans where relevant to clarify points made in this report. Please note these screenshots are not to scale and are intended only to illustrate points being made within the report. Any measurements or other information should be taken from the original documents provided with the application..

1.6 Attachment 1 at the end of this report contains the *Preliminary Tree Audit* (dated 10 December 2018) and is attached for reference purposes only.

1.7 I have arboricultural experience and qualifications, the details of which are summarised on my website at the following address: (**http://tree3.co.nz/about-us/andy-barrel-cv/**).

2.0 Assessment Protocols

2.1 The assessments and recommendations made in this report have been based on various industry guidelines and concepts. The main best practice guideline referenced is Australian Standard AS4970-2009 Protection of trees on development sites ("AS4970"). The assessments have been based on the concept of useful life expectancy. This term relates to the balance between achieving the many and varied benefits provided by trees within an urban environment and the resources required to achieve those benefits.

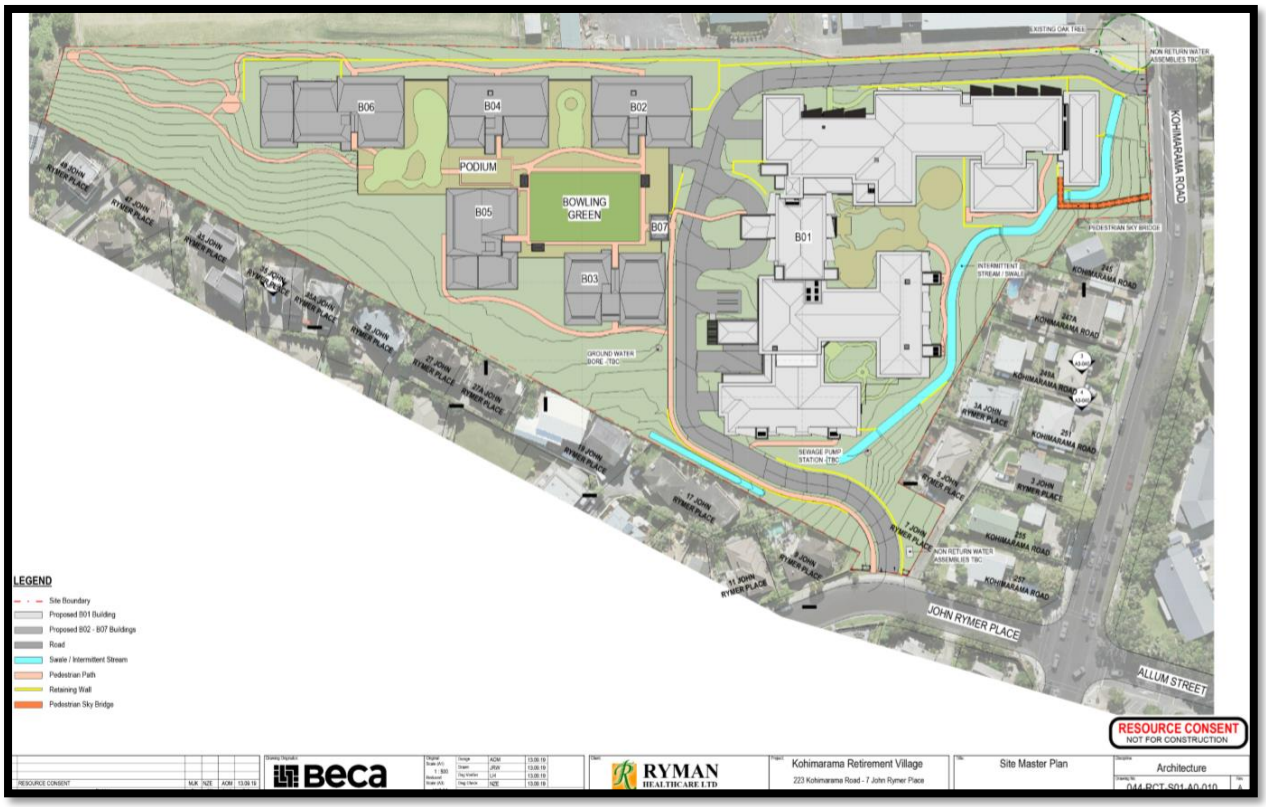
2.2 Two concepts from AS4970 are particularly relevant within the following assessments. They relate to the Tree Protection Zone (TPZ) and the Structural Root Zone (SRZ). The TPZ is a combination of canopy and root area that is to be protected from any kind of disturbance so that the tree remains viable. It is defined by a circle around the tree with a radius equal to 12 times the trunk diameter at breast height (dbh). This radius is measured from the centre of the trunk at ground level. The SRZ represents an area around the tree which is likely to contain structural roots which are critical to the stability of the tree. It is calculated by multiplying the trunk diameter just above the buttress flare at ground level by approximately 3.3.

