PLC's Grey House Precinct – Biodiversity Management Sub-Plan (BMSP)

To: Pymble Ladies College

By Ecological Consultants Australia Pty Ltd

February 2024

About this document

This Biodiversity Management Sub-Plan (BMSP) based on the BDAR (Biodiversity Assessment Report).has been prepared in response to the request from PLC Feb 2024.

Document Control Sheet	
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Signed: Elaway (Geraldene Dalby-Ball) – Director of Ecological Consultants Australia

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1 Introduction

1.1 Project Appreciation

1.1.1 Scope

The scope of this document is to provide Biodiversity Management Sub-Plan (BMSP) to satisfy condition D22 from the DA for the Grey House Precinct in Pymble Ladies College.

D22. The Biodiversity Management Sub-Plan (BMSP) must address, but not be limited to, the following:

(a) be prepared by a suitably qualified and experienced person/s;

(b) identify areas of land where impacts on biodiversity are to be avoided as outlined in the BDAR and set out how these areas will be protected from construction impacts; and

(c) set out the measures identified in the BDAR to minimise, mitigate and manage impacts on biodiversity, including, but not limited to, pathogen prevention, retention of trees, including timing and responsibility for delivery of the measures.

1.1.2 Who needs to read and understand and apply this induction?

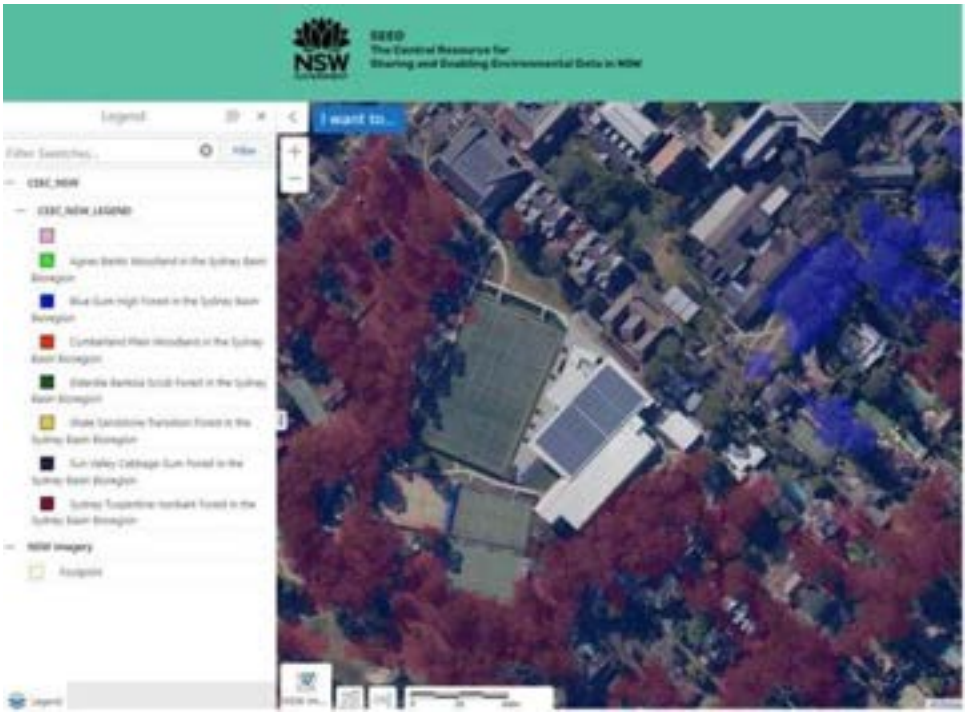
All personal working on site must have been inducted into the requirements of this Sub-plan. Anyone who has to know of and follow the CEMP must also know this sub-plan. This Biodiversity Mgt Subplan covers key points from the Approved Biodiversity Assessment Report (BDAR). As well as cross referencing the Vegetation Mgt Plan and the CEMP (See sections EC9 and EC10 of the CEMP).

As this Subplan based on the BDAR it can be used as part of Site Inductions

1. This sub-plan summarises the requirements of the BDAR as they relate to construction activity (pre, during and post).
2. This is a summary and the full BDAR (2022) is to be read and understood by all people responsible for works in and around the native trees, especially site managers.
3. Also to ensure all sub-contractors know of this and have read and understood this sub-plan.
4. The full CEMP should also reference the ecological requirements in relation to the construction methods and timing.

1.1.3 What and Why

1. Works are in an area of vegetation known as Sydney Turpentine Ironbark Forest (STIF) listed as a Critically Endangered Ecological Community (CEEC) (at both Federal and NSW level).
2. STIF is listed as a **Critically Endangered Ecological Community** (EEC) under the NSW BC Act (2016) and Critically Endangered Ecological Community (CEEC) under the Commonwealth EPBC Act (1999).
3. **Fines apply** to both individuals (10K+) and companies (220K+) for any actions that may impact the community/vegetation. Ignorance of the requirements is not accepted by the courts as an excuse and will not protect against prosecution. It is necessary to know what works are approved and the areas that can and can not be impacted.



Red is the mapped extent of STIF and overlaps with the works area.

4. Importantly this remnant Vegetation Community is highly beautiful and of national importance in natural heritage values. The aim is we all work in ways that maximises the likelihood of this community **surviving, seeding, regenerating** and keeping viable populations.
5. The legal definition of the community includes **areas of soil seedbank** where if left undisturbed the native species are likely to regenerate. All areas under the native canopy and the grass areas within 20+m of native canopy fall into this definition.
6. **Extensive pre approval design work occurred to minimise impact**. The proposed works that directly impact the community are the **removal trees including a large Turpentine** tree along the proposed access way.
7. **Proposed actions**

- The proposed development include:
- Demolition of existing buildings (single story demountable).
- Vegetation removal within the proposed building footprint (see figure 1.5)
- Construction of a new building (dotted outline in figure 1.4).
- Integrated open space and landscaping to provide outdoor learning and support well-being.
- Proposed construction access is located along an existing paved footpath. The accessway requires a minimum 4m width and this results in 4 trees requiring removal and minor canopy trimming.

1.2 D22 (a) Suitably Qualified and experienced

The Author of this Biodiversity Management Sub-Plan (BMSP) is also a co-author on the BDAR (Biodiversity Assessment Report that is referenced in Condition D22. We are suitably qualified and Appendix xx contains a summary of qualifications and certifications.

2 Areas to have no impact

2.1 D22 (b) Areas of Land where impacts on Biodiversity are to be Avoided

Project Area

The works area is in the Grey House Precinct, Pymble Ladies College at 20 Avon Road, Pymble. Figure 1.1 shows the extend of the main area defined as, Pymble Ladies College in this report. Figure 1.2 as the works area.

Critically Endangered Ecological Communities are present throughout this area, particularly the periphery. **So works and impact can only occurred in the approved works area** for this DA. The proposed works area contains Sydney Turpentine Ironbark Forest community and this is one of the few remnants remaining anywhere. More on this community can be found at:

https://www.environment.gov.au/cgi-bin/sprat/public/publicshowcommunity.pl?id=38.
And http://www.environment.gov.au/biodiversity/threatened/communities/sydney-turpentine-ironbark.html.

Figure 1.1 Aerial of the Site (SixMaps 2021). Source: Willow Tree Planning

The area of works is Grey House Precinct and accessway as shown in Figure 1.2. NB **vegetation in this area is protected.** Only the tree approved for removal is to be impacted. Trees in this area have been growing since at least the 40's when they were already mature. See Figure 1.3.

Figure 1.2 Site Location of the future Grey House Precinct and accessway vegetation. Image source: SixMaps

Figure 1.3 Historical imagery of PLC 1943. Source: NSW Gov, 2020 Spatial Collaboration Portal.

Figure 1.4 is trees approved for removal. Figure 1.5 shows the impact areas including the access route. ONLY TREES APPROVED TO BE REMOVED ON THE APPROVED ARBORIST REPORT can be removed. Figure 1.5 is an extract from the plan (The full plan is to be read by anyone managing trees). It also states that Tree 413 a Jacaranda requires tree protection.

7.1 Tree Removal

7.1.1 Thirty (30) trees would require removal as follows, based on the supplied design proposal. These trees would require removal to allow the proposed development:

Recommendation	Category A High retention value		Category B Moderate retention value		Category C Low Retention value		Category U No retention value	
	Qty	Tree numbers	Qty	Tree numbers	Qty	Tree numbers	Qty	Tree numbers
Remove for development	2	410, 411	13	45, 47, 48, 49, 50, 52, 392, 393, 399, 400, 401, 404, 406	15	51, 54, 394, 398, 402, 828, 829, 839, 841, 882, 1758, 1759, 2007, 2008, 2009	0	

Figure 1.4. Table of Tree approved for removal. Source ArborSafe .

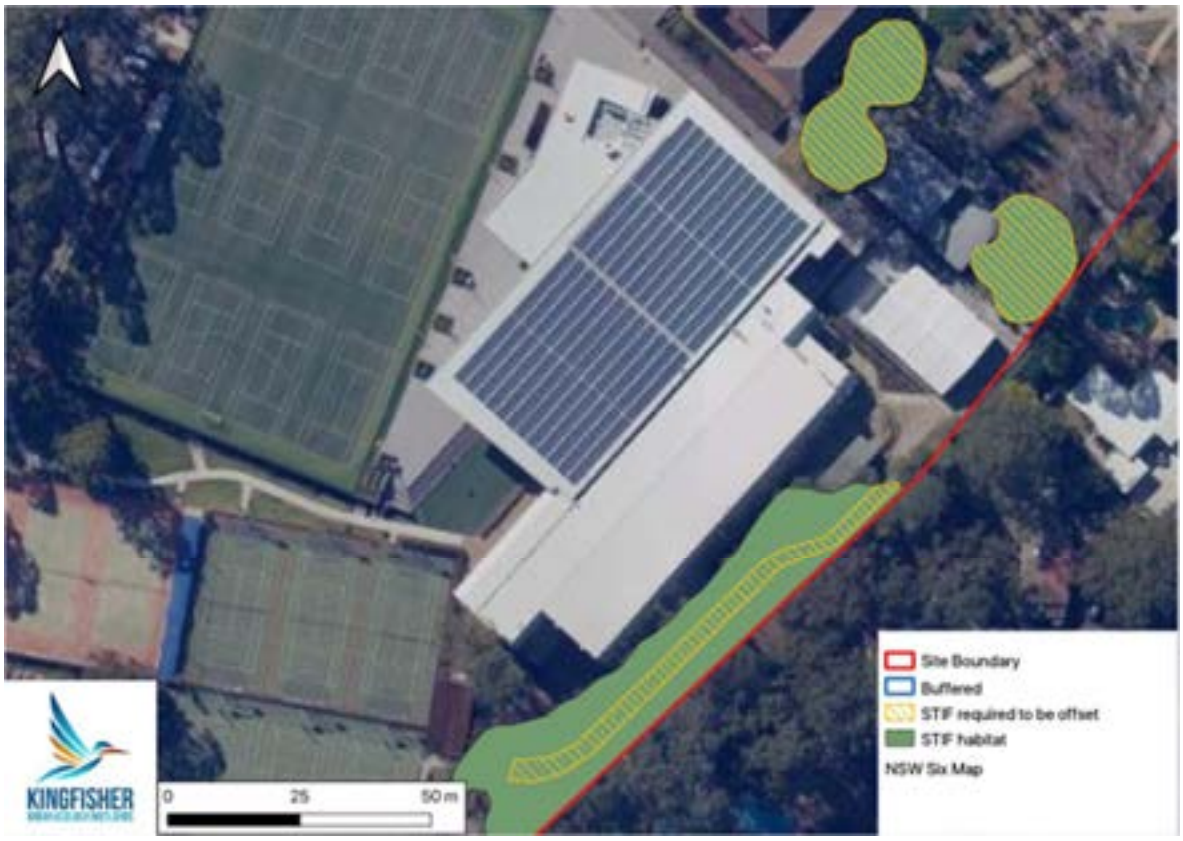


Figure 1.5 Impact Area of native Vegetation in Zone 1 Building Footprint.

