


Arboricultural Assessment

Site Address: 1817 Great North Road, Avondale

Prepared for: Ockham Residential
cc: Jethro Joffe – Baseplan

Purpose of Report: Arboricultural Assessment of the proposal to construct a new multi-level residential apartment building within 1817 Great North Road, Avondale

Report Compiled by:	Matthew Paul	Signed: 
Date of Report:	6 August 2020	

1.0 Introduction

Peers Brown Miller Ltd (PBM) has been commissioned by *Ockham Residential* to prepare this arboricultural assessment in relation to the proposal to construct a new multi-level residential apartment development at 1817 Great North Road in Avondale.

The subject site is a 2912m² vacant lot that is zoned Business Mixed Use. Due to its proximity to transport, services and public amenities the site has been zoned anticipating and allowing for significant urban redevelopment in line with the overarching outcomes sought in the Auckland Unitary Plan and enacted via the AUP OP.

The proposed construction will impact several existing trees growing within and/or directly adjacent to the site. These include:

- Works within the protected root zones of three (3) notable Cottonwood Poplar trees (*Populus deltoides*) (Trees 1 – 3) growing within the site
- Proposed removal of one (1) notable Macrocarpa tree (*Cupressus macrocarpa*) (Tree 4) in order to facilitate the new development by enabling the construction of the proposed building footprint and for the construction of the proposed wastewater public extension
- Proposed removal of a Persimmon tree (*Diospyros sp.*) (Tree 5), Norfolk Pine (*Araucaria heterophylla*) (Tree 6), Bottlebrush tree (*Callistemon sp.*) (Tree 7) growing within the site – all non-protected
- Proposed removal of three (3) Oleander (*Nerium oleander*) and one (1) Privet tree (*Ligustrum lucidum*) (Group 8) growing on road reserve adjacent to the northeast corner of the site
- Proposed removal of a row of mixed vegetation, comprising predominantly Taupata (*Coprosma repens*), including the occasional Karo (*Pittosporum crassifolium*), Privet (*Ligustrum lucidum*) and a single planted Titoki (*Alectryon excelsus*) (Group 9)
- Works within the protected root zone of one (1) Swamp Cypress tree (*Taxodium distichum*) (Tree 10) growing on road reserve land to the northwest of the main building, adjacent to Ash Street

The proposed apartment complex will make use of a significant portion of the existing site, with the building to be constructed to the boundary on the northern, southern and eastern aspects.

The western aspect of the site will be utilised as a recreational area, including a communal vegetable garden area and a gravel pathway with incorporated boardwalks.

Further discussion of the specific works impacting the protected trees, both within and directly adjacent to the site, is provided in detail in Section 4.0 of this assessment.



Figure 1 – Proposed footprint of the new apartment complex

2.0 Plan References

A number of documents have been provided by the project team. These include plan sets provided by Ockham Residential and Anchor Consulting. The information contained in these documents has been drawn upon to assist with this arboricultural assessment. The main documents drawn upon include:

- 1817 Great North Road, Avondale — Topographical Plan, Earthworks Plan, Cut & Fill Plan, Drainage Plan and Utility Plan – Prepared by Anchor Consulting – dated March 2020 (RC -02 to RC - 08)

- 1817 Great North Road, Avondale – Architectural Set – Prepared by Ockham Residential – dated August 2020
- Landscape Concept Plan –(Plan 01 to 08) Prepared by Bridget Gilbert Landscape Architecture – dated August 2020

3.0 Relevant Statutory Framework – Tree Protection

Auckland Unitary Plan (AUP (OP))

Notable Trees

The four (4) notable trees (3 Poplar and 1 Macrocarpa) growing within the site are subject to protection as notable trees under Schedule 10 of the Auckland Unitary Plan. Specifically, those rules outlined in Chapter D13 of AUP-DP apply to this application.

- Works within the protected root zone not otherwise provided for - to be assessed as a Restricted Discretionary Activity – as outlined in D13.4.1 (A9) (Tree 1-3)
- The removal of the notable tree is to be assessed as a Discretionary Activity – as outlined in D13.4.1 (A7) (Tree 4)
- Tree Trimming or Alteration that does not comply with Standard D13.6.1 – to be assessed as a Restricted Discretionary Activity – as outlined in D13.4.1 (A6) (Trees 1-3)

As a Discretionary activity, the proposal to remove Tree 4 is assessed against the objectives and policies of Chapter D13 Notable Trees Overlay of the AUP.

The proposed works within the protected root zone and selected pruning of Trees 1-3 are assessed against the assessment criteria contained within section D13.8.2 of the AUP.

Trees on Road Reserve

The vegetation to be impacted within Road Reserve (Group 8 & 9 and Tree 10) are subject to protection in accordance with those rules outlined in Chapter E17 of the AUP (OP).

Specifically, those rules outlined in Section E17.4.1 of AUP (OP) apply to this application.

- The removal of a grouping of pest plants (Group 8) is to be assessed as a Permitted Activity – as outlined in E17.4.1 (A4)
- Works within the protected root zone of a street tree that does not comply with Standard E17.6.3 is to be assessed a Restricted Discretionary Activity – as outlined in E17.4.1 (A8)
- The removal of a grouping of protected trees (Group 9) greater than 4m in height or greater than 400mm in girth is to be assessed as a Restricted Discretionary Activity – as outlined in E17.4.1(A10)

The Resource Consent is to be bundled. As such, the proposal will be assessed as a Discretionary Activity overall.

The assessment of the proposed activities affecting the protected trees is outlined in Section 5.0 of this report.

4.0 Arboricultural Assessment

4.1 Introduction

As outlined in Section 1.0, four notable trees are growing within 1817 Great North Road, Avondale. The Poplar trees (Trees 1 – 3) are located in the southwest portion of the site, while the Macrocarpa tree is located in the northwest corner, straddling the boundary with road reserve. The site is bordered by road reserve to the north, east and west, and to the south by a property under Kāinga Ora ownership. That site is also proposed for development in the near future under consent BUN60356351.

Trees proposed for removal - located on road reserve, are overhanging the site boundary on the northern and northeast portions of the site (Groups 8 & 9). These trees are identified as a mixture of pioneer native and weed species vegetation, largely unmaintained and neglected at the time of this assessment.

A row of Swamp Cypress trees is growing within road reserve on the western side of the subject site - on an area of grassed berm directly adjacent to the Ash Street west-bound carriageway. One of these five Swamp Cypress trees (Tree 10) directly adjacent to the site will be impacted by a proposed pedestrian pathway associated with the proposed development, as well as by the construction of the actual apartment building.

The existing site is currently vacant. It was formerly three separate lots which have been amalgamated into a single super lot and rezoned for more intensive development.



Figure 2 – Existing site as viewed from Great North Road

4.2 Trees 1 – 3 (Notable Cottonwood Poplar Trees)

4.2.1 Health and Condition

As previously mentioned, Trees 1-3 are identified as a grouping of three mature Poplar trees growing in the southwest corner of the site. The trees are prominent features in the wider landscape and display the typical form of the species. All three trees possess a co-dominant main stem structure - with Trees 1 and 3 having two main stems and Tree 2 having three co-dominant stems. The canopies of Trees 2 and 3 overhang the development to a minor degree - with the actual stem structure of Tree 3 leaning further to the south away from Tree 2 – that tree having a more upright form and stature.