2.3 These concepts (TPZ and SRZ) represent precautionary starting points which can be adjusted based on arboricultural evaluation of various circumstances including species of tree, age and vigour, potential remedial actions for other sections of root zone area, cumulative impacts, application of specific works methodologies and root-friendly designs and the nature of any proposed disturbance.

3.0 Proposal and background information

3.1 Figure 1 below is a screenshot of the Site Master Plan showing the location and orientation of the Site layout. Note that this and the following screenshots are intended to provide background information and are not to scale. Any detailed information should be taken from the original plan set provided with the application.

Figure 1 *– Screenshot of Site Master Plan showing site layout.*



3.2 The preliminary tree audit in Attachment 1 provides a basic vegetation inventory and assessment along with a summary of the relevant Auckland Unitary Plan (AUP) rules that apply to vegetation on this Site. In summary, the only vegetation protected by AUP rules is that which stands within 10m of the water courses on the Site. Practically all of this vegetation is exotic weed species. There is one tree which stands on an adjacent property to the north but overhangs the subject site significantly (see Item 1 in Section 4 below).

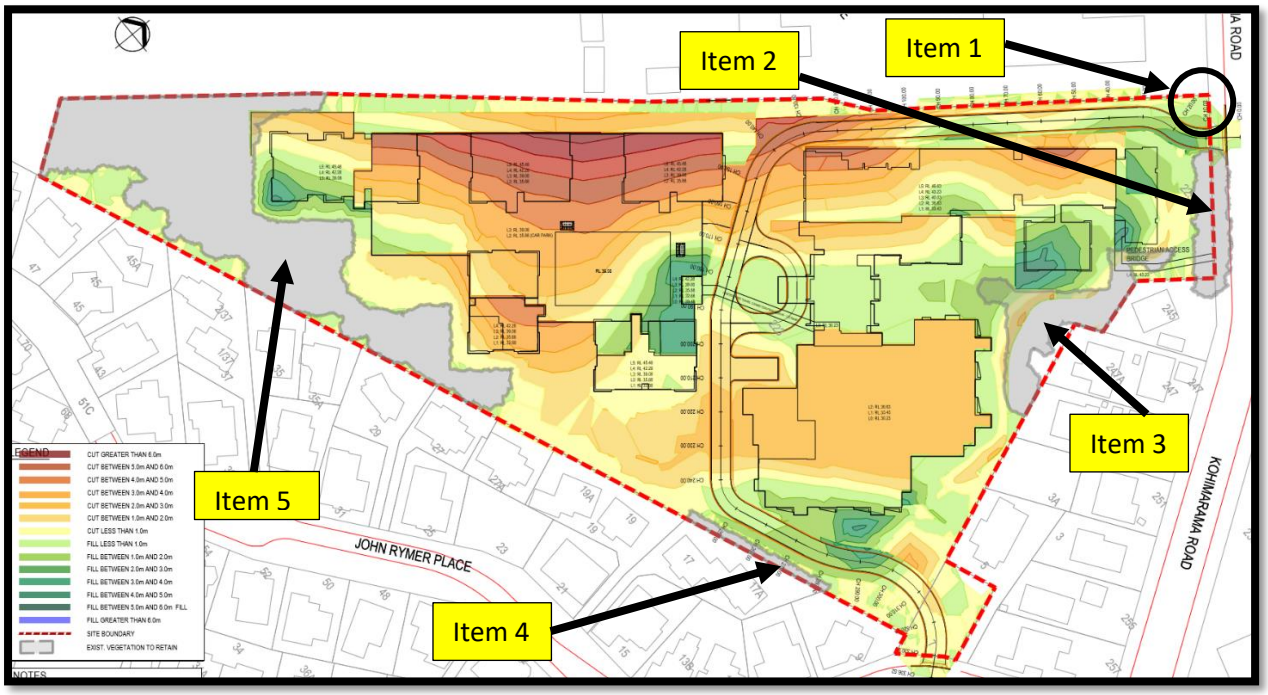
3.3 Figure 2 below is a copy of the Landscape Master Plan which shows the areas of existing vegetation which are to be retained. Various works are proposed in and around these areas and these are described in more detail in the following section.