3 Actions, Protection and Mitigation Steps

Any Doubts and Questions contact the Ecologists NB: **Text first** as we can step out of other projects

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Brooke Thompson Phone: 0466 379 853 Email: **brooket_eca@outlook.com**

Table 3.1 Action, Protection and Mitigation Steps

	Item	Requirement	By who
1	**Methods approved**	Any alterations to the methods, locations of works etc must be approved by the consent authority. Any environmental matters to be first discussed with the ecologist for risk level review.	**Site Manager** of the works and needs Council/ecologist approval
2	**Works Area**	The works area is as per the approved DA and works are not permitted beyond that. No parking of vehicle, storage of materials. **NO activities or works outside the approved area.** **Compliance** B27. The Applicant must ensure that all of its employees, contractors (and their sub-contractors) are made aware of, and are instructed to comply with, the conditions of this consent relevant to activities they carry out in respect of the development.	**Site Manager** of the works and needs
3	**Pre works Pathogen Prevention** The introduction of pathogens may occur via machinery, tools, equipment and worker clothing	Include **Pathogen Prevention in tool box** talks and inductions. Allocate person to check tools, shoes, machinery free from possibly contaminated (soil). Treat with metho as per directions in this plan. See also Department of the Environment and Energy (2018). *Threat abatement plan for disease in natural ecosystems caused by* Phytophthora cinnamomi. Canberra: Commonwealth of Australia. Available	Responsibility of the **Site Manager** of the works

	Item	Requirement	By who
	(e.g. boots). Phytophthora (also known as Root Rot – type of water mold) and Myrtle Rust (*Puccinia psidii* – type of fungus).	from: http://www.environment.gov.au/biodiversity/threatened/publications/threat-abatement-plan-disease-natural-ecosystems-caused-phytophthora-cinnamomi-2018. In effect under the EPBC Act from 22-Feb-2019.	
4	**Translocation of juvenile** native plants Pre works	Local native juvenile plants that are removed be replanted in the landscaped planting areas. The juvenile plants must be translocated prior to any earthworks and clearing of native vegetation commencing. D31. Prior to any earthworks and clearing of native vegetation commencing, all native juvenile plants that are capable of being replanted, must be translocated to a suitable location.	**Site Manager** to co-ordinate Ecologist/**Bush regenerator** to do.
5	**Tree and Vegetation Protection**	Tree protection of all trees and vegetation not approved for removal/impact. See also VMP (Oct 2023) Tree protection will be consistent with the Tree Survey. Main trees to be managed are trees within close proximity to site accessway NB: see final tree survey for details and tree numbers. **Tree Protection** E22. For the duration of the construction works: (a) all trees on the site that are not approved for removal must be suitably protected during construction as per the recommendations of the BDAR and the *Arboricultural Impact Assessment Report* prepared by ArborSafe dated 12 October 2021; and (b) if access to the area within any protective barrier is required during the works, it must be carried out under the supervision of a qualified arborist. Alternative tree protection measures must be installed, as required. The removal of tree protection measures, following completion of the works, must be carried out under the supervision of a qualified arborist and must avoid both direct mechanical injury to the structure of the tree and soil compaction within the canopy or the limit of the former protective fencing, whichever is the greater.	**Site Manager** of the works and Arborist

<table>
<tr><th></th><th>Item</th><th>Requirement</th><th>By who</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><th>Item</th><th>Purpose of Visit</th><th>Timing of Visit(s)</th><th>Prerequisites</th></tr>
<tr><td>1</td><td>Pre-start induction</td><td>Following sign off from Item 1. Contractor to provide a minimum of five days advance notice for this visit.</td><td>Prior to commencement of works. All parties involved in the project to attend.</td></tr>
<tr><td>2</td><td>Supervision of works in TPZ's including all regrading and excavations</td><td>Whenever there is work planned to be performed within the TPZ's. Contractor to provide a minimum of five days advance notice for such visits.</td><td></td></tr>
<tr><td>3</td><td>Regular site inspections</td><td>Minimum frequency monthly for the duration of the project.</td><td>The checklist must be completed by the Project Arborist at each site inspection and signed by both parties.</td></tr>
<tr><td>4</td><td>Final sign off</td><td>Following completion of works.</td><td>Practical completion of works and prior to tree protection removal.</td></tr>
</table>
Extract from Arborist report (ArborSafe 2021)</td><td></td></tr>
<tr><td>6</td><td>Delineation of work areas</td><td>During construction, impacts to the site and adjacent vegetation should be minimised by the delineation of works zones. Access to the site would be best restricted to the development footprint only. An environmental exclusion zone is proposed for vegetation outside work areas.</td><td></td></tr>
<tr><td>7</td><td>VMP for this site
(Vegetation Mgt Plan)</td><td>Be aware of and apply the requirements in the VMP (Vegetation Mgt Plan) written for this project.
See VMP (Narla Oct 2023)</td><td>Site Manager of the works</td></tr>
<tr><td>8</td><td>Pre tree removal</td><td>Ecologist to check the tree for active use by native wildlife. This will be with the assistance of an arborist if there is likely use of the upper portion of the tree.</td><td>Ecologist primarily and anyone on-site to be observant.</td></tr>
</table>

	Item	Requirement	By who
	During and post tree removal	Site manager to co-ordinate to ensure Ecologist can be present prior to any tree removal (same day is best). Ecologist to be on site during removal for tree post felling inspection and relocation of any fauna and habitat features. 2-step as per VMP if deemed necessary (any habitat) by project ecologist. Seeds to be collected and stored and provide to Ku-Ring-Gai Nursery for propagation D30. Prior to the removal of any local native vegetation from the site including plant species consistent with Sydney Turpentine Ironbark Forest and/or Blue Gum High Forest, seeds from native trees and shrubs approved for removal is collected and it is propagated by a suitably qualified bush regenerator and used in the site plantings. Arborist with chainsaws available to cut habitat sections for salvage and reuse at the direction of the ecologist. **Clearing Native Vegetation** C E6. Where possible, the Applicant must: (a) salvage and reuse any existing logs on the ground and native trees that are removed including hollows and tree trunks (greater than approximately 25-30cm in diameter and 2-3m in length); (b) place root balls on the ground within the areas to be replanted with local native species; and (c) salvage and relocate hollow sections of wood removed to appropriate locations, to provide natural nest boxes prior to the release of any native fauna found using the tree hollows.	**Site Manager** to co-ordinate

	Item	Requirement	By who
9	**During and post tree removal**	**Pre-Clearing Vegetation Plan and Seed Collection** D28. At least one month prior to the commencement of tree removal within the site, a pre-clearing vegetation plan must be prepared and submitted to the satisfaction of the Planning Secretary. The plan must: (a) be prepared by a suitably qualified ecologist; (b) map and mark habitat-bearing trees and shrubs to be retained/removed and other fauna habitat features and determine the presence of any resident native fauna using nests, dreys and hollows; and (c) provide evidence of the pre-clearing surveys and inspections for fauna and any relocation of fauna that must be provided. D29. If native fauna is found during preparation of pre-clearing vegetation plan, the fauna must be relocated to appropriate nearby habitat. D32. Should the removed native trees not be able to be re-used by PLC, the Applicant must consult with local community restoration/rehabilitation groups, Landcare groups, and relevant Government agency or Council, and Greater Sydney Local Land Services prior to removing any native trees to determine if the removed trees can be reused in habitat enhancement and rehabilitation work. This detail including consultation with the community groups and their responses must be documented and provided to the Certifier for information prior to the tree removal.	Ecologist primarily and anyone on-site.
10	Replacement and installation of **nest boxes**	A minimum of 4 micro-bat boxes are required to be installed 1 month pre tree removal. These have been installed (see VMP outcomes Nov 2023) – extract below.	**Site Manager** and Ecologist PLC

	Item	Requirement	By who
		3.5 Installed Nest Boxes During pre-clearing inspection clearing works, four (4) nest boxes were installed in close proximity to the Project boundary. The locations of all installed nest boxes are presented in **Figure 4.** **Table 3. Nest boxes installed on Subject Property** Tag # / Coordinates (Latitude, Longitude) / Box Type / Tree Species / DBH (cm) / Box height (m) / Orientation NB1 / -33.749433 / 151.135056 / Microbat / *Eucalyptus crebra* / 100 / 5 / East NB2 / -33.749481 / 151.135138 / Microbat / *Eucalyptus crebra* / 40 / 4 / East NB3 / -33.749674 / 151.134426 / Microbat / *Eucalyptus crebra* / 80 / 6 / South NB4 / -33.749565 / 151.134343 / Microbat / *Eucalyptus resinifera* / 60 / 5 / South  Nest Boxes Installed on Subject Property Subject Property Project Area Nest Box 0 25 50 m Total number of boxes depending on what habitat is found during tree felling.	

	Item	Requirement	By who
		Hollow Bearing Trees D33. Where tree hollows and/or hollow dependent native fauna are found using existing hollows, compensatory tree hollows should be provided prior to removing the tree hollows and prior to the release of the hollow dependent fauna unless the removed tree hollows can be relocated and installed on the same day they are removed. D34. The compensatory nest boxes are to be installed by an appropriately experienced person prior to the removal. D35. The Applicant must install a minimum of four microbat boxes in the trees being retained. D36. The compensatory nest boxes must be installed at least one month prior to any vegetation removal, to provide alternate habitat for hollow-dependent fauna displaced during clearing. Annual review and action by PLC	
11	Soil disturbance and compaction The removal of vegetation and trees can result in soil disturbance. Soil compaction can occur from machinery use. Soil can be degraded when there is no organic layer.	Machinery is to be confirmed to the accessway and not on areas being retained. Replacement of woody debris and a covering of organic matter is to occur over disturbed/cleared areas to retain soil porosity and health. D21. The Applicant must prepare a Construction Soil and Water Management Plan (CSWMSP) and the plan must address, but not be limited to the following: C (a) be prepared by a suitably qualified expert, in consultation with Council; (b) describe all erosion and sediment controls to be implemented during construction, as a minimum, in accordance with the publication Managing Urban Stormwater: Soils & Construction (4th edition, Landcom 2004) commonly referred to as the 'Blue Book'; (c) provide a plan of how all construction works will be managed in a wet-weather events (i.e. Storage of equipment, stabilisation of the site); and (d) detail all off-Site flows from the site.	
12	Effective site management to **manage any sediment** to ensure no runoff.	Must be checked at each work event and at a minimum of weekly and before, during, after any major weather event including swells. Any low tide situations that could trap any fauna including penguins between any sediment management device and the waterway is to be checked.	Anyone on-site. including residents. As at times may need to be frequent.