Figure 3 – Trees 1 -3 as seen from within 1817 Great North Road

4.1.2 Proposed Works – Main building

Works will be required within the protected root zones of Trees 2 & 3, as part of the construction of the new apartment building.

The erecting of scaffolding will also be undertaken at an estimated distance of 2.0m from the face of the new building.

The proposed apartment building will include a subterranean cut to construct the building footings. The remaining ground level would be built up within the footprint of the building. As such, it is considered that any roots emanating from the Poplar trees would be cleanly severed at the edge of the proposed main wall foundation.

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The lower ground floor will include the main carpark, plant room and garden room - with the edge of the building to be constructed 9.0m from the base of Trees 2 & 3. Minor pruning is also proposed in order to reduce end weight from those branches extending towards the new building. A reduction of approximately 2.0-3.0m in length is anticipated.



Figure 4 – Approximate extent of building shown by spray can and demarcated on the above image (not to scale)

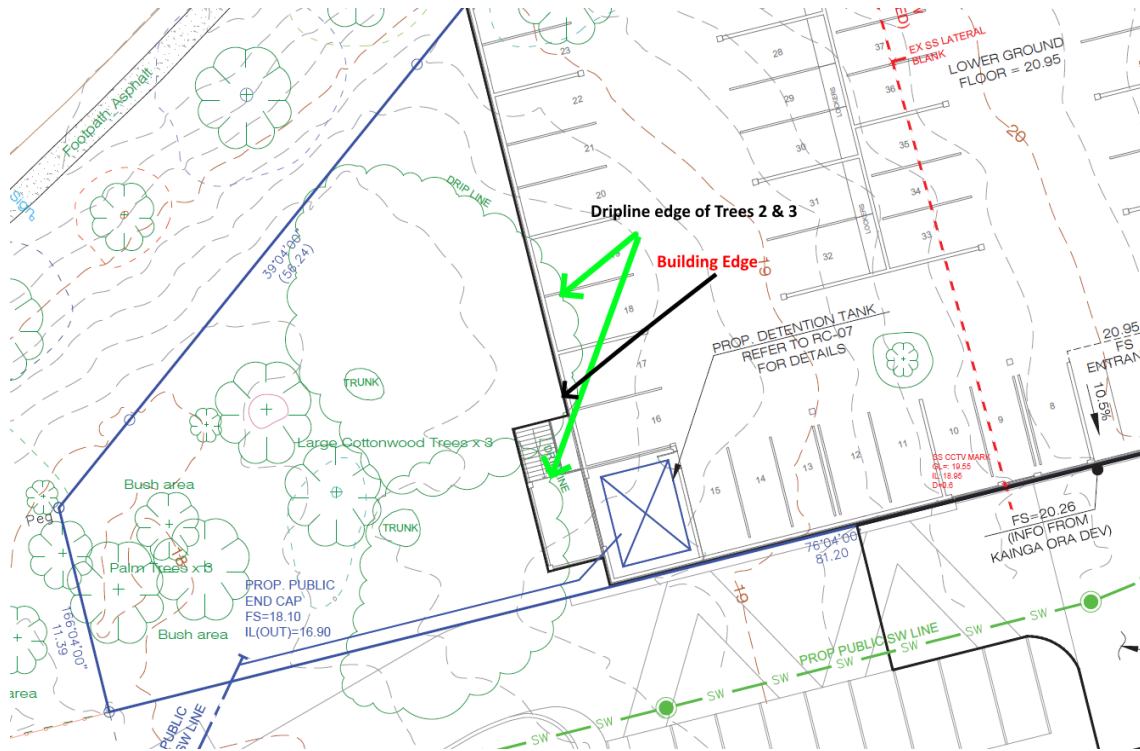


Figure 5 – Plan showing protected root zone extent of Trees 2 & 3 (larger image in Appendix B of report)

Further to the actual building construction, a new stairwell will be constructed to the south to exit via the ground floor. This will provide access to the proposed landscaped courtyard area.

4.1.4 Installation of new drainage services within the root zone of Trees 1-3

A new stormwater line is proposed for installation within the protected root zone of Tree 3. The new line will be directionally drilled from within the footprint of the new building, via a connection to the proposed stormwater detention tank to be installed below ground.

The actual connection will be made to the proposed stormwater line within the neighbouring property, beneath the new driveway to be shared by the subject development and the future Kāinga Ora development.

The joint connection and pull pit connections will be made away from Tree 3 - to the west of the Cottonwood Poplar grouping. This is shown on the plan extract on the following page (also illustrated in Appendix C).

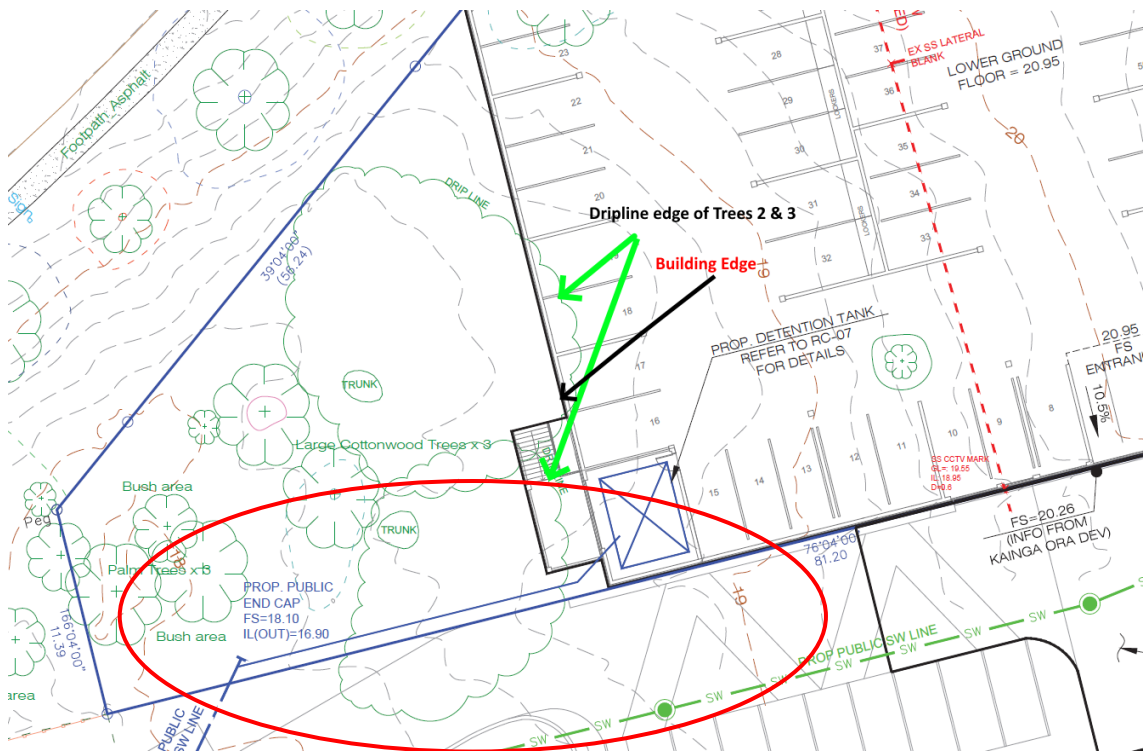


Figure 6 – Extract showing the proposed stormwater route

4.1.5 Landscaping of Open Area

Extensive re-landscaping of the open area beneath the Poplar trees will be undertaken as part of the proposal. This landscaping will include the removal of the existing palm trees and vegetative debris around the base of the three trees.