Figure 2 *– Landscape Master Plan showing areas of vegetation to be retained.*

4.0 Arboricultural Assessment

4.1 Figure 3 is an annotated version of the most recent engineering plan showing the location of the main areas of potential conflicts between the proposed works and the vegetation.

Figure 3 *– Annotated engineering plan showing main areas of potential vegetation conflicts.*



4.2 **Item 1**. This is an oak tree (*Quercus robur*) standing approximately 12m tall with a dbh of about 1m. It stands on the property located to the north of the Site (Selwyn College) but overhangs the proposed northern entrance by upwards of 8m. Works within the canopy spread of this tree will include construction of a fence or wall and installation of the access road. The tree appeared to be in good health at the time of inspection. Adoption of root-friendly construction techniques in the vicinity of this tree will be necessary to avoid significant adverse impacts on roots and canopy. Fencing or wall structures will ideally be supported on micro piles within the canopy radius and any road structure will be located and constructed so that root loss is minimised as much as possible within the TPZ. The TPZ within the Site should be protected and ideally covered with mulch to improve root activity which in turn will assist the tree with recovery from any minor root loss associated with the proposed works. Ideally, no works would encroach within the SRZ (radius of 3.3m from the centre of the trunk). Minor canopy lift trimming may be required above the access road however this is anticipated to affect less than 5% of the overall canopy cover of the tree and therefore is of no significance to tree health.

4.3 **Item 2**. This consists of a row of pohutukawa trees (*Metrosideros excelsa*) extending along the Kohimarama Road frontage and ranging in height from 7- 9m. They all appeared to be in reasonably good health at the time of inspection. Boundary fencing will be constructed within the canopy spread of these trees and will require excavations for pile holes within the TPZ and possibly within the SRZ. In addition a pedestrian air bridge will connect the Proposed Village to Kohimarama Road between the southernmost pohutukawa trees where there is a natural gap between the canopies– see Figure 4 below.

4.4 The species is generally very tolerant of root zone and canopy disturbance and, providing adequate arboricultural management occurs during the works, it is anticipated that any root or canopy disturbance will have insignificant adverse impacts on the health or stability of the trees.

Figure 4 *– Natural gap between southernmost pohutukawa trees (red outline).*

4.5 **Item 3.** This relates to a section of bush along the eastern site boundary which is to be retained. Physical demarcation of the area to be retained (with spray, tape, posts etc.) will ensure that no retained vegetation is accidentally removed or damaged during clearance works. Installation of adequate tree protection fencing after site clearance has occurred will ensure the ongoing integrity of the retained vegetation is maintained during subsequent site works.

4.6 **Item 4**. This is an acmena (*Acmena smithii*) hedge which stands along the southern boundary. This will be retained to maintain screening. The species in general is renowned for being very resilient and able to withstand significant trimming and root zone disturbance. Consequently, standard site management procedures will ensure the hedge area is fenced off and protected from construction-related damage which in turn will ensure the ongoing survival of the hedge and continuance of the screening function it provides.

4.7 **Item 5**. This is a bush area through which a walkway will be constructed. The bush consists primarily of old and regenerating acmena with occasional native species present. The walkway will likely entail a combination of conventional path construction (excavation and subsequent installation of path surface on hard fill) along with raised footpath sections (ideally on decking supported on piles). Appropriate footpath systems and construction procedures should be adopted for each section of the walkway depending on tree-related constraints. As mentioned above the species (acmena) is very tolerant to disruption and unlikely to suffer any adverse effects as a result of the walkway construction. Some vegetation will be cleared from the eastern side of this bush area but this can be managed so that no unintentional collateral damage occurs to retained vegetation. Adequate fencing of TPZs will ensure no construction-related encroachments occur which could damage retained vegetation.

5.0 Recommendations

5.1 A Tree Management Plan (TMP) should be prepared to address the management of retained vegetation during and after construction works to ensure the useful life expectancy of that vegetation is maximised whilst enabling construction activities to proceed. This TMP should be based primarily on appropriate industry guidelines but also contain site-specific tree management recommendations.

5.2 Items 1-5 inclusive represent the main areas where vegetation conflicts are likely to occur and will need to be adequately managed in accordance with the TMP. Situations may arise during the course of the works where other vegetation could be adversely impacted. In this event, adhering to the recommendations in the TMP will ensure that any unforeseen vegetation conflicts can be managed appropriately so that any vegetation that needs to be retained will be adequately protected and managed during any ongoing site works.