	Item	Requirement	By who
		Existing ocean pool and foreshore. High tide. Bunding with sand bags and water proof material will create a bunded dry zone in all tides around the works area.	Responsibility of the Works **Site Manager**
13	**Stock piles and storage of materials and parking**	No **Stock piles** or storage of materials nor parking anywhere outside areas approved int eh CEMP. Noting that if there is a contradiction of the CEMP and this plan this sub-plan takes precedent in the item of no parking or material storage within the drip lines (canopy) of trees to be retained.	Responsibility of the Works **Site Manager**
14	**Native Species Landscaping** Landscape planting with a diversity of local provenance native species.	Post development native landscaping and revegetation along the boundary of the site would improve habitat connectivity within the site. Species plantings to restore maximum diversity at the site. Species to be selected in consultation with the ecologist for the greatest ecological outcome from a combination of Sydney Turpentine-Ironbark Forest (STIF) and Blue Gum High Forest (BGHF) communities. The drainage line adjacent to the access way and site boundary should be revegetated with species associated with STIF plant community. **See also condition C2**	Ecologist and PLC with those doing landscape plan

	Item	Requirement	By who
		Landscape Plan C2. Prior to the issue of any relevant construction certificate for landscaping works, the Applicant must prepare a revised Landscape Plan to manage the revegetation and landscaping works on-site, to the satisfaction of the Certifier. The plan must: (a) be generally consistent with the landscape plans approved in condition B2, or as amended to address condition A3; (b) include the additional landscaping recommendations in the *Pedestrian Wind Environment Study (WG268-01F03(REV1))* prepared by Windtech dated 26 August 2021; (c) include evidence of consultation with the relevant Aboriginal Party (including Uncle Laurie Bimson) in the development of the detailed landscape plan and outdoor learning spaces to demonstrate how connecting with country principles have been addressed including, but not limited to, the useability, amenity and plant species selection; (d) include evidence to demonstrate that the stories learnt during the Connection with Country consultation have been used in the development of landscaping design as well as patterns, pavings and surface renders; (e) include details of creation of the 'wild edge' with Blue Gum High Forest, within the Grey House Precinct including establishment of fauna corridors in this area; (f) include details of dense planters along the south-eastern side of the ELC play area as identified in the RtS; (g) include understorey planting along the south-eastern edge to provide biodiversity; (h) detail the location, species, maturity and height at maturity of plants to be planted on-site; (i) incorporate only species (trees, shrubs and groundcovers) indigenous to the local area and consistent with Blue Gum High Forest; (j) include details to demonstrate that at least 37 trees are proposed to replace the lost canopy; (k) include recommendations of the *Biodiversity Development Assessment Report* prepared by Ecological Consultants Australia Pty Ltd TA Kingfisher Urban Ecology and Wetlands dated June 2022(BDAR); (l) include the provision of nest boxes and compensatory tree hollows suitable to native fauna likely to use the site; and (m) include rocks and other landscape features that can be used as foraging habitat of native species and provide species connectivity.	

	Item	Requirement	By who
14	**Weed management** Low impact bushland regeneration methods to be utilised to meet weed control performance criteria in all areas of remnant native vegetation, to prevent unnecessary impacts to native vegetation and disturbance to soil	Low impact bush regeneration methods include the manual removal of herbaceous weeds and their propagules by hand and with hand tools. All bush regeneration activities requiring the use of chemicals must be performed in accordance with the NSW *Pesticides Act 1999.* Herbicides must not be applied whilst exotic plants are setting seeds. Fulfil DA Conditions	Contract Bush Regenerators
15	Replacement and installation of **nest boxes**	A minimum of 4 micro-bat boxes are required to be installed 1 month pre tree removal. Total number of boxes depending on what habitat is found during tree felling. **Hollow Bearing Trees** D33. Where tree hollows and/or hollow dependent native fauna are found using existing hollows, compensatory tree hollows should be provided prior to removing the tree hollows and prior to the release of the hollow dependent fauna unless the removed tree hollows can be relocated and installed on the same day they are removed. D34. The compensatory nest boxes are to be installed by an appropriately experienced person prior to the removal. D35. The Applicant must install a minimum of four microbat boxes in the trees being retained. D36. The compensatory nest boxes must be installed at least one month prior to any vegetation removal, to provide alternate habitat for hollow-dependent fauna displaced during clearing. Annual review and action by PLC - with replacements as required.	**Site Manager** and Ecologist PLC

	Item	Requirement	By who
16	**Reporting and Monitoring and Compliance** Environmental Hazards, near Misses and Incidents	Reporting for Environmental Hazards, near Misses and Incidents can be done in the same way as WHS matters. See also CEMP. Any ecological matters to be provided to the Project Ecologist for advice and action as required. **Compliance** B27. The Applicant must ensure that all of its employees, contractors (and their sub-contractors) are made aware of, and are instructed to comply with, the conditions of this consent relevant to activities they carry out in respect of the development. **Incident Notification, Reporting and Response** B28. The Planning Secretary must be notified through the major projects portal immediately after the Applicant becomes aware of an incident. The notification must identify the development (including the development application number and the name of the development if it has one) and set out the location and nature of the incident. B29. Subsequent notification must be given and reports submitted in accordance with the requirements set out in **Appendix 2**.	**Site Manager** & Ecologist
	Ongoing includes but is not limited to:	**Landscaping and Vegetation Management** G20. The Applicant must maintain the landscaping and vegetation on the site in accordance with the approved Landscape Management Plan required by condition F32 and the recommended measures in the VMP, for the duration of occupation of the development.	

Plate 3.1 Hollow bearing tree within proximity to acess path (proposed retention and tree protection)

Plate 3.2 Hollow bearing tree

Plate 3.3 Two smaller Turpentine trees proposed for removal due due to impacts from widening requirements of the access way.

Plate 3.4 Canopy vegetation consistant with STIF plant community.

Plate 3.5 T829 Proposed for removal due to impacts from access widening requirments.

Plate 3.6 T839 Proposed for removal due to impacts from access widening requirments.

Plate 3.7 Revegetation is recommended for drainage channel and site boundary.

Any Doubts and Questions contact the Ecologists NB: **Text first as we can step out of other projects s.**

5 Quiz for Induction

	Qu:	Answer here (or on separate page)
1	Who should know the information in this sub-plan?	
2	Where is the official works area boundary?	
3	Why is the vegetation on site important?	
4	How would be certain of what trees/vegetation can be removed?	
5	What are some things that need to occur after a tree, approved form removal, has been cut down?	
6	Do you know there is a Vegetation Mgt Plan? Have you read and understood areas relevant to you?	
7	Do you know there is a Construction Env Mgt Plan (CEMP)? Have you read and understood areas relevant to you?	
8	What do you do if an animal (native or feral) is within the vegetation to be removed?	
9	Have you copied the ecologists phone numbers into your phone?	
10	Do you know fines can apply for an individual and a Company for impacting Endangered Ecological Communities (protected vegetation). Fines are up to 220,000 AUD	
11	Where would a person report a hazard, near miss or incident of an ecological nature?	

7 Signature Page

I have read and understand the information in this plan

Name	Company	date	Signature

Name	Company	date	Signature

8 Monitoring and Records

Site monitoring sheet – to record any of the above matters or any observations. Use more pages if needed.

What was monitored or recorded?	By whom	date	Action taken

https://www.dcceew.gov.au/sites/default/files/documents/sydney-turpentine-ironbark.pdf

8.1 Accreditations and Licenses

8.1.1 Licenses

ECA is accredited by the NSW Department of Primary Industries' Animal Care and Ethics Committee to carry out fauna surveys throughout NSW. See Appendices for copies.

Elaway (G. Dalby-Ball) holds a current section 132c Scientific Licenses with people in our team registered under that license and trained to carry out research involving native wildlife, issued by the NSW Office of Environment and Heritage.

8.2 Accredited and Independently Audited in WHS, Quality Environment

We are certified and externally audited with 100% compliance in all areas. See the appendix for copies of the certification.

8.2.1 Certified Biobank Accessor

Elaway (G. Dalby-Ball) is an accredited BioBank Assessor BAAS19008 (mid reaccreditation)

https://customer.lmbc.nsw.gov.au/assessment/AccreditedAssessor

9 Appendices

9.1 People

People for this project		
Geraldene Dalby-Ball 	• BSc (Ecology) Hons I (Syd Uni) 1995 • Over 20 yrs. Experience in Ecological Consulting **Positions** • Member of Ecological Consulting Association of NSW • Technical Advisor Sydney Olympic Park – WET Wetlands Education and Training **Accreditations** • Accredited Biobank Assessor BAAS19008 (renewal) • Animals Welfare License • Section 132c License (OEH)	Geraldene's key expertise is in urban ecology, riparian and waterway projects, salt- and fresh-water wetland design and rehabilitation. A frequent conference presenter on Natural Resource Management and connecting with People. With over 8 years local government experience as Mgr of Envir. and Ed. for Northern Beaches Council, Geraldene understands working with Gov agencies. She is skilled in experimental design and analysis; research; teaching (Sydney University and TAFE), environmental legal work, negotiating and strategic planning. BioBank Assessor specialling in greater Sydney area impact and stewardship sites. Joint author on Burnum Burnum's popular book, Wildthings, published by Sainty and Associates and author of the chapter on engaging community in rehabilitation projects in Estuary Book. During her early professional years, she worked with wetland expert Geoff Sainty of Sainty and Associates and is a recognised wetland expert and advisor on Wetland Education and Training panel (WET) through Sydney Olympic Park. **Ecologist and key team member in award winning projects including:** • ***Multi-award winning*** (nationally and internationally) Sydney Park Water-Reuse Scheme. See link for lists of awards. https://www.governmentarchitect.nsw.gov.au/resources/case-studies/2017/11/sydney-park • ***Excellence in Integrated Stormwater Design*** – Wangal Park: Where stormwater creates liveability – a joint project of Burwood Council, Alluvium Consulting, McGregor-Coxall, Dragonfly Environmental, Glascott Landscape & Civil and Neverstop Water. http://stormwaternsw.asn.au/events/awards-excellence/ Sydney Ports Corporation's Port Botany Expansion project won the ***Australian Construction Achievement Award*** including major environmental rehabilitation works and the successful creation of the largest planted saltmarsh known globally. Geraldene, with the Dragonfly team, has been a key person in the rehabilitation and expansion of Penrhyn Estuary to create a secure estuarine environment https://www.projectlink.com.au/news/major-award-for-sydneys-port-botany-expansion-project

People for this project		
Brooke Thompson 	• BSc Conservation Biology, University of Wollongong • General Construction Induction NSW White Card	Brooke is a junior ecologist with valuable on-ground experience working on bush regeneration projects throughout the Sydney region, including revegetation and weed management projects. Brooke is passionate about conserving and restoring natural areas for native species to thrive. Brooke completed her undergraduate Bachelor of Science degree majoring in Conservation Biology. She has knowledge of experimental design and analysis, research and reports, GIS, environmental legislation, and flora identification. Brooke has experience working with conservation organisations, including Sea Shepherd Australia, helping to raise awareness around the destruction of habitats in the world's oceans. She has participated in the organisation and delivery of fundraising events around Sydney. Brooke has exceptional communication and customer service skills and an extended client relations history
Myrna Calumpong 	• Bachelor of Science in Business Economics, University of St. La Salle, 2011	Myrna is our Admin/Office Manager with extensive experience in administrative, scientific and ecological research and reporting. Myrna has been exposed to different types of report preparation including Flora and Fauna, Biodiversity Development Assessment, Review of Environmental Factors, Statement of Environmental Effects, Vegetation Management Plan, Certifications, etc. This gave her more understanding of what kind of research and/or data is required for each report and how to use different tools (gov't. and non-gov't.) for mapping and data generation. Myrna has exceptional communication and customer service skills.