A new gravel timber-edged pedestrian pathway will be constructed -with vegetable gardens and new landscape elements included. In terms of actual ground disturbance, it is considered that the alterations to the existing environment would be minimal. The existing contours would remain largely unchanged - with only minor reshaping works proposed, which would include the addition of new compost and mulch as part of the new extensive underplanting. The extent of the proposed planting is shown in the landscape plan set. These plan sets are attached in Appendix C of this report.

4.1.6 Proposed Pruning of Tree 3

In order to provide adequate clearance for the construction of the new building, minor reductive pruning is recommended. It is intended that the pruning be limited to 10% of the tree's live canopy with branches no more than 80mm being severed. It is intended that this pruning be slightly more than required for the scaffold installation, so as to ensure an adequate distance is achieved for the duration of the works phase. It is intended that this reduction line form the termination point for any additional clearance pruning to be undertaken in the future. Significant dead wood and failed limbs will also be removed from the tree. Provided this pruning is undertaken in accordance with best arboricultural practice, by suitably qualified arborists, the works would be acceptable from an arboricultural perspective.



Figure 7 – suggested pruning of Tree 3

4.2 Tree 4 (Notable Macrocarpa Tree)

As mentioned in Section 4.1, Tree 4 is identified as a mature Macrocarpa tree growing in the northwest corner of 1817 Great North Road. The tree is a prominent specimen, of approximately 20 metres in height and with a girth measurement of 8.25m.

This tree is classified as a Notable tree (ID 730) under Schedule 10 of the AUP OP and stands on the boundary of 1817 Great North Road and the adjacent portion of Road Reserve, governed by Auckland Transport. According to Schedule 10 (including the relevant documentation relating to this tree as part of Plan Change 29), the tree is located within 1817 Great North Road. However, based on the latest topographical survey by the applicant, the tree is in shared ownership with Council.

The subject tree was first evaluated and presented to Council for scheduling under the Notable tree list in 1993, with a subsequent revaluation undertaken in 2011. The most recent assessment is attached as Appendix D to this report. This report also includes an image taken at the point of revaluation in 2011, which shows a notable change in condition when compared to the present day.



Figure 9 – Tree 4 as viewed from within road reserve, to the northeast

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At the time of the writing of this report, the tree is considered to be of moderate health and condition. A Visual Tree Inspection (VTA) was undertaken to determine the current structural state of the tree. The tree possesses a multi-stemmed form, with a number of stems arising from its base. Several basal indentations were noted. However, no decay or significant included unions were identified during the VTA.

A number of broken branches were noted within the upper canopy, with a portion of the tree's upper canopy having failed in recent times. From an arboricultural perspective, it is suggested that the tree is beginning to 'retrench', as portions of the upper canopy have been progressively reducing in height since 2011.

This stance is substantiated by comparing the 2011 revaluation image with the current canopy extents, as shown in the images over the page:



Figure 10 – Tree 4 (2011)



Figure 11 – Tree 4 (July 2020)

The tree has been subjected to significant pruning by Auckland Council/Auckland Transport since the 2011 Notable tree revaluation - with a significant amount of pruning undertaken in the lower canopy. It is unclear why such extensive pruning was undertaken. However, from examining historic Google Street View imagery (Google Street View April 2 2014, November 2015) it is determined that this pruning was undertaken over a number of years, possibly to remedy failed limbs and branches following an initial failure that exposed the lower canopy to unaccustomed wind loading, resulting in progressive failures. This type of failure is a common trait of *Macrocarpa*.

As illustrated by the 2011 image vs the July 2020 image, the tree has also suffered from a reduction in canopy health and vigour. It is considered that this can likely be attributed to the relatively advanced growth stage of the subject tree, considered that it is reaching a 'senescent' or 'over-mature' phase of growth. It displays a periodic and systematic reduction in canopy size and density which is a common trait of such a growth phase and is common with mature *Macrocarpa* in New Zealand.

4.2.1 Future Tree Management

In consideration of the tree's current progressive decline, it is reasonable to predict that further retrenchment will occur in the coming decade. In order to address this, it is likely that canopy reductive pruning would be required in order to mitigate the risk of future failures - especially when considering the recent loss of secondary branches from the upper canopy. This type of pruning would be an ongoing procedure to address any future failure potential.

In recognition of the declining health of the tree in the last decade, it is considered that further natural retrenchment is likely, resulting in a largely squat canopied tree.

While this type of treatment is deemed best modern arboricultural practice, it is conceded that the tree may further decline and require ongoing monitoring and management.

Heavily modified *Macrocarpa* trees can continue to stand in such a state for many decades. However, because of the progression of its decline up until this point, the future long-term health and prominence of the tree is difficult to estimate.

4.2.2 Impact of the Proposed Development on Tree 4

Arboricultural advice was sought as to the health and condition of the subject tree in terms of the development of the subject site.

It is the opinion of this consultant arborist that some forms of development would be possible within or near the notable *Macrocarpa* tree's dripline. However, as indicated in the previous section, the progressive decline of the tree is difficult to predict. As such, any works within the protected root zone of such a tree would need to be very minor, especially in consideration of its age, prominence, and current condition.

Ockham Residential has considered the development potential of the site, including the consideration of a scheme that would allow for the retention of the tree. In any such scheme, the development area of the site was assessed in some detail. As such, all proposed schemes that incorporated the tree required substantial root disturbance and/or reductive pruning of the southern portion of its canopy in order to provide a suitable setback from the proposed apartment building.

Consideration of the *Macrocarpa* tree's significant shade shadow, debris drop and propensity for future failures was also explored, with these elements considered by the Applicant to negatively impact any potential development for the site as a whole, and in particular with respect to any new built form beneath or near the tree. Consideration of the effects of the scheduled poplars was also explored in that context. Advice has been sought from the project's landscape architect, Bridget Gilbert Landscape Architecture (BGLA). BGLA have determined that the retained notable Poplar trees are the most prominent landscape feature on the site, and that the *Macrocarpa*, is considered less important from a landscape and visual prominence perspective.

In consideration of the landscape expert's advice, coupled with the negative development constraint outcomes associated with retaining the notable *Macrocarpa*, the Applicant's proposal includes shifting the development further from the notable Poplar trees and retaining them and requires removal of the notable *Macrocarpa* tree.