5.3 The TMP should be formulated to address specific situations but also should be flexible enough to deal with any unexpected tree-related conflicts that may arise during construction works. Invariably even the most thorough plans can change therefore any effective tree management regime needs to be flexible enough to accommodate unexpected situations so that retained vegetation remains viable whilst achieving specific development objectives.

6.0 Conclusions

6.1 Successful retention and ongoing management of retained vegetation will be dependent upon the works being carried out in accordance with the recommendations in the TMP which will ensure any adverse arboricultural impacts remain insignificant.

Andrew Barrell

Consultant Arborist, Director *Tree3 Ltd*

27 January 2020

- ***Attachment 1 –*** *Preliminary Tree Audit, dated 10 December 2018*

Attachment 1 – *Preliminary Tree Audit, dated 10 December 2018*

Arboricultural report

To: Matthew Brown, Development Manager, Ryman Healthcare matthew.brown@rymanhealthcare.com

From: Andrew Barrell, Consultant Arborist, Tree 3 Ltd andybarrell@xtra.co.nz

Date: 10 December 2018

Re: 223 Kohimarama Rd & 7 John Rymer Place, Kohimarama

Preliminary tree audit

Introduction

1. I have been engaged to carry out an audit of trees on the site at 223 Kohimarama Rd & 7 John Rymer Place, Kohimarama.

2. This audit is to include details regarding species, size and condition of the trees as well as an assessment of the viability of relocating any existing trees within the site. Reference will also be made to the relevant Auckland Council Unitary Plan (AUP) rules where appropriate along with a basic assessment of relevant trees.

3. The aim of this report is to provide preliminary comments about the vegetative cover on the site and does not represent a detailed assessment of environmental effects arising from any proposed site development. Such an assessment may be prepared when more detailed design plans are available.

4. I visited the site on 15 November 2018 and compiled a summary of the tree cover present at the time of inspection.

5. I have arboricultural experience and qualifications, the details of which are summarised on my website at the following address: (http://tree3.co.nz/about-us/andy-barrel-cv/). I have based this report on my site observations and the subsequent assessments and recommendations have been made in light of my experience.

Vegetation inventory & assessment

6. The site consists of random clusters of vegetative cover interspersed with open pasture areas. Figure 1 below is an annotated aerial image showing how the various areas of vegetation have been identified (using red dotted outlines and solid red triangles) for ease of assessment. Overland flow paths are present within the eastern section of the site as well as close to the south west boundary. These are shown in Figure 2 which is taken from the Auckland Council Geomaps viewer.

Figure 1 – *Annotated aerial image showing vegetation areas and individual trees.*

7. In the above image the numbered box cuts the outline of the related area or tree and the red triangle frames the tree it relates to. The red dotted lines are indicative only and they serve simply to provide the general location of the relevant vegetation which is supported by the descriptions in Table 1 below.

8. In Table 1, column 1 (*ID#*) refers to the Area or Individual Tree identifier, column 2 (*Details*) provides a description of the relevant vegetation and column 3 (*Status)* provides an indication of the retention status of the vegetation – a tick indicates it is worthy of consideration for retention, a cross indicates it is not.

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Table 1 *– Vegetation description.*