Full CVs can be provided on request.

9.2 Appendix I – Licences: Animal Ethics and Scientific Licence

NSW GOVERNMENT | Regional NSW

Animal Research Authority
Animal Research Act 1985, Section 26

On the recommendation of the Secretary's Animal Care & Ethics Committee, Animal Research Authority (ARA) details are as follows:

ACEC ARA Number	19/2066		
Project title	Fauna studies throughout NSW		
ARA Approval Period	25/03/2023 until 25/03/2024 (12 months)		
Project Approval Period	25/03/2022 until 25/03/2025 (3 years)		
Principal Investigator	Geraldene Dalby-Ball		
Associate Investigators*	Luke Johnson		
Other Participants*	Gemma Jones	James Dalby-Ball	
Type of Research	Flora and Fauna Surveys and biodiversity assessments		
Location	Various locations throughout New South Wales		
Approved Animals	All vertebrates		

Approved Capture and Non-Capture Survey Methods: indicated by checked boxes ☒

Capture Survey Methods		
☒ Hand nets	☒ Hand capture	☐

Please note: Spotter catcher/relocation work is not considered animal research under the *Animal Research Act 1985* and is not covered by this ARA. Surveys to determine presence of animals pre land clearance are animal research and is covered by the ARA.

NSW GOVERNMENT | Department of Primary Industries
Biosecurity & Food Safety

Animal Research Establishment

Accreditation No. 53655

Start date: 15 March 2023
Expiry date: 14 March 2026

Accreditation holder: Ecological Consultants Australia Pty Ltd

Address: 30 Palmgrove Rd
AVALON BEACH NSW 2107

Department of Planning, Industry and Environment

Scientific Licence

Biodiversity Conservation Act 2016

Name and postal address of principal licensee	Nominated premises (where appropriate)
Ms Geraldine Dalby-Ball Kingfisher Urban Ecology and Wetlands 30 Palmgrove Rd AVALON BEACH NSW 2107	

Your licence number is: SL101387

This licence is valid from: 01 March 2022

This licence will expire on: 30 November 2023

Additional authorisations:

Project Title: Flora and Fauna Surveys in NSW

This class of biodiversity conservation licence granted under Part 2 of the *Biodiversity Conservation Act* 2016 authorises the following activities: Harm, by means of capture, deal in (possess), and liberate protected and threatened animals for survey purposes; Pick and deal in (possess) protected and threatened plants for identification purposes

This licence authorises the principal licensee and any associates named in **Attachment A** to conduct those activities authorised above, to those species, communities or materials listed in **Attachment B**, at the locations specified in **Attachment C** of this licence.

This licence also authorises the principal licensee to conduct research on National Park estate under clause 26 of the National Parks and Wildlife Regulation 2019 (NPW Reg), where this forms part of a project approved by a delegated officer of the *Biodiversity Conservation Act 2016*.

This licence is granted subject to the provisions of *Biodiversity Conservation Act 2016*, Biodiversity Conservation Regulation 2017, the general conditions listed below, any special conditions as may be notified in writing to the licensee by the Environment Agency Head of the Department of Planning, Industry and Environment (the Department) or a 'delegated officer' of the *Biodiversity Conservation Act 2016* and the Department's "Scientific Licensing Policy".

Signature of Delegated Officer	**Signature of Principal Licensee***
Date: 08 November 2022	Date:.....

* This licence is not valid unless it is signed by the principal licensee. By signing this licence, the licensee agrees that they have read, understood and agree to comply with all of the conditions listed on the licence.

9.2.1 Externally Certified Accreditations: Environmental, WHS and Quality

Environmental Certification

Work Health and Safety Certification

Quality Management Certification

Efficient Safety Systems

10.1 Appendix II –DA Conditions relevant to the BMSP subplan

Follow are some additional DA conditions that have relevance to this sub-plan. This is not an exhaustive list and people need to be responsible for reading all relevant documents in full. Conditions here are in addition to those already quoted directly in the boy of this sub-plan.

(e) Amend Condition B5 of Schedule 2 to Development Consent SSD-5314 as follows:

Landscaping

B5. All future development applications for Stages 2, ***and*** 3 ~~and 4~~ must include detailed landscape plans identifying the vegetation to be removed or relocated and the location of any additional landscaping, and must be generally in accordance with the approved landscape concept in Condition A5 of Part A of Schedule 2. The detailed landscape plans should include relevant details of the species to be used in the various landscaped areas (preferably species indigenous to the area), including details of the informal native and cultural avenue plants, and other soft and hard landscape treatments, including any pavement areas and modular and sculptural seating.

B13 about Staging – there will be no Staged construction

Stormwater Management System

C7. Prior to the issue of any relevant construction certificate, the Applicant must design an operational stormwater management system for the development and submit it to the Certifier for approval. The system must:

(a) be designed by a suitably qualified and experienced person(s);

(b) be generally in accordance with the conceptual design in the civil works plans submitted with the EIS;

(c) include all stormwater quality treatment measures as outlined in the civil works report submitted with the EIS; and

(d) be in accordance with applicable Australian Standards and Council's requirements.

Roadworks and Access

C8. Prior to the issue of any relevant construction certificate for traffic calming measures (as required by condition E3), the Applicant must submit design plans to the satisfaction of the relevant roads authority (and/or Local traffic Committee as applicable) and obtain necessary approvals.

Note: *Separate construction certificate applications under the Roads Act 1993 are required to be submitted and approved by the relevant roads authority for roadworks or works within the public domain.*

Geotechnical recommendations

C9. Prior to the issue of any relevant construction certificate for a construction stage, which involves ground disturbance, the construction certificate plans must demonstrate compliance with the recommendations as outlined in Geotechnical Investigations prepared by JK Geotechnics dated 8 February 2021.

Outdoor Lighting

D14. Prior to the installation of outdoor lighting, evidence must be submitted to the Certifier that all outdoor lighting within the site has been designed to comply with AS 1158.3.1:2005 Lighting for roads and public spaces – Pedestrian area (Category P) lighting – Performance and design requirements and AS 4282-2019 Control of the obtrusive effects of outdoor lighting and be mounted, screened and directed in a way that it does not create a nuisance or light spill on to buildings on adjoining lots or public places.

Environmental Management Plan Requirements

D15. Management plans required under this consent must be prepared having regard to relevant guidelines, including but not limited to the *Environmental Management Plan Guideline: Guideline for Infrastructure Projects* (DPIE April 2020).

Note: The Environmental Management Plan Guideline is available on the Planning Portal at: https://www.planningportal.nsw.gov.au/majorprojects/assessment/post-approval

Note: *The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans*

Construction Environmental Management Plan

D16. Prior to the commencement of construction, the Applicant must submit a Construction Environmental Management Plan (CEMP) to the Certifier and provide a copy to the Planning Secretary for information. The CEMP must include, but not be limited to, the following:

(a) Details of:

(i) hours of work;

(ii) 24-hour contact details of site manager;

(iii) management of dust and odour to protect the amenity of the neighbourhood;

(iv) stormwater control and discharge;

(v) measures to ensure that sediment and other materials are not tracked onto the roadway by vehicles leaving the site;

(vi) external lighting in compliance with AS 4282-2019 Control of the obtrusive effects of outdoor lighting;

(vii) community consultation and complaints handling as set out in the Community Communication Strategy required by condition D9;

(b) Construction Traffic and Pedestrian Management Sub-Plan (see condition D18);

(c) Construction Noise and Vibration Management Sub-Plan (see condition D19);

(d) Construction Waste Management Sub-Plan (see condition D20);

(e) Construction Soil and Water Management Sub-Plan (see condition D21);

(f) Biodiversity Management Sub-Plan (see condition D22);

(g) an unexpected finds protocol for contamination and associated communications procedure; and

(h) an unexpected finds protocol for Aboriginal and non-Aboriginal heritage and associated communications procedure.

D17. The Applicant must not commence construction of the development until the CEMP is approved by the Certifier and a copy submitted to the Planning Secretary.

D18. A Construction Traffic and Pedestrian Management Sub-Plan (CTPMSP) must be prepared to achieve the objective of ensuring safety and efficiency of the road network and address, but not be limited to, the following:

(a) be prepared by a suitably qualified and experienced person(s);

(b) be consistent with the preliminary construction traffic management plan submitted with the *Transport Impact Assessment Report* prepared by Stantec dated June 2022;

(c) be prepared in consultation with Council and Transport for NSW (TfNSW);

D20. The Construction Waste Management Sub-Plan (CWMSP) must address, but not be limited to, the procedures for the management of waste comprising: C

(a) the recording of quantities, classification (for materials to be removed) and validation (for materials to remain) of each type of waste generated during construction and proposed use;

(b) information regarding the recycling and disposal locations; and

(c) confirmation of the contamination status of the development areas of the site based on the validation results.

D21. The Applicant must prepare a Construction Soil and Water Management Plan (CSWMSP) and the plan must address, but not be limited to the following: C

(a) be prepared by a suitably qualified expert, in consultation with Council;

(b) describe all erosion and sediment controls to be implemented during construction, as a minimum, in accordance with the publication Managing Urban Stormwater: Soils & Construction (4th edition, Landcom 2004) commonly referred to as the 'Blue Book';

(c) provide a plan of how all construction works will be managed in a wet-weather events (i.e. Storage of equipment, stabilisation of the site); and

(d) detail all off-Site flows from the site.

Implementation of Management Plans

E13. The Applicant must carry out the construction of the development in accordance with the most recent version of the CEMP (including Sub-Plans). C

Outdoor Lighting C

F24. Prior to the issue of any relevant occupation certificate, the Applicant must submit evidence from a suitably qualified practitioner to the Certifier that demonstrates that installed lighting associated with the development achieves the objective of minimising light spillage to any adjoining or adjacent sensitive receivers and:

(a) complies with the latest version of AS 4282-2019 - *Control of the obtrusive effects of outdoor lighting* (Standards Australia, 1997); and

(b) has been mounted, screened and directed in such a manner that it does not create a nuisance to surrounding properties or the public road network.