4.3 Works impacting Protected Street Trees

4.3.1 Impacted trees – Great North Road

A grouping of three (3) Oleander (*Nerium oleander*) and one (1) Privet tree (*Ligustrum lucidum*) (Group 8) are growing within road reserve near the northeast corner of the site.

As part of the proposed development, extensive re-profiling of the eastern boundary is proposed, which includes filling of the road reserve area to match the height of the existing pavement.

As such, this grouping of trees is proposed for removal. Mitigation planting is proposed as part of the wider landscape plan, in order to mitigate the loss of such vegetation. All four trees are considered weed species under the Auckland Council Regional Pest Plant Strategy (2012). As such, their removal is considered to be a permitted activity.



Figure 12 – Group 8 as seen from the eastern side of Great North Road

The remaining trees on the boundary of the site are under private ownership and will be removed to enable the construction of the new apartment block (Trees 6 & 7).

4.3.2 Impacted Trees – Northern Boundary

An informal row (Group 9) of predominantly Taupata (*Coprosma repens*), including the occasional Karo (*Pittosporum crassifolium*), Karaka (*Corynocarpus laevigatus*), Privet (*Ligustrum lucidum*) and a single planted Titoki (*Alectryon excelsus*), are growing within road reserve near the northern side of the subject site. This row is largely unkempt, having been historically topped at approximately 2.0m above ground level.

As part of the proposal, this hedgerow is proposed for removal. It is intended that the area be relandscaped so as to create an improved visual outlook for both apartment dwellers and users of the park-like space within the Ash Street road reserve alike.

The details of the proposed landscape planting is outlined in Appendix C of this assessment and essentially includes the planting of large grade Sweet Michelia (*Michelia doltsopa*) - with a mass underplanting of *Dietes grandiflora* and *Lomandra longifolia* to the footpath edge.



Figure 13 – Group 9 as seen from the existing pathway



Figure 14 – Image showing topped Taupata tree in tree grouping

4.3.2 Impacted Trees – Western Boundary

A row of six (6) Swamp Cypress trees (*Taxodium distichum*) are growing within road reserve adjacent to the site's western boundary - with Ash Street. The trees are all in good condition and vary in age and size. Three trees stand adjacent to an area of development within the site, with one particular tree (Tree 10) impacted by the proposed works.



Figure 15 – Row of Swamp Cypress on road reserve

4.3.2.1 Works within the protected Root Zone of Tree 10

Works are proposed within the protected root zone of Tree 10 as part of the construction of the new building foyer and pedestrian pathway.

The tree protection zone, as it is defined, of the subject tree, has been calculated, and it is determined that the actual works would impact 23.8% of his tree protection zone (TPZ). However, all works are to be undertaken outside the tree's structural root zone (SRZ), as that is defined.

The exact detail relating to the pedestrian pathway is yet to be determined. However, it is recommended that all works should be on grade - with the entry ramp to the new foyer elevated to match the existing grade of the Ash Street footpath. The proposed path alignment is shown on the landscape plan attached as Appendix C.



Figure 16 – Tree 10 as viewed from the north

The building front will involve the installation of a new wall and strip footing. A significant surface root is identified as growing towards the boundary. It is anticipated that that root has extended through into the subject site. Its severance is likely required in order to enable the construction of the new ground floor wall foundations. At the point of severance, the root would be less than 80mm in diameter. Provided all works are limited to within the subject property, and supervised by the works arborist, it is considered that the works within the root zone of Tree 10 would be acceptable from an arboricultural perspective.

4.3.2.2 Works near Trees 11 & 12

Trees 11 & 12 are part of the Swamp cypress row. These trees are somewhat smaller than Tree 10. A calculation of the trees' TPZ and SRZ determines that any physical works would be outside the tree protection zones of both trees.

The root zone calculations and the degrees of incursions of Trees 10 -12 are outlined in Appendix B of this report.

5.0 Assessment against relevant Criteria

5.1 Works within the Protected Root zone of Trees 1-3

As aforementioned in Section 3.0, the works proposed within the root zone of Tree 1 - 3 are to be assessed against the Restricted Discretionary activity criteria outlined in Section D13.8.2 of the Auckland Unitary Plan.

An assessment of this activity is outlined below:

D13.8.2 Assessment criteria – D13 Notable Trees Overlay		
The following is my assessment against the criteria for the removal of a notable tree contained in D13.8.2 of the AUP (OP). The criteria are given in red typeface in the left hand box with my comments in normal typeface in the right hand box		
The Council will consider the relevant assessment criteria for restricted discretionary activities from the list below:		
(a)	the extent to which alternative methods that could result in avoiding alteration of the tree or trees have been considered	Design considerations have been implemented to limit works within the root zone of Trees 1-3. Where necessary, works within the root zone have been designed in such a way so as to minimise root disturbance.
(b)	the specific values of the tree or trees including any ecological values with respect to water and soil conservation, ecosystem services, stability, ecology, habitat for birds and amelioration of natural hazards	The specific values provided in terms of the outlined criteria will still be provided by the trees. The trees will stand in a relatively unmodified landscaped area
(c)	the extent to which effects on the values of the tree or trees including any effects on the natural shape, form and branch habit and the root network can be minimised	Outside the physical construction works, only minor pruning of selected branches is proposed. The proposed excavation works only impact a limited portion of the tree's root zones and are to be undertaken in such a way as to allow for continued root development.
(d)	the extent to which any impact on the immediate or long-term health and stability of the tree or trees is able to be minimised or avoided;	It is considered that the long term health and stability of the tree would be maintained, provided the works are undertaken in accordance with the proposed methodologies and in accordance with the tree protection

		methodology outlined in this assessment.
(e)	the loss of any amenity values that the tree or trees provided;	It is considered that, provided the works are undertaken in accordance with this assessment, any loss of amenity value would be deemed less than minor.
(f)	the risk of actual damage to people and property from the tree or trees including the extent to which adverse effects on the health and safety of people have been addressed;	Those concerns, in terms of potential damage to people and property from the Poplar trees, have been addressed as part of the design process. The new building is located as far from the trees as practicable and has considered that failure potential of the trees' canopy as much as possible
(g)	the degree to which any proposed mitigation adequately responds to the effects on the tree or trees;	No mitigation is proposed. The trees will be retained and protected.
(h)	the degree to which the proposal is consistent with best arboricultural practice guidelines for tree management;	All works, where undertaken within the root zone of the Poplar trees, are to be undertaken under supervision of the works arborist, in accordance with the tree protection methodology outlined in this report.
(i)	methods to contain and control plant pathogens and diseases including measures for preventing the spread of soil and the safe disposal of plant material;	No Kauri trees are near the Poplar trees. It is not considered that any specific measures are required when handling or removing Poplar material.
(j)	the provision of a tree works plan, to address: (i) the effects on the tree or trees; (ii) the proposed methods to be used; (iii) the extent to which the proposed works are consistent with best arboricultural practice; (iv) for tree alteration, the methods proposed to reduce any adverse effects and the extent of the alteration of the tree or trees; and (v) for works within the protected root zone, the methods proposed to reduce any adverse effects on the tree or trees, including the depth of the works, and the extent	<p>It is not considered that a tree works plan is required in this instance.</p> <p>All works are to be undertaken in accordance with the tree protection methodology outlined in this report and in line with the construction methodologies outlined in the referenced architectural plans. All additional design and final details will be approved and implemented in consultation with the client's works arborist.</p>

	of area of the protected root zone or zones that is affected, (k) the need for the direction and supervision of a qualified arborist while the works are being carried out; (l) the functional and operational requirements of infrastructure; and (m) the benefits derived from infrastructure.	
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5.2 Pruning of Tree 3