ID#	Details	Status
A1	Acmena (*A. smithii*) saplings and trees up to 15m tall, sparse understory. Other species present include gorse (*Ulex europaeus*), privet (*Ligustrum* species), woolly nightshade (*Solanum mauritianum*), honeysuckle (*Lonicera* species), pampas (*Cortaderia selloana*), ginger (*Hedychium gardnerianum*), willow (*Salix* species), gum (*Eucalyptus* species) and *Cotoneaster* species. Occasional suppressed pockets of native species including mahoe (*Melicytus ramiflorus*), ponga (*Cyathea dealbata*), kawakawa (*Macropiper excelsum*) and five finger (*Pseudopanax arboreus*).	✗
A2	2x poplar (*Populus* species), 15 & 12m tall, both in fair to poor condition with numerous limb failures within their canopies. Understory including wattle (*Acacia* species), willow and pampas, all under 5m tall.	✗
A3	Several willows, up to 10m tall, many broken limbs. 2x upright poplars, 12m tall. Understory including honeysuckle, gorse, pampas, cotoneaster and ginger.	✗
A4	2x coral trees (*Erythrina x sykesii*), both 6m tall, 2x upright poplars 12m tall, privet 8m tall, mahoe 5m tall, kanuka (*Kunzea ericoides*) 8m tall. Understory including honeysuckle, ginger, privet, woolly nightshade and *Clivia* species. Small cluster of 5m-tall mahoe trees around base of kanuka.	✗
A5	Large clump of *Acacia floribunda* up to 8m tall, understory including honeysuckle, wandering Jew (*Tradescantia fluminensis*), woolly nightshade and gorse. Kanuka 6m tall on east side of group.	✗
A6	Oak (*Quercus* species) 12m tall with 15m canopy spread, good condition. 3x pohutukawa (*Metrosideros excelsa*), approx. 6m tall, suppressed and leaning over road.	✓
A7	10x pohutukawa in row adjacent to Kohimarama Rd, up to 8m tall. Understory of privet.	✓
A8	Exotic species including walnut (*Juglans* species) 7m tall, phoenix palm *(Phoenix canariensis*) 7m tall, coral tree 10m tall, acmena, hawthorn (*Crataegus* species), honeysuckle, cotoneaster, ginger, woolly nightshade, pampas and jasmine (*Jasminus* species). Totara (*Podocarpus totara*) 7m tall, coprosma, mahoe and ponga all under 4m tall.	✗
A9	Cabbage tree (*Cordyline australis*) 4m tall, coprosma and matipo saplings under 3m tall. Pampas, hawthorn, privet, cotoneaster, gorse and ginger.	✗
A10	Cabbage tree 4m tall, understory of ginger, *Clivia*, gorse, honeysuckle, privet, woolly nightshade, *Agapanthus* species.	✗
T1	Birch (*Betula pendula*) 6m tall, 6m canopy spread, fair condition.	✗
T2	Pohutukawa 3m tall and 3m canopy spread, good condition, possible candidate for relocation.	✓

9. The majority of vegetation on the site consists of exotic species, many of which are formally classified as pest plant species. Several clusters and pockets of native species are present however they are generally suppressed and in poor condition. They are not considered worthy of retention because of this poor condition and the extent of exposure they will be subject to once surrounding exotics have been removed. This increased exposure leaves remaining trees vulnerable to environmental stresses such as sun scorch and wind throw and can significantly reduce their useful life expectancy.

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10. Trees referenced as A6 and A7 are significant by way of stature (the oak in particular) and species (pohutukawa). Their location on the boundary of the site increases their potential for retention and incorporation into a new development.

11. Tree 1 is a species that generally does not thrive in the Auckland region and that is why it has not been nominated as an appropriate candidate for relocation. Tree 2 however is of a size and species (native) that make it a good candidate for relocation.

AUP tree rules

12. The relevant chapter regarding vegetation on this site is Chapter E15 – *Vegetation Management and Biodiversity*. Activity A19 in Table E15.4.1 states that "*Vegetation alteration or removal within 10m of urban streams*" is a *restricted discretionary* activity. Figure 2 below (taken from Auckland Council Geomaps viewer on 6 December 2018) shows the location of identified overland flow paths on the subject site.

Figure 2 – *Image showing identified overland flow paths on the subject site.*

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13. The only place on the site where this has any significance from an arboricultural perspective is in the vicinity of A6 and A7. The remainder of vegetation that falls within the specified 10m setback is primarily exotic weed species that has no value from an arboricultural perspective and conceivably very little value from an ecological perspective either.

14. A full assessment of effects based on the relevant AUP assessment criteria can be provided when design plans are finalised and mitigation strategies outlined. In lieu of a full assessment I consider that any adverse impacts arising from the loss of what is relatively poor quality vegetation from within the 10m riparian margin will be easily mitigated by replacement planting.

Conclusions

15. My observations and assessments indicate that the only vegetation worthy of consideration for retention on the subject site are the pohutukawa trees and the oak along the Kohimarama Rd boundary to the north east of the site (A6 and A7) and the pohutukawa adjacent to John Rymer Place (T2) which I consider to be a viable candidate to relocation.

16. Successful retention and protection of any trees will be dependent upon the implementation of an appropriate arboricultural management methodology during any site works, as will the success of the relocation of T2. Such a methodology can be provided once more detailed plans are available.

17. The majority of vegetation on the site is exotic weed species, the loss of which may be adequately mitigated by replacement planting.

Please feel free to contact me if you wish to discuss any of the above.

Kind regards,

Andrew Barrell

Consultant Arborist, Director *Tree3 Ltd*

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