Landscaping

F28. Prior to the issue of any relevant occupation certificate, landscaping of the site must be completed in accordance with landscape plan(s) listed in condition B2, or as amended by condition A3 and C2. C

F29. Prior to the issue of any relevant occupation certificate for landscaping works on the site, the Applicant must confirm that all native juvenile plants to be retained, have been relocated. C

F30. Prior to the issue of any relevant occupation certificate for landscaping works on the site, the Applicant must confirm that the tree and understory species, which are planted along the south- C

eastern boundary to maintain visual privacy in the future are consistent with Blue Gum High Forest. The replacement planting must be of advanced species and in suitable pot sizes.

F31. Prior to the issue of any relevant occupation certificate for landscaping works on the site, the Applicant must demonstrate to the satisfaction of the Certifier that at least 37 replacement trees are planted within the site. C

F32. Prior to the issue of any relevant occupation certificate for landscaping works, the Applicant must prepare an Operational Landscape Management Plan to manage the revegetation and landscaping on-site, to the satisfaction of the Certifier. The plan must: C

(a) describe the ongoing monitoring and maintenance measures to manage revegetation and landscaping; and

(b) be consistent with the mitigation and post construction management measures identified in the VMP in condition D37.

F33. The Applicant must not commence operation until the Operational Landscape Management Plan is submitted to the satisfaction of the Certifier. C

Part F – pre OC

EMERGENCY RESPONSE PLAN

PLC GREY HOUSE

PROJECT NUMBER: 647

ISSUED: 02/02/2024
(Initial Issue)

This Emergency Response Plan forms part of the Project Management plan for the above project.

THIS DOCUMENT IS UNCONTROLLED WHEN PRINTED.
The electronic version of this document is the approved and most current.
Any printed version is uncontrolled and may not be current.

STEPHEN EDWARDS CONSTRUCTIONS PTY LTD ABN 65 001 824 139

140 Wicks Road Macquarie Park NSW 2113 ☎: 02 9891 3099 : www.stephenedwards.com.au

Contents

1 Purpose & Scope

The purpose of this plan is to clearly describe the actions and responsibilities required in the event of an emergency occurring on the project. This plan is applicable to all parts of this project and throughout all phases of works. It will be reviewed and, where applicable, updated after any major incident.

2 Definitions

a) Critical Incident
- An event or point of decision which, if not handled in an appropriate and timely manner (or if not handled at all), may turn into a disaster or catastrophe significantly impacting on the operations of the project site and or company as a whole.

b) Critical Incident Management Team
- (CIMT) Team appointed by the Director to deal with a specific Crisis situation or event. Consists of an Emergency Response Controller & Deputy Emergency Response Controller.

c) Emergency Response Controller (ERC)
- The relevant Project Manager or other person appointed by the Director to deal with a specific crisis event or developing situation

d) Emergency
- For the purpose of this plan, an emergency shall be defined as any serious event which requires a high level response

e) Emergency Response Services
- May, as appropriate, mean police, ambulance, fire brigades, state emergency services, hospital or other specialist groups.

f) Incident
- An unplanned or undesirable event resulting in, or has the potential for, personal injury, loss of productivity, environmental damage or property damage. Work related incidents may involve a work injury and/or non-injury occurrence

g) Near Miss
- Any unplanned event in the workplace that, although not resulting in injury or significant equipment, property and/or environmental damage, had the potential to do so.

h) Significant injury/incident
- Serious injury/incident requiring hospitalisation and long-term absence or serious disruption to construction schedule

i) Incident Class
- Class 1

- People – Causes or has the potential to cause damage which permanently alters the future of the individual (fatality, quadriplegia, amputee, disabled or psychological disturbance).

- Environment – Causes or has the potential to cause permanent environmental damage and results in remediation costs of > $50,000.

- Plant / Equipment / Property – Causes or has the potential to cause damage to plant / equipment and / or property > $50,000.

Class 2

- People – Causes or has the potential to cause an injury or disease resulting in temporary disability or time lost from work of one or more complete days or shifts.

- Environment – Causes or has the potential to cause damage to the environment which can be rectified and results in remediation costs of > $10,000 and < $50,000.

- Plant / Equipment / Property – Causes or has the potential to cause damage to plant / equipment and / or property > $10,000 and < $50,000.

- Class 3
  - People – Causes or has the potential to cause an injury which inconveniences the individual such as minor cuts or sprains, but allows the person to continue to carry out normal duties.

  - Environment – Causes or has the potential to cause damage to the environment which can be easily rectified and results in remediation costs of < $10,000.

  - Plant / Equipment / Property – Causes or has the potential to cause damage to plant / equipment and / or property < $10,000.

j) Injury Class

- First Aid Injury (FAI)
  - Harm resulting from a single workplace incident, requiring treatment within the scope of training of a first aider, regardless of whether this is provided by a medical practitioner.

- Medical Treatment Injury (MTI)
  - Harm resulting from a single workplace incident, requiring treatment within the scope of training of a first aider, regardless of whether this is provided by a medical practitioner.
- Sutures or alternatives such as staples or cutaneous glues
- Breaks or fractures including immobilisation, e.g. using a splint or cast or similar
- Partial or full thickness burns (second and third degree)
- Bruises by drainage, except the drilling of a fingernail to relieve pressure

- Lost Time Injury (LTI)

  Injury that causes the injured person to be unfit to perform any work duties for one whole day or shift, or more, after the shift on which the injury occurred.

- Fatality (F)
  - Injury that results, directly or indirectly, in the death of the person.

- Health Case (HC)

- Chronic condition caused by long-term exposure to workplace hazards or acute incident that aggravates a chronic condition which may be work/non-work related

Category 1 – Critical Incident Trigger: Incident involving fatality or severe injury or incident resulting in potential severe corporate reputational damage, or major impact to School operations	**Category 2 – Significant Incident Trigger: Incident involving major detrimental impact to project, including damage to civil structures, extreme weather impacts, and threats to life or property or major environmental impact, or significant impact to critical school operations**	**Category 3 – Minor Incident Trigger: incident involving impact on project delivery which may involve regulatory investigation e.g. injury resulting in hospitalisation, or minor environmental impact**	**Category 4 – Local incident Trigger: Routine incident on worksite, e.g. minor LTI not requiring hospitalisation.**
Step 1 – Immediate Contractor calls 000 Emergency	Step 1 – Immediate Contractor calls 000 Emergency	Step 1 – Immediate Contractor calls 000 Emergency	Step 1 – within 1 hour Contractor informs: Project Manager and Regulators/Authority (if reportable incident)
Step 2 – Immediate – Contractor calls the School Principal only if the incident causes disruption to the school's operations and places student/staff or public at risk.	Step 2 – Immediate – Contractor calls the School Principal only if the incident causes disruption to the school's operations and places student/staff or public at risk.	Step 2 – Immediate – Contractor calls the School Principal only if the incident causes disruption to the school's operations and places student/staff or public at risk.	Step 2 – within 1 hour Contractor informs: Project Manager (if reportable incident) otherwise within 8 hours of incident occurring
Step 3 – Immediate Contractor informs: Project Manager and Regulators/Authority	Step 3 – Immediate Contractor informs: Project Manager and Regulators/Authority	Step 3 – within 1 hour Contractor informs: Project Manager and Regulators/Authority	Step 3 – within 8 hours Project Manager informs: DoE Program Manager
Step 3 – Immediate Project Manager informs: DoE Program Manager	Step 2 – Immediate Project Manager informs: DoE Program Manager	Step 2 – within 1 hour Project Manager informs: DoE Program Manager	
Step 4 – Immediate Program Manager informs: DoE Senior Executives	Step 3 – Immediate Program Manager informs: DoE Senior Executives		

3 Responsibilities

3.1 Director

- Appointment of Critical Incident Management Team (CIMT), Emergency Response Controller (ERC) & Deputy Emergency Response Controller
- Approval to comment to media

3.2 QHSE Manager

- Assist in identifying potentially critical incident circumstances, assessing and controlling of critical incident risks effectively.
- Implementing, monitoring and maintaining risk control measure for critical or potentially critical incidents in their areas of responsibility.
- Consulting with employees on critical incident practices or any proposed changes
- Ensuring the well-being of employees following a critical incident.

3.3 Project Manager

- Ensure an Emergency Response Controller and the deputy are appropriately trained
- Ensure this plan is reviewed and updated to reflect changes in the workplace or opportunities for improvement.
- Provide high level decisions and instruction regarding personnel, property and/or the environment that are affected by the incident / emergency;
- Ensure that an appropriate level of resources are available;
- Report to senior management, in accordance with the severity and status of the emergency;
- In the event of an emergency, follow the instruction of Emergency Services or the Emergency Response Controller
- Liaise with the client with respect to community consultation and media management.
- Liaise with the Safework NSW Authority where applicable;
- Communicate events requiring response, notifications and reporting
- Respond to the requirements of Regulatory Authorities as required;
- Organise trauma counselling for critical incidents

3.4 Return to Work Coordinator

- Liaising with the company's workers compensation provider and the rehabilitation provider
- Management of 'Workers Injury Management Plan'.

3.5 Critical Incident Management Team (CIMT)

- The need for appointing a CIMT is to be determined by the Company Director.
- The CIMT may comprise of Stephen Edwards Constructions Site Management representatives and or the services of external specialist service providers.
- One person shall be appointed as the Critical Incident Response Controller (CIRC) by the Company Director to coordinate all activities being undertaken by the CIMT. This will normally be the relevant

3.6 Emergency Response Controller

- Implementation and activation of this plan.
- Coordinate & Initiate Critical Response Process in accordance with this plan

- Assume initial control of the scene of the emergency and the evacuation of staff to emergency muster points as required.
- Activate the appropriate external emergency services, unless already completed by the Site Manager / Foreman
- Assume the lead role in the event of an actual emergency; unless emergency services personnel take over the site as part of an Emergency Services Act.
- Activate & liaise with Emergency Services (depending upon the severity of the incident). Ensure they are aware of all relevant factors affecting the incident;
- Ensure that all pollution incident response equipment is available on the project;
- Ensure a Hazardous Substance register, including all MSDS, is available and current;
- Ensure emergency response requirements are included and up to date in the project induction;
- Control the following actions as appropriate:
    - Movement within the site evacuation muster area;
    - Ensure all head counts are conducted by Deputy Emergency Response Controller and any 'missing persons' are identified and subsequently accounted for;
    - Direct emergency services to the exact location of the emergency incident;
    - Provide up to date information as to the status of the incident to the emergency services.
- Ensure that all first aid facilities, kits and alike are readily available on the project and refurbishment, replenishment of emergency stocks or equipment.
- Coordinate all incidents in accordance with this plan;
- Respond to incidents as appropriate. Record all details;
- Identify both the incident classification and other relevant details;
- Notify personnel that are affected to evacuate (as applicable);
- Maintain a clear phone line for incoming and outgoing emergency communications;
- Follow all directions from the Emergency Services controller (as applicable).
- Initiate incident report on conclusion of emergency
- Give instruction on when it is safe / appropriate to resume normal operations.