As aforementioned in Section 3.0, the proposed pruning of Tree 3 is to be assessed against the Restricted Discretionary activity criteria outlined in Section D13.8.2 of the Auckland Unitary Plan. An assessment of this activity is outlined below:

D13.8.2 Assessment criteria – D13 Notable Trees Overlay		
The following is my assessment against the criteria for the removal of a notable tree contained in D13.8.2 of the AUP (OP). The criteria are given in red typeface in the left hand box with my comments in normal typeface in the right hand box		
The Council will consider the relevant assessment criteria for restricted discretionary activities from the list below:		
(a)	the extent to which alternative methods that could result in avoiding alteration of the tree or trees have been considered	The pruning proposed would allow for adequate clearance from the new apartment building and limit potential of lateral limb failure exacerbated by the propensity of the species. Pruning would be within the parameters of acceptable arboricultural practice
(b)	the specific values of the tree or trees including any ecological values with respect to water and soil conservation, ecosystem services, stability, ecology, habitat for birds and amelioration of natural hazards	The specific values provided in terms of the outlined criteria will still be maintained by the tree. Pruning would be limited to accepted arboricultural practice.
(c)	the extent to which effects on the values of the tree or trees including any effects on the natural shape, form and branch habit and the root network can be minimised	It is not considered that the proposed pruning would adversely impact the overall shape of the tree.
(d)	the extent to which any impact on the immediate or long-term health and stability of the tree or trees is able to	It is considered that the long term health and stability of the tree would be maintained, provided the works are

	be minimised or avoided;	undertaken in accordance with best arboricultural practice, under the direction of the works arborist.
(e)	the loss of any amenity values that the tree or trees provided;	It is considered that, provided the works are undertaken in accordance with this assessment, any loss of amenity value would be deemed less than minor.
(f)	the risk of actual damage to people and property from the tree or trees including the extent to which adverse effects on the health and safety of people have been addressed;	Those concerns, in terms of potential damage to people and property from the Poplar trees have been addressed as part of the design process. The proposed pruning will assist with future proofing the safety of the new limits while addressing extended lateral growth
(g)	the degree to which any proposed mitigation adequately responds to the effects on the tree or trees;	No mitigation is proposed. The trees will be retained and protected.
(h)	the degree to which the proposal is consistent with best arboricultural practice guidelines for tree management;	All pruning is to be undertaken by suitably qualified arborists under the supervision of the works arborist
(i)	methods to contain and control plant pathogens and diseases including measures for preventing the spread of soil and the safe disposal of plant material;	No Kauri trees are near the Poplar trees. It is not considered that any specific measures are required when handling or removing Poplar material.
(j)	the provision of a tree works plan, to address: (i) the effects on the tree or trees; (ii) the proposed methods to be used; (iii) the extent to which the proposed works are consistent with best arboricultural practice; (iv) for tree alteration, the methods proposed to reduce any adverse effects and the extent of the alteration of the tree or trees; and (v) for works within the protected root zone, the methods proposed to reduce any adverse effects on the tree or trees, including the depth of the works, and the extent of area of the protected root zone or	<p>It is not considered that a tree works plan is required in this instance.</p> <p>All works are to be undertaken in accordance with the tree protection methodology outlined in this report and in line with the construction methodologies outlined in the referenced architectural plans. All additional design and final details will be approved and implemented in consultation with the client's works arborist.</p>

	zones that is affected. (k) the need for the direction and supervision of a qualified arborist while the works are being carried out; (l) the functional and operational requirements of infrastructure; and (m) the benefits derived from infrastructure.	All pruning will be undertaken under the supervision of the works arborist, with final details to be agreed on site by the appointed heritage arborist.
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5.3 Removal of Tree 4

As aforementioned in Section 3.0, the proposed removal of Tree 4 is to be assessed as a Discretionary Activity. The proposal to remove Tree 4 is assessed against the objectives and policies of Chapter D13 Notable Trees Overlay of the AUP, as no assessment criteria pertaining to a Discretionary Activity are provided.

Objectives and policies - D13 Notable Trees Overlay

The following is my assessment against the objectives contained within D13.2 and the policies contained within D13.3. The criteria are given in red typeface in the left hand box with my comments in normal typeface in the right hand box

D13.2 (1)	Notable trees and notable groups of trees and protected from inappropriate subdivision, use and development	Alternative methods have been explored to retain Tree 4. However, due to the required footprint of the building, while balancing the protection of the remaining notable trees to the south, it is considered the retention of this tree is not viable. Mitigation planting is proposed in the form of a Swamp Cypress tree. Further discussion of this is outlined in Section 6.0.
D13.3 (1)	Provide education and advice to encourage tree protection of notable trees and notable groups of trees in rural and urban areas	A robust optioneering process has been followed to determine the best perceived outcome for the site. The remaining group of Poplar trees is seen as the more dominant and prominent feature from a landscape amenity viewpoint, as expressed by the project's landscape architect, BGLA and supporting by the Applicants and Councils landscape and design specialists. These trees will be retained

		and be made a feature of the new open space area provided as part of the new development.
(2)	Require notable trees and notable groups of trees to be retained and protected from inappropriate subdivision, use and development, by considering:	The subject tree was most likely scheduled due to its relative prominence and wider viewer audience of Ash Street. It was noted in the original re-valuation provided in 2011 that the tree is a visually significant tree over a wide area. BGLA discuss the visual impact of the tree in their reporting, however the visual change in canopy density since 2011 cannot be ignored. In consideration of the canopy's likely reduction in density over time, the level of prominence is likely to be eroded further.
(a)	the specific attributes of the tree or trees including the values for which the tree or trees have been identified as notable;	It is also considered that a positive level of visual amenity will be maintained on site by the retention of three notable Poplar trees. Visual amenity lost by the removal of Tree 4 will, in time, be mitigated to a minor degree by the replacement planting of the new Swamp Cypress tree on Road Reserve.
(b)	the likelihood of significant adverse effects to people and property from the tree or trees;	The retention of the Macrocarpa tree is not feasible with the proposed design. As part of any alternative design would pose a risk to apartments and green space users due to branch failure. While this could be managed with a strict inspection and/or pruning program if the tree were to be retained in an alternative development scenario.
(c)	the degree to which the subdivision, use or development can accommodate the protection of the tree or groups of trees;	The remaining notable Poplar trees near or impacted by the associated works for the proposed Apartment building are to be retained and worked around, design considerations incorporated in order to best protect the subject trees. The Macrocarpa