3.7 Deputy Emergency Response Controller

- Assume control of the scene of the emergency and the evacuation of staff to emergency muster points if the Emergency Response Controller is not available.
- Assist in the Coordination & Initiation of Critical Response Process in accordance with this plan
- Assist the Emergency Response Controller in ensuring that all pollution incident response equipment is available on the project;
- Assist the Emergency Response Controller in ensuring a Hazardous Substance register, including all MSDS, is available and current;
- Assist the Emergency Response Controller in ensuring that all first aid facilities, kits and alike are readily available on the project and refurbishment, replenishment of emergency stocks or equipment.
- Assist in Coordination all incidents in accordance with this plan;
- Respond to incidents as appropriate. Record all details;
- Take site attendance register to the emergency muster point or relay the information to the emergency services on site
- Identify both the incident classification and other relevant details;
- Notify personnel that are affected to evacuate (as applicable);
- Follow all directions from the Emergency Services controller (as applicable).

3.8 First Aid Personnel

a) Attend to any casualties in the affected area, providing it is safe to do so;

b) Await instruction from the Emergency Response Controller (ERC) and respond to the requirements of first aid and treatment

c) Maintain their Senior First Aid Accreditation (including CPR).

d) Assist the Emergency Response Controller in ensuring that all first aid facilities & kit contents and restock as required.

3.9 All other Personnel

a) Comply with any directions given by management or supervisors in the event of an emergency or critical incident

b) Report any emergency to their immediate supervisor as soon as they become aware of the emergency

c) Availing themselves of the support mechanisms (Employee Assistance Programme) in the event of exposure to critical incidents.

3.10 Visitors

a) Comply with any reasonable directions given by PCBU in the event of an emergency

b) Do not interfere with the management of any emergency unless requested by site supervision.

c) Assemble at the designated muster point.

d) Do not leave muster point unless directed to do so

4 Incident Response Priorities

a) In the event of an incident, the following priorities will be observed:

- 1. Protect and rescue human life;
- 2. Render affected areas safe; and
- 3. Protect property, environment and information.
- 4. Follow this by:-
    - - Clearing of damage / affected area
    - - Restoration of disrupted services, including traffic operations
    - - Resumption of normal workplace conditions
    - - A debriefing with all of those involved
    - - A prompt investigation & review with lessons learnt / corrective actions
    - - Communicate lessons learnt / corrective actions with relevant personnel

b) Once an investigation has been carried out, implement training as learned from investigation.

5 Incident Response Process - Summary

INCIDENT OCCURS

↓

Incident discovered. Situation evaluated on site & classified (People/Environment/Property: Class 1,2,3) raise Alarm

→

Hierarchy of Notification:

(Level of Notification dependent on the class of the incident)

- ❑ Emergency Response Services (000,112)
- ❑ Project Manager Stephen Edwards Constructions
- ❑ QHSE Manager
- ❑ Next of Kin (Class 1 & 2 Incident)
- ❑ External Authorities (Safework NSW/DECCW/EPA/Service Authorities/Councils, etc.
- ❑ Lawyer/Solicitor (Class 1 & 2 Incident)
- ❑ Client Representative

(Refer **Attachment B**)

↓

Immediate action implemented in accordance with class of incident
(Attachments A, G, as necessary)

↓

External assistance provided in accordance with class of incident, such as emergency services
(Refer Attachments A, B, C, D)

↓

Incident treated-situation contained
Emergency evacuation **(Attachments E, H)** /
Treatment provided

↓

Incident Closed out, Site returned to normal operating conditions. Personnel debriefed

↓

Incident Investigation & reports completed
Personnel debriefed. Systems Reviewed

6 Training

a) All site personnel, including sub-contractors, will be instructed in the correct response to an incident, as part of the induction process.

b) Local Emergency Services – police, fire, ambulance, etc. – will be contacted and invited to site for familiarisation purposes.

c) Evacuation or emergency response drills will be conducted. The first drill will be held within 6 months of commencement of construction works and 6 monthly thereafter throughout the life of the project.

d) Records of all training will be maintained in the project site file.

7 Incident Response Actions

a) A list of potential incidents – together with typical treatments applicable to each of these is shown in Attachment A, Action Plans. This table provides a guide to assist project personnel to initiate appropriate action as well as a summary of ongoing actions.

b) Where applicable, personnel will be evacuated in accordance with Attachment D, Emergency Evacuation Flowchart.

c) Details of contact numbers are provided in Attachment B, and Incident Response Process Summary

d) contains a Hierarchy of Incident Notifications.

e) In addition to these notifications, the following reporting requirements will be observed:

- If an actual or potential Class 1 event occurs, the Project Manager will report verbally within 1 hour to the Company Director and client and provide the following details:
- Why the incident occurred?
- What system of work was in place prior to the incident?
- What actions were taken prior to the event to train and direct employees?
- What actions have now been implemented to prevent any re-occurrence of the event?

f) The Project Manager will ensure that any Class 2 incident that does / may affect the public and / or cause adverse publicity is reported to the Company Director and client within 1 hour of the incident occurring.

g) Prior to commencing an investigation, any incident that has the potential to result in an infringement notice and / or legal proceedings must be reported to the QHSE Manager immediately.

8 Critical Incident Management

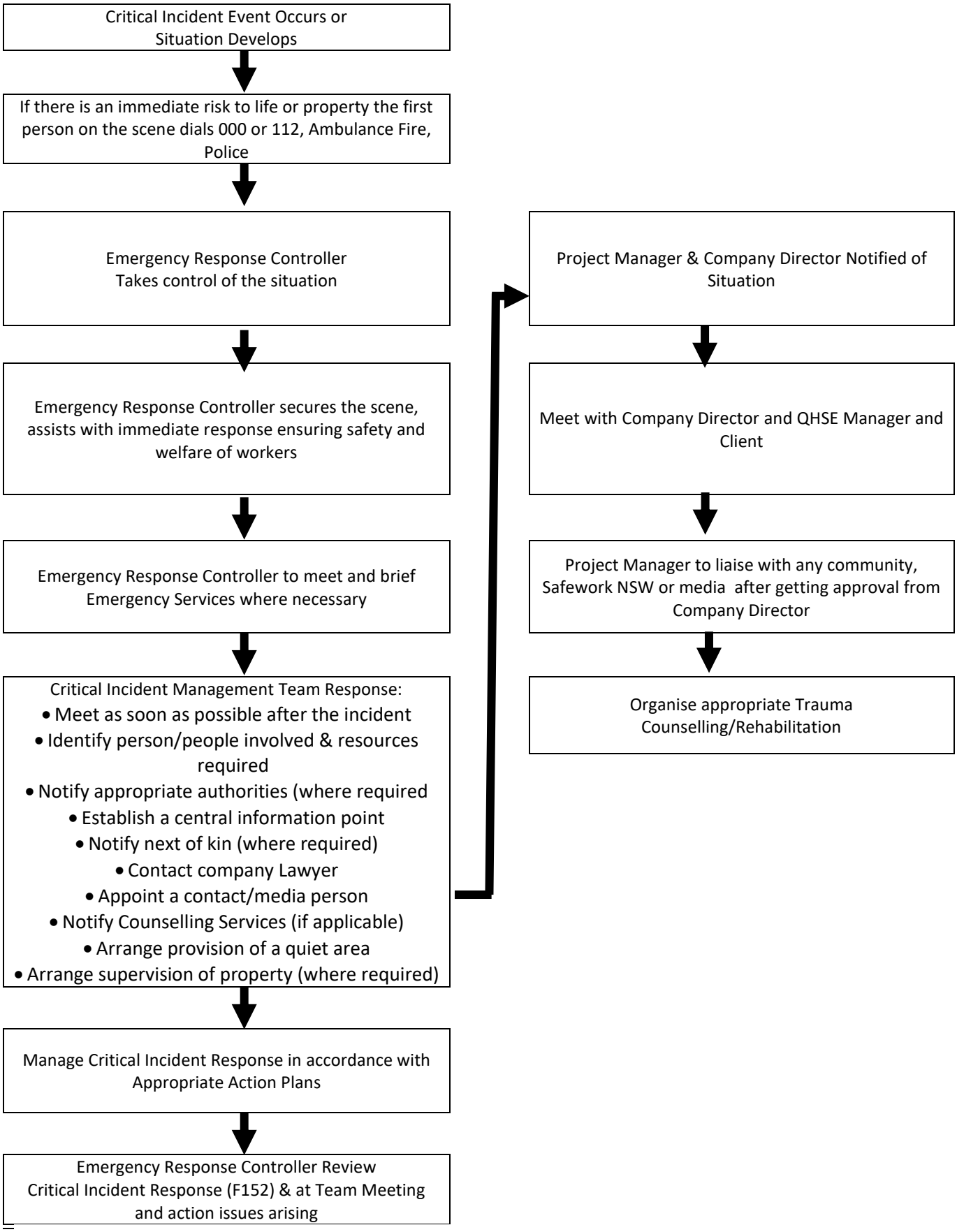
a) Immediately on notification of a serious safety or environmental incident that has the potential to develop into a crisis situation or is determined to be a crisis situation, the Critical Incident Response Controller or their nominated management representative is to attend site and take charge of the situation and ensure the following, as applicable, have been addressed:

- Check that where any person(s) has been injured the required emergency services have attended the site;
- Ensure that the site or location of the incident is secure from any unauthorised personnel/organisations etc.;
- Liaise with any external bodies i.e. statutory authority, emergency services etc.;
- Ensure all employees at the site are advised that if they are approached by any representative of the media they are to take their name and details and refer to the Company Director for action as a matter of urgency;
    - Notify Company Director and QHSE Manager and Lawyer or Insurance Brokers;
    - General Counsel will ensure that where required privilege is maintained over documents generated following the incident such as reports, statements photographs etc., determine the need for external legal services and commission any reports by external consultants necessary in relation to the incident;
    - No responses to the media are to be made without formal approval of the Company Director and those nominated by the Company Director
    - Only those authorised in writing by the Company Director are authorised to and speak and be quoted in the media.
    - Convene a meeting with the Company Director and/or QHSE Manager to provide direction to the site team in relation to actions to be taken;
    - Ensure that any counselling has been arranged;
    - Where there has been an environmental incident ensure that a suitably qualified organisation has been engaged to deal with the incident;
    - Ensure that any documentation in relation to the incident is compiled (seek guidance on this from General Counsel) photographs, SWMS etc.;
    - Ensure that company management safety representatives have commenced an investigation; and/or engage the services of any external bodies to assist with the investigation and the compiling of statements etc., as required;
    - Provide a report to the client
    - Maintain contact with the Company Director as required; and
    - Ensure contact has been made with General Counsel;
    - Determine a strategy, in consultation with the critical incident response team (and where necessary other parties) on how to get the site back up and running, list the actions and delegate the roles and responsibilities as required.

b) Following any critical incident, the critical incident response shall be reviewed by the Critical Incident Response Controller and Company Director and/or Construction Manager and/or QHSE Manager using Emergency Drill/Incident & Critical Incident Response Evaluation (F152).

c) The critical incident response shall also be reviewed at the Team Meeting

9 Critical Incident Management Process - Summary



10 Trauma Counselling & Rehabilitation

10.1 Counsellors

Where counselling is required, the Project Manager shall organise counselling services through Australian Counsellors & Psychologists, Sydney Pty Ltd, Stephen Edwards Construction's nominated trauma counselling organisation (see appendix B). Counselling will be undertaken by appropriate qualified Counsellors. Depending upon the size of the site and closeness of the employees such counselling may be required on an on-going basis particularly in the case of a fatality. Individuals who are badly affected will be identified so they receive special attention.

10.2 Support of Family of Injured or Deceased Employee

The family of the injured worker must be advised of the accident as soon as possible after the incident. Where an employee is deceased the Police and a senior company representative will inform the next of kin. The task of advising a family member of an injured employee should preferably be performed by two people, one of whom is a senior company representative. They will be assisted by the Police and / or a Counsellor if necessary. The advice will be factual and appropriate counselling assistance be offered, particularly in the case of a fatality.

10.3 Support of Co-workers and Witnesses

a) Co-workers and witnesses to the accident will be supported and counselled, with trauma counselling being considered. Depending upon the condition of these personnel, they will be treated sympathetically and moved to another area in order to assist with their recovery. When appropriate, these persons shall be interviewed by investigators. Initially the witnesses will be supported in their distressed state particularly in accidents involving graphic injuries or death.

b) Managers, Supervisors or others who may feel responsible for a traumatic injury of fatality, and First Aiders who gave treatment may require special support. People affected will be debriefed before they leave the site and be provided with relevant contact details should they require assistance e.g. a Counsellor.

c) The workforce will be advised of the accident and as necessary trauma counselling will be provided. Consistent and factual information will be given quickly to prevent the grapevine generating rumour and innuendo.

10.4 Rehabilitation

a) The rehabilitation of any Stephen Edwards Constructions employee will be in accordance with the Company's return to work program.

b) The Return to Work Coordinator is responsible for liaising with the company's workers compensation provider and the rehabilitation provider in the management of any particular 'Workers Injury Management Plan'. The plan will be developed in consultation with the sick/injured Stephen Edwards Constructions employee and medical advisers.

11 Legal Advice

For traumatic or fatal accidents or other significant incidents the Company Director shall be advised. They will organise legal advice where required.

12 Media

a) All statements to the media concerning any emergency at any Stephen Edwards Constructions workplace shall be made only after consultation with the client and the Company Director.

b) In the majority of cases involving serious injury or fatality the media may learn of the accident from the reports made to the authorities and then attend the site without notice. The Media will be treated courteously but should not be allowed free access to the site. All media enquiries and/or releases shall be referred to the Company Director.

c) In case of a fatality, it is important that the name(s) of those involved are not broadcast until all next of kin have been notified.

13 Recovery Phase

a) Part of the recovery process is to ensure that appropriate steps are taken to investigate the cause of the emergency and the response so that corrective measures can be introduced as soon as possible.

b) This is achieved by completing the Accident/Incident Investigation Report.

c) Includes a review of original mitigation practices to reduce impact and risk for future.

14 Interaction with Client

a) Where Stephen Edwards Constructions Pty Ltd site is within the confines for an existing facility and in the event of an Emergency or incident which involves not only the evacuation of the construction site but also includes the entire facility, the Emergency Response Controller shall liaise directly with the Client and follow the directions of the clients Emergency Response Controller.

b) All workers shall be inducted into the Clients Emergency Response Plan

c) A copy of the Clients Emergency Response Plan shall be kept in the Site office and all workers are to be made aware of the contents at the time of their induction.

15 Appendices

Title	Number
Action Plans	A
Emergency Contact Details	B
Emergency Action Flowchart	C
Site Plan	D

15.1 (ER-1) - Minimum Resources Requirements

Minimum Requirements (*Industry Guide Only*)

	Applies Yes/No	Fire Hydrant/ Reels & Booster	First aider	Occupational first aider	First aid room	First aid kit type			Nurse Call	Radio	Mobile Phone	Crane box & first aid box	Stretcher	Oxygen	Eye Wash/shower	Low Voltage Rescue Kit
						A	B	C								
1 to 25 people on site	Y		1				Y									
25 to 100 people on site	Y		2			Y										
>100 people on site	N		2	Y	Y	Y							Y			
Single story	N															
Multiple floors	Y								Y							
Floor Levels > 12 metres	Y	Y														
Long distance from first aid, minimal communications	N								Y	Y	Y					
Tower Crane with cabin	N									Y	Y					
Access to hospital or medical centre > ½ hour	N													Y		
Risk of hazardous chemicals or infectious substances causing eye injuries	N														Y	
Electrocution (To be provided by Electrical Contractor)	Y															Y

Attachment A: Action Plans

15.2 (ER-2) - Medical Emergency

(ER-2) - Medical Emergency: If a person is seriously hurt or injury is suspected:

Immediate Action	Notification	Treatment	Follow up
❑ Stop work. ❑ Assess the situation: - Identify the severity - (if necessary) evacuate **If the injured person cannot be moved to a medical centre, call Emergency Services 000 (or 112) & ask for an Ambulance. Act on their instructions**	If the patient is unconscious: ❑ Danger – do not enter an area that could be unsafe for you. ❑ Response – Establish the patient's level of consciousness ❑ Send for help ❑ Airway ❑ Breathing ❑ Circulation ❑ Defibrillation Apply defibrillator if available and follow the prompts If the patient is conscious: ❑ Check for bleeding and control with direct pressure. ❑ Send for help ❑ Do not move patient except where the location is not safe & secure. ❑ Monitor vital signs ❑ Provide First Aid to the level of your training. ❑ Contact the Site Manager / Foreman or Project Manager.	For **Class 1** incident contact ❑ Site Manager / Foreman ❑ Project Manager ❑ QHSE Manager ❑ SafeWork NSW (Notification Only further details to follow) ❑ Company Director ❑ Lawyer/Solicitor ❑ Client and: ❑ Emergency Response Controller ❑ Emergency Services / 000 Act on their instructions For **Class 2 or 3** incident contact: ❑ Site Manager / Foreman ❑ Project Manager ❑ QHSE Manager ❑ Company Director ❑ Client	❑ Isolate the area to prevent harm to persons & minimise damage to property & the environment. This may include the local community plus traffic control. ❑ Complete Part A Accident/Incident Report and forward within 24 hours of notification to QHSE ❑ QHSE /PM undertake an investigation if required ❑ This may include review of SWMS, procedures etc. ❑ Identify the reason for the occurrence of the event & identify ways of preventing repeat incidents. ❑ Debrief – Use a toolbox talk to follow up as soon as practicable.

15.3 (ER-3-5) - Retrieval Of A Person: EWP Or Suspended From A Structure

(ER-3-5) - Retrieval of a Person: EWP or Suspended from a Structure

Immediate Action	Treatment	Notification	Follow up
EMERGENCY RESCUE PROCEDURE FOR WORK ON ELEVATED WORK PLATFORMS ❑ Assess the situation. If required, call Emergency Services. **Affect rescue if required :** ❑ If possible to do so, use the emergency decent device controls to carefully lower the platform (be aware that the ground controls will override the platform controls for emergency purposes). ❑ There are to be no persons underneath the platform, or in the direct drop vicinity of the EWP when using the emergency device. ❑ Where it is NOT possible to use the emergency decent device a second boom or scissor shall be used to retrieve the injured worker. **EMERGENCY RESCUE PROCEDURE FROM ROOF** ❑ Assess the situation. If required, call Emergency Services and notify location, incident type and likely retrieval requirements. ❑ Emergency controller go to worker on roof (if safe to do so) assess and manage ER until Emergency services arrive.	If the patient is unconscious: ❑ Danger – do not enter an area that could be unsafe for you. ❑ Response – Establish the patient's level of consciousness ❑ Send for help ❑ Airway ❑ Breathing ❑ Circulation ❑ Defibrillation Apply defibrillator if available and follow the prompts If the patient is conscious: ❑ Check for bleeding and control with direct pressure. ❑ Send for help ❑ Do not move patient except where the location is not safe & secure. ❑ Monitor vital signs ❑ Provide First Aid to the level of your training. ❑ Contact the Site Manager / Foreman or Project Manager.	For **Class 1** incident contact ❑ Site Manager / Foreman ❑ Project Manager ❑ QHSE Manager ❑ SafeWork NSW (Notification Only further details to follow) ❑ Company Director ❑ Lawyer/Solicitor ❑ Client and: ❑ Emergency Response Controller ❑ Emergency Services / 000 Act on their instructions For **Class 2 or 3** incident contact: ❑ Site Manager / Foreman ❑ Project Manager ❑ QHSE Manager ❑ Company Director ❑ Client	❑ Isolate the area to prevent harm to persons & minimise damage to property & the environment. This may include the local community plus traffic control. ❑ Complete Part A Accident/Incident Report and forward within 24 hours of notification to QHSE ❑ QHSE /PM undertake an investigation if required ❑ This may include review of SWMS, procedures etc. ❑ Identify the reason for the occurrence of the event & identify ways of preventing repeat incidents. ❑ Debrief – Use a toolbox talk to follow up as soon as practicable.

(ER-3-5) - Retrieval of a Person: EWP or Suspended from a Structure

Immediate Action	Treatment	Notification	Follow up
EMERGENCY RESCUE PROCEDURE SUSPENDED FROM A STRUCTURE ❑ Assess the situation. If required, call Emergency Services and notify location, incident type and likely retrieval requirements. **Affect rescue if required :** ❑ Put on a rescue harness ❑ Ensure rescue equipment is positioned to give an unobstructed drop. ❑ Attach the rescue line to a sling holding the rescue container. ❑ Remove the descent device and attach to rescuer ❑ Disconnect your safety strap from the tower ❑ Lower yourself down to a position slightly above the victim ❑ Re-attach your safety strap ❑ Attach the descent device with the adjustable rescue strap to the victim ❑ Adjust the strap so that it is as short as possible ❑ Release or cut victim's safety strap ❑ Release your safety strap and lower yourself with the victim to the ground using the descent device. Use your feet to push clear of any obstructions. ❑ Carry out resuscitation and first aid as required **At no time shall a worker place his/her own safety at risk in order to perform these procedures**			

15.4 (ER-6) - Breach Of A Utility / Service

(ER-6) - Breach of a Utility / Service: - If a utility or service is breached:

Immediate Action	Treatment	Notification	Follow up
❑ Stop work. ❑ Assess the situation: ❑ Identify the severity ❑ (if necessary) evacuate ❑ Do not enter an area that could be unsafe for you, particularly in the case of connection with a power line. ❑ Contact the utility/service provider ❑ **Plant coming into contact with electrical installations**	❑ Isolate the area to prevent harm to persons & minimise damage to property & the environment. This includes the local community plus traffic control. ❑ If possible and safe to do so, implement corrective action. ❑ Provide assistance to the Service Authorities as requested.	For **Class 1** incident contact ❑ Site Manager / Foreman ❑ Project Manager ❑ QHSE Manager ❑ SafeWork NSW (Notification Only further details to follow) ❑ Company Director ❑ Lawyer/Solicitor ❑ Client and: ❑ Emergency Response Controller ❑ Emergency Services / 000 Act on their instructions For **Class 2 or 3** incident contact: ❑ Site Manager / Foreman ❑ Project Manager ❑ QHSE Manager ❑ Company Director ❑ Client **Where danger exists to the public or employees e.g. major gas leak, Act on emergency services instructions.**	❑ Isolate the area to prevent harm to persons & minimise damage to property & the environment. This may include the local community plus traffic control. ❑ Complete Part A Accident/Incident Report and forward within 24 hours of notification to QHSE ❑ QHSE /PM undertake an investigation if required ❑ This may include review of SWMS, procedures etc. ❑ Identify the reason for the occurrence of the event & identify ways of preventing repeat incidents. Debrief – Use a toolbox talk to follow up as soon as practicable.