		tree, if retained, would require significant works to be undertaken within its protected root zone. A calculation of this root zone is illustrated in Appendix B of this report.
(d)	the extent to which any trimming, alteration or removal of a tree is necessary to accommodate efficient operation of the road network, network utilities or permitted development on the site;	The proposed removal of Tree 4 will enable the construction of the new apartment building. The site is zoned as Business Mixed Use and has an increased Height Variation Control to 21 metres. Due to proximity to transport, services and amenity the site has been zoned anticipating and allowing significant urban redevelopment, in line with the overarching outcomes sought in the Auckland Plan and enacted via the AUP OP. The permitted zoning for the site allows for full build out (i.e. no limitation on building coverage, yards, etc). As such, the Applicant has progressed a balanced development proposal to retain and protect the grouping of notable Poplar trees, and remove the notable Macracarpa tree.
(e)	alternative methods that could result in retaining the tree or trees on the site, road or reserve;	Ockham has considered several development designs to manage the retention and removal of the four scheduled trees at the subject site, from a market, construction and design perspective, and in balancing this with the value and the amenity provided by the scheduled trees - the applicant's final design includes the retention/protection of the 3 poplars, and the removal of the Macrocarpa.
(f)	whether minor infringements of the standards that apply to the underlying zone would encourage the retention and enhancement of the tree or trees on the site;	It is considered in this case any alternative would result in significant compromises to the positive outcomes provided for through the proposed development design.
(g)	whether the values that would be lost if the tree or trees are removed can be adequately mitigated;	Please Refer to reporting from BGLA with respect to the visual and landscape assessment.

(h)	whether the proposal is consistent with best arboricultural practice;	It is considered that this policy is not relevant in the context of this proposal
(i)	methods to contain and control plant pathogens and diseases including measures for preventing the spread of soil and the safe disposal of plant material; and	There are no specific controls required for managing Macrocarpa trees.
(j)	the provision of a tree management or landscape plan	A landscape plan has been prepared and includes a number of new replacement specimen trees as part of the overall scheme, including the planting on new trees within road reserve

5.4 Removal of vegetation on Road Reserve (Group 9)

As resource consent is required for a Restricted Discretionary Activity under Rule E17.4.1 (A10), the following table provides an assessment of the proposed works against the relevant AUP (OP) assessment criteria.

E17.8.2.1 Assessment criteria – Trees in Roads		
The following is my assessment against the criteria for the proposed removal of protected trees contained in E17.8.2.1 of the AUP (OP). The criteria are given in the left hand column (red text), with the response in the right hand column (black text)		
The Council will consider the relevant assessment criteria for restricted discretionary activities from the list below:		
(1) trees in roads:		
(a)	the specific values of the trees including any ecological values with respect to water and soil conservation, ecosystem services, stability, ecology, habitat for birds and amelioration of natural hazards;	A mixed row of Taupata, Karo, Karaka, Privet and Titoki are proposed for removal. The row does provide a level of value in terms of ecosystem services, stability, ecology, habitat for birds. However, the row has been reduced heavily in the past, which has lessened its long term health and longevity.
(b)	the loss of amenity values that tree or trees provided;	Any long-term effects would be mitigated by the replacement planting of new Michelia trees in the same location, to form part of the wider apartment landscape improvements.

(c)	the risk of actual damage to people and property from the tree or trees including the extent to which adverse effects on the health and safety of people have been addressed as required under health and safety legislation;	The trees are dense and overgrown, providing a negative impact in terms of passive surveillance and pedestrian use of the pathway after dark. The trees are also a catchment for rubbish due to their dense, un-kept appearance.
(d)	any alternative methods that could result in retaining the tree or trees;	The trees could be retained and pruned back from the face of the development. However, it is deemed that their removal and replacement with more visually prominent specimen trees would be easier to manage and provide a better long term outcome for the apartment interface.
(e)	the degree to which any proposed mitigation adequately compensates for the values that trees provide;	It is considered that planting of 6x new large grade specimen trees would adequately mitigate the loss of the mixed row.
(f)	the degree to which the proposal is consistent with best practice guidelines for tree management;	The trees have been neglected to some degree in recent history, with the trees being largely unkempt. Their removal and replacement with more appropriate trees that complement the development is deemed acceptable.
(g)	methods to contain and control plant pathogens and diseases including measures for preventing the spread of soil and the safe disposal of plant material;	There are no specific controls required to manage those tree species to be removed.
(h)	the provision of a tree works plan to address the effects of the works on the tree or trees and outlining the proposed methods to be used;	It is recommended that all replacement planting in this location be overseen by a qualified arborist, so as to ensure the trees are planted in a manner appropriate to their long-term healthy survival.
(i)	the need for the direction and supervision of an on-site monitoring arborist while the works are being carried out;	As above
(j)	the functional and operational needs of infrastructure; and	The removal of the trees will improve the visual interface with the new development and allow for the

		replacement planting of new large grade specimen trees, more suited to the new adjacent site use.
(k)	the benefits derived from infrastructure	As above

5.5 Works within the protected Root Zone of Tree 10

As resource consent is required for a Restricted Discretionary Activity under Rule E17.4.1 (A8), the following table provides an assessment of the proposed works against the relevant AUP (OP) assessment criteria.

It is considered that no roots over 80mm will require severance, with all root severance to be undertaken within the site boundary. However, the proposed disturbance will marginally exceed 20%, being anticipated to be approximately 26.2% of the tree's dripline. This is due to the construction of the new pedestrian pathway to connect with Ash Street.

E17.8.2.1 Assessment criteria – Trees in Roads

The following is my assessment against the criteria for the proposed works within the protected root zone of Tree 10, as contained in E17.8.2.1 of the AUP (OP). The criteria are given in the left hand column (red text), with the response in the right hand column (black text)

The Council will consider the relevant assessment criteria for restricted discretionary activities from the list below:

(1) trees in roads:

(a)	the specific values of the trees including any ecological values with respect to water and soil conservation, ecosystem services, stability, ecology, habitat for birds and amelioration of natural hazards;	The Swamp Cypress tree will be retained
(b)	the loss of amenity values that tree or trees provided;	As above
(c)	the risk of actual damage to people and property from the tree or trees including the extent to which adverse effects on the health and safety of people have been addressed as	The tree is set back from the property boundary. This species is not susceptible to typical defects and the tree is in good health and condition.