15.5 (ER-7) - Structural Collapse

(ER-7) - Structural Collapse: - If a structure collapses:

Immediate Action	Treatment	Notification	Follow up
❑ Stop work ❑ Assess the situation Identify the severity ❑ Evacuate area if necessary ❑ Isolate the area to prevent harm to persons & minimise damage to property & the environment. This includes the local community plus traffic control. ❑ Do not enter an area that could be unsafe for you ❑ Where possible prevent access to area; ❑ Do not enter an area that could be unsafe for you. ❑ Determine if anyone is trapped or unaccounted for; ❑ Contact the utility/service provider ❑ A nominated company representative will call Emergency Services 000 ❑ Where danger exists to the public or employees act on emergency services instructions ❑ Engage the services of suitably qualified engineers to prepare a report and rectification plan; ❑ Assuming there is no injury or harm to persons, initiate immediate investigation of materials to determine the level of risk & proposed further course of action in conjunction with engineers reports; ❑ Check to see that all personnel are accounted for; ❑ Notify emergency services if all personnel are not accounted for;	❑ Isolate the area to prevent harm to persons. This includes the local community plus traffic control. ❑ If possible and safe to do so, implement corrective action. ❑ Provide assistance to the Service Authorities as requested.	For **Class 1** incident contact ❑ Site Manager / Foreman ❑ Project Manager ❑ QHSE Manager ❑ SafeWork NSW (Notification Only further details to follow) ❑ Company Director ❑ Lawyer/Solicitor ❑ Client and: ❑ Emergency Response Controller ❑ Emergency Services / 000 Act on their instructions **Where danger exists to the public or employees e.g. major gas leak, Act on emergency services instructions.**	❑ Isolate the area to prevent harm to persons & minimise damage to property & the environment. This may include the local community plus traffic control. ❑ Complete Part A Accident/Incident Report and forward within 24 hours of notification to QHSE ❑ QHSE /PM undertake an investigation if required ❑ This may include review of SWMS, procedures etc. ❑ Identify the reason for the occurrence of the event & identify ways of preventing repeat incidents. ❑ Debrief – Use a toolbox talk to follow up as soon as practicable.

15.6 (ER-8) Trench Collapse

Trench Collapse: - If a trench or excavation collapses:

Immediate Action	Treatment	Notification	Follow up
❑ Stop work. ❑ Send someone immediately to telephone or radio for emergency services that may be needed. Ensure that the person sent to make the call is relatively calm, can communicate clearly and knows where the telephone is. ❑ Look for evidence of where the trapped person is e.g. tools, safety helmet etc. ❑ Try to locate what section of the collapsed excavation/trench the person is trapped in. ❑ Clear the area of all non-required personnel. ❑ Identify if any further collapse is likely. ❑ Establish and arrange for a person to monitor a safety zone. ❑ If possible, batter the sides of the excavation/trench in the collapsed area. ❑ Install shoring where possible to protect the trapped person and the rescuers. ❑ Carefully remove the collapsed soil with shovels. NEVER have anyone on top of the collapsed soil. They may be on top of the person trapped beneath the soil. ❑ If the excavation/trench is over 1.5 metres deep, rescuers SHALL wear safety harnesses with lifelines attached securing them to the surface. ❑ When the digging is close to the trapped person, continue excavation using hands. If shovels have to be used, extreme care must be taken not to cause any further injury to the person who is trapped. ❑ When the trapped person has been located, clear soil from	❑ Isolate the area to prevent harm to persons. This includes the local community plus traffic control. ❑ If possible and safe to do so, implement corrective action. ❑ Provide assistance to the Service Authorities as requested.	For **Class 1** incident contact ❑ Site Manager / Foreman ❑ Project Manager ❑ QHSE Manager ❑ SafeWork NSW (Notification Only further details to follow) ❑ Company Director ❑ Lawyer/Solicitor ❑ Client and: ❑ Emergency Response Controller ❑ Emergency Services / 000 Act on their instructions **Where danger exists to the public or employees e.g. major gas leak, Act on emergency services instructions.**	❑ Isolate the area to prevent harm to persons & minimise damage to property & the environment. This may include the local community plus traffic control. ❑ Complete Part A Accident/Incident Report and forward within 24 hours of notification to QHSE ❑ QHSE /PM undertake an investigation if required ❑ This may include review of SWMS, procedures etc. ❑ Identify the reason for the occurrence of the event & identify ways of preventing repeat incidents. ❑ Debrief – Use a toolbox talk to follow up as soon as practicable.

Trench Collapse: - If a trench or excavation collapses:

Immediate Action	Treatment	Notification	Follow up
around the head and chest areas. Check for breathing and a pulse. ❑ If breathing has stopped – commence expired air resuscitation (E.A.R.) and continue until emergency services have arrived and have taken over. ❑ After the trapped person has been freed, treated and stabilised by the emergency services personnel, make arrangements for the person to be removed from the excavation/trench in a safe manner, ensuring that no further collapse occurs during this operation			

15.7 (ER-9) - Electric Shock

(ER-9) - Electric Shock: - If a worker suffers from electric shock:

Immediate Action	Treatment	Notification	Follow up
❑ **Stop** work. **Emergency Response for Electric Shock** ❑ Look first - do not touch! The victim may still be in contact with the electrical source and touching him or her may only pass the current through you. ❑ Turn off the source electricity. ❑ If you can't turn off the power, separate the victim from the power source by using items in Low Voltage Rescue Kit ❑ Put on the insulating gloves. ❑ Grab the insulated crook. ❑ Check for danger such as live parts, live cables and the potential to cause a short circuit. ❑ Approaching from behind the victim, place the insulated crook under the victim's shoulder. ❑ Turn the insulated crook into the victim's body. ❑ When pulling the victim clear, the insulated crook can slide off if it is not turned into their body and just placed under their arm ❑ Pull the victim clear of the 'live' exposed electrical equipment. ❑ Pull the victim clear of the 'live' exposed electrical equipment. ❑ As the victim falls, stand clear as they may push you towards the 'live'	❑ Isolate the area to prevent harm to persons. This includes the local community plus traffic control. ❑ If possible and safe to do so, implement corrective action. ❑ Provide assistance to the Service Authorities as requested. **Where a worker has received an electric shock and appears to be unhurt they should still attend a hospital for a medical examination, as some injuries and further complications may not yet be obvious.**	For **Class 1** incident contact ❑ Site Manager / Foreman ❑ Project Manager ❑ QHSE Manager ❑ SafeWork NSW (Notification Only further details to follow) ❑ Company Director ❑ Lawyer/Solicitor ❑ Client and: ❑ Emergency Response Controller ❑ Emergency Services / 000 Act on their instructions For **Class 2 or 3** incident contact: ❑ Utility/Service provider ❑ Site Manager / Foreman ❑ Project Manager ❑ QHSE Manager ❑ Company Director **Where danger exists to the public or employees Act on emergency services instructions.**	❑ Isolate the area to prevent harm to persons & minimise damage to property & the environment. This may include the local community plus traffic control. ❑ Complete Part A Accident/Incident Report and forward within 24 hours of notification to QHSE ❑ QHSE /PM undertake an investigation if required ❑ This may include review of SWMS, procedures etc. ❑ Identify the reason for the occurrence of the event & identify ways of preventing repeat incidents. ❑ Debrief – Use a toolbox talk to follow up as soon as practicable.

(ER-9) - Electric Shock: - If a worker suffers from electric shock:

Immediate Action	Treatment	Notification	Follow up
exposed electrical equipment. ❑ If possible support the victim's head as they are positioned to a safe position. ❑ ❑ Other times where a Low Voltage Kit is not available use a dry object made of non-conducting material i.e. dry wood or plastic object to knock them loose. ❑ If the victim is outdoors and touching a high voltage power line - stay clear and dial 000 or your emergency number. If a power line is down, wait for the fire department or Asset owner. If there are people in a vehicle with a downed wire across it, tell them not to move and to stay in the car. ❑ An exclusion zone of a minimum of 8 metres must be established ❑ Act fast - speed is essential - delegate someone to call 000 or your emergency number. ❑ Keep the victim lying down and make sure you are both in a safe area. ❑ If the victim is not breathing, apply rescue breathing. If the victim is not breathing and has no pulse, begin CPR. ❑ Cover the victim with a blanket to maintain body heat and wait for			

(ER-9) - Electric Shock: - If a worker suffers from electric shock:

Immediate Action	Treatment	Notification	Follow up
emergency medical personnel to arrive. **Emergency Response for Flame Burns** ❑ If the victim's clothing is on fire - remind him/her to drop and roll or tackle the victim to smother the flames. ❑ Check the victim for shock and follow the steps previously discussed for treating shock. ❑ No signs of shock - begin treating the burned area. ❑ Delegate someone to call 000 or your emergency number. ❑ Cool the burn with running water continually until help arrives ❑ Don't remove burned clothing and don't apply any ointments or other medication. ❑ Remove constricting items from the victim, such as shoes, belts, jewellery and tight collars **Emergency Response for Arc Burns** ❑ Follow the same procedures for flame burns; these burns cover large areas of the body			

15.8 (ER-10) - Fire or Explosion

(ER-10) - Fire or Explosion: -If a fire or explosion occurs (Including Bush Fire)			
Immediate Action	**Treatment**	**Notification**	**Follow up**
❑ If safe to do so, attempt to extinguish the fire. ❑ If explosion, evacuate area immediately ❑ If fire cannot be extinguished, call Emergency services 000 (or 112) and ask for Fire Brigade.	❑ Ensure all persons are evacuated & isolated from potential harm. This includes the local community plus traffic control. ❑ Where safe to do so, isolate property from further damage. ❑ If fire brigade has been called, ensure street environmental controls are in place (if safe to do so) in anticipation of large volumes of water being used to extinguish fire ❑ Provide assistance as directed.	For **Class 1** incident contact ❑ Site Manager / Foreman ❑ Project Manager ❑ QHSE Manager ❑ SafeWork NSW (Notification Only further details to follow) ❑ Company Director ❑ Lawyer/Solicitor ❑ Client and: ❑ Emergency Response Controller ❑ Emergency Services / 000 Act on their instructions For **Class 2 or 3** incident contact: ❑ Utility/Service provider ❑ Site Manager / Foreman ❑ Project Manager ❑ QHSE Manager ❑ Company Director ❑ **Where danger exists to the public or employees Act on emergency services instructions.**	❑ Isolate the area to prevent harm to persons & minimise damage to property & the environment. This may include the local community plus traffic control. ❑ Complete Part A Accident/Incident Report and forward within 24 hours of notification to QHSE ❑ QHSE /PM undertake an investigation if required ❑ This may include review of SWMS, procedures etc. ❑ Identify the reason for the occurrence of the event & identify ways of preventing repeat incidents. ❑ Debrief – Use a toolbox talk to follow up as soon as practicable