	required under health and safety legislation;	
(d)	any alternative methods that could result in retaining the tree or trees;	The tree will be retained
(e)	the degree to which any proposed mitigation adequately compensates for the values that trees provide;	The tree will be retained. An additional Swamp Cypress is also proposed for planting on road reserve.
(f)	the degree to which the proposal is consistent with best practice guidelines for tree management;	All works are to be undertaken in such a way as to minimise the potential long-term impacts on the subject tree. As such, the effects of the works are deemed to be less than minor.
(g)	methods to contain and control plant pathogens and diseases including measures for preventing the spread of soil and the safe disposal of plant material;	There are no specific controls required to manage the tree species to be removed.
(h)	the provision of a tree works plan to address the effects of the works on the tree or trees and outlining the proposed methods to be used;	All works are to be supervised by a suitably qualified works arborist, in accordance with best arboricultural practice.
(i)	the need for the direction and supervision of an on-site monitoring arborist while the works are being carried out;	All works within the protected root zone of the subject tree are to be supervised by the works arborist.
(j)	the functional and operational needs of infrastructure; and	The proposed works will enable the construction of the new apartment building and enable a new pedestrian connection with Ash Street.
(k)	the benefits derived from infrastructure	As above

6.0 New Planting

As outlined in this report, new planting is to be undertaken on road reserve as part of the overall apartment scheme. This planting will include:

- 1x Swamp Cypress (Ash St) (400L)– This tree would be planted on Road Reserve parallel to the location of the Macrocarpa tree. The tree is intended to be an extension to the existing Swamp Cypress row

- 11x *Michelia doltsopa* 'Silver Cloud' (400L) (Great North Rd and northern boundary) – These trees would all be planted within road reserve and will provide a high level of visual amenity for both the apartment users and wider public

It is considered that the replacement planting will improve the current street tree offering, especially in the case of Great North Road frontage.

7.0 Tree Protection Methodology

This section outlines a set of appropriate works methods and tree protection measures that should be adopted and put in place to ensure that adverse effects on the protected trees being retained within the project area are minimised and/or avoided.

- (a) Prior to any works commencing on the site in the vicinity of any notable or protected tree, a meeting should be held at the site to discuss all issues pertaining to the protection of the trees and to gain a common understanding of the relevant conditions of consent in that regard.

Present at the meeting should be;

- The consent holder
 - The site foreman or project manager
 - The worksite supervisory arborist
 - Council's Heritage Arborist
 - Council's Community Facilities Arborist (where applicable)
 - Any other relevant personnel
- (b) The worksite arborist should be present during any excavations through the root zones of the notable Poplar tree and the Swamp Cypress street trees. Any scraping of soil within the dripline of protected trees within areas outside that aforementioned in this report shall be discussed with and approved by the works arborist prior to works commencing.
 - (c) If any significant roots are encountered during excavation in the root zone of the Poplar or Swamp Cypress trees, that root should be accommodated unless the arborist is satisfied that severance of such a root would not cause a deterioration of the health of the tree. No roots in excess of 35mm are to be severed without arborist approval. All root severance is to be undertaken by the works arborist.

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- (d) No heavy machinery or equipment or materials should be stored or deposited within the rootzone (dripline) area of any protected trees. If any materials do need to be deposited within the dripline of any protected tree a sheet of plastic, plywood (minimum 9mm) or a tarpaulin shall be laid down first.
- (e) When machinery is to be used beneath the dripline of any protected tree, tracking movement must be kept to a minimum - with materials preferably installed progressively from the previously metalled surface. Equipment movement should not be undertaken on newly cut ground unless geotextile cloth or metal has been installed to prevent any unnecessary compaction of the trees' root systems. Any tracking of machinery on open ground must be undertaken on trak-mats or plywood if not on a metalled surface.
- (f) Protective fencing shall be installed at an appropriate point on the edge of the dripline, under the guidance of the appointed works arborist. This fencing shall remain in place for the duration of the project in order to best protect the subject trees. The fencing is to be rent-o-style 1.8 metre steel mesh sections. The location of this fencing is to be confirmed and approved at the pre-commencement meeting.
- (g) Temporary relocation of the fencing can be undertaken at any point when specific works are to be carried out within the dripline of the subject trees - with the fencing to be re-erected following that specific activity.
- (h) Compliance with all conditions of consent relating to tree protection would be monitored by the appointed works arborist - with the detail of each visit and communication being logged. The completed log would be provided to the consent holder at the completion of the project to serve as a compliance report.

7.0 Conclusion

This report has been prepared to accompany the Resource Consent application for works within the root zones of a Swamp Cypress and three notable Cottonwood Poplar trees, along with the proposed removal of a notable Macrocarpa tree. It provides the information that will assist Council to assess the proposed activity affecting the protected trees - under Chapter D13 of the Auckland Unitary Plan.

In summary, resource consent is being sought to carry out the following activity;

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- Works within the protected root zones of three notable Cottonwood Poplar trees (Trees 1-3) growing within 1817 Great North Road in Avondale – to be assessed as a Restricted Discretionary Activity
- Pruning of 1 x notable Cottonwood Poplar tree (Tree 3) growing within 1817 Great North Road in Avondale- to be assessed as a Restricted Discretionary Activity
- The removal of 1x notable Macrocarpa tree (Tree 4) growing on the boundary of 1817 Great North Road in Avondale – to be assessed as a Discretionary Activity
- Proposed removal of a row of mixed vegetation, predominantly Taupata (*Coprosma repens*), and including the occasional Karo (*Pittosporum crassifolium*), Tree Privet (*Ligustrum lucidum*) and a single planted Titoki (*Alectryon excelsus*) (Group 9) growing on road reserve to the north of the subject site – to be assessed as a Restricted Discretionary Activity
- Works within the protected root zone of 1x Swamp Cypress tree (Tree 10) growing on road reserve to the northwest of the main building, adjacent to Ash Street - to be assessed as a Restricted Discretionary Activity

Please feel free to contact me on 021 399 298 or via email matt.paul@peersbrownmiller.co.nz if any further information is required.



Matthew Paul
Consultant Arborist
Diploma in Arboriculture (Level 6)
Peers Brown Miller Ltd

Appendix A

Tree Details

1.0 Table Categories

Tree No. – Corresponding tree number as per the generated plans

Tree Name – Botanical Name/Common tree name

Owner – Tree owner: Private property, Auckland Council Community Facilities, Road Reserve (AT Land)

Protection Status – **NP/NGP** – Non protected, **S**–Scheduled/ Notable trees as outlined in the Notable tree Overlay of the Auckland Unitary Plan, **P** – Road Reserve (AT Owned), **P** – Open Space (Council Owned Park)

Age Category

The following categories to identify the age range of each tree are used. The given age category relates to the typical life span of the particular species.

J = Juvenilea tree of less than 5 yrs (approximately)

Y = Younga tree between 5 yrs and whatever is considered to be semi-mature

SM = Semi Mature..... one third to two thirds of total life expired

EM = Early mature..... a tree with vigorous appearance and not considered to have reached peak maturity

M = Mature.....fully grown, with small annual growth increments, but with a generally healthy appearance

PM = Post mature.....showing symptoms of declining health associated with senescence as opposed to pathogenic or untimely environmental causes

Pruning required % - Percentage of pruning required. All pruning proposed is less than 30%, the accepted upper pruning threshold for accepted arboricultural practice.

Comments

Non-protected trees – Black Text

Protected Trees Proposed for Removal – Red Text

Works within the Rootzone – Purple text

2.0 Assumptions and Limitations

This tree survey was carried out from ground level. No invasive or destructive evaluation techniques were used.

Tree No.	Tree Name	Tree Owner	Protection status	Height (m)	Girth (mm)	Age	Condition	Action	Comments
1	Cottonwood Poplar <i>Populus deltoides</i>	1817 Great North Road	S	24	3500	M	Good	Works within the rootzone	Works proposed within the root zone of this tree to enable the installation of the new transformer and landscaping works, including the construction of an above ground path
2	Cottonwood Poplar <i>Populus deltoides</i>	1817 Great North Road	S	24	5100	M	Good	Works within the rootzone	Works proposed within the root zone of this tree to enable the installation of the new transformer, landscaping works and construction of the new apartment building
3	Cottonwood Poplar <i>Populus deltoides</i>	1817 Great North Road	S	24	3650	M	Good	Works within the rootzone and pruning	Works proposed within the root zone of this tree to enable the installation of the new transformer, landscaping works and construction of the new apartment building (including stormwater installation

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Tree No.	Tree Name	Tree Owner	Protection status	Height (m)	Girth (mm)	Age	Condition	Action	Comments
									and deck area. Pruning is also proposed to give adequate clearance for construction
4	<i>Macrocarpa/Monterey Cypress</i> <i>Cupressus macrocarpa</i>	1817 Great North Road	S	19	8250	M	Moderate	Remove	Removal proposed to enable the construction of the new development. Tree has been heavily modified in recent history, including secondary limb removal. Retrenchment and broken limbs visible in the canopy
5	Persimmon tree <i>Diospyros sp.</i>	1817 Great North Road	NP	6	900	M	Good	Remove	Tree to be removed to facilitate the new apartment building
6	Norfolk Pine <i>Araucaria heterophylla</i>	1817 Great North Road	NP	12	1200	SM	Good	Remove	Tree to be removed to facilitate the construction of the new apartment building
7	Bottlebrush tree <i>Callistemon sp.</i>	1817 Great North Road	NP	6	800	SM	Good	Remove	Tree to be removed to facilitate the construction of the new apartment building
G8	(3) Oleander <i>Nerium oleander</i> (1) Privet <i>Ligustrum lucidum</i>	Road Reserve	NP	4-8	600-1200	SM	Moderate	Remove	Trees to be removed to facilitate the construction of the new apartment building. Replacement planting proposed
G9	Taupata <i>Coprosma repens</i> x8, Karo <i>Pittosporum crassifolium</i> x2, Tree privet <i>Ligustrum lucidum</i> Titoki (<i>Alectryon excelsus</i>) Karaka	Road Reserve	P	4 – 6	300 – 1200	SM	Moderate	Remove	Trees to be removed to facilitate the new apartment building. Replacement planting proposed

Tree No.	Tree Name	Tree Owner	Protection status	Height (m)	Girth (mm)	Age	Condition	Action	Comments
	<i>Corynocarpus laevigatus</i>								
10	<i>Taxodium distichum</i> Swamp Cypress	Road Reserve	P	14	2700	M	Good	Retain	Works within the protected root zone for the construction of the new apartments and as part of the construction of the new pedestrian pathway
11	<i>Taxodium distichum</i> Swamp Cypress	Road Reserve	P	10	1150	M	Good	Retain	Protective fencing required. No actual works within the protected root zone of this tree
12	<i>Taxodium distichum</i> Swamp Cypress	Road Reserve	P	12	1500	M	Good	Retain	Protective fencing required. No actual works within the protected root zone of this tree

Appendix B

Plan Set

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Appendix C – Landscape Plan



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DATE: AUGUST 2020
SCALE: 1:250 @ A3
PROJECT ID: 202008
DRAWN BY: K. HOLLY GANE
APPROVED BY: B. GILBERT
REVISION NOTES: V2

AVONDALE
1017 GREAT NORTH ROAD
LANDSCAPE CONCEPT PLAN
LOWER GROUND LEVEL

03

SPECIES	SPACING	SIZE
SUMMER GARDEN WOODLAND PLANTING MIX		
<i>Lomandra longifolia</i>	0.3m	PB 5
<i>Clivia miniata</i>	0.3m	PB 5
<i>Arthropodium cirratum</i> (rengarenga lily)	0.3m	PB 5
<i>Hydrangea</i> sp	1.0m	PB 5
<i>Camellia</i> sp	1.0m	PB 12
<i>Citrus</i> (lemon) sp	3.0m	PB 5
<i>Ajuga reptans</i> (bugle)	0.4m	PB 5
<i>Bergenia cordifolia</i>	0.5m	PB 5
Dwarf green flax	0.5m	PB 5
<i>Ligularia reformis</i> (tractor seat plant)	0.5m	PB 5
CLIMBER PLANTING		
<i>Tecomanthe speciosa</i>	0.3m	PB 5
ASH STREET ENTRANCE PLANTING MIX		
<i>Magnolia dolsopta</i>	As Shown	400 litre
<i>Diets grandiflora</i>	0.3m	PB 5
<i>Ophiopogon japonicus</i> (mondo grass)	0.3m	PB 5
<i>Ligularia reformis</i> (tractor seat plant)	0.5m	PB 5
<i>Lomandra longifolia</i>	0.3m	PB 5
<i>Clivia miniata</i>	0.3m	PB 5
ASH STREET ROAD RESERVE SPECIMEN TREE PLANTING		
<i>Taxodium distichum</i> (swamp cypress)	As Shown	400 litre
PEACE PARK ROAD RESERVE PLANTING MIX		
<i>Magnolia dolsopta</i>	As Shown	400 litre
<i>Alectryon excelsus</i>	As Shown	400 litre
<i>Lomandra longifolia</i>	0.3m	PB 5
GREAT NORTH ROAD FRONTAGE PLANTING MIX		
<i>Magnolia dolsopta</i>	As Shown	400 litre
<i>Alectryon excelsus</i>	As Shown	400 litre
<i>Diets grandiflora</i>	0.3m	PB 5

SPECIES	SPACING	SIZE
SHARED PODIUM GARDEN		
TREES		
<i>Betula pendula</i> (Silver Birch)	As Shown	PB 95
SHRUBS AND GROUND COVERS		
<i>Diets grandiflora</i>	0.3m	PB 5
<i>Daphne</i> sp	0.3m	PB 5
<i>Ophiopogon japonicus</i> (mondo grass)	0.3m	PB 5
<i>Ligularia reformis</i> (tractor seat plant)	0.5m	PB 5
<i>Lomandra longifolia</i>	0.3m	PB 5
<i>Clivia miniata</i>	0.3m	PB 5
<i>Rodgersia pinnata</i>	0.5m	PB 5
ANNUALS		
<i>Silvia</i> sp	0.3m	PB 3
Verbena	0.3m	PB 3
Stock	0.3m	PB 3
Lobelia	0.3m	PB 3
Alyssum	0.3m	PB 3
Basil	0.3m	PB 3
Mint	0.3m	PB 3
Thyme	0.3m	PB 3

Root zone Calculations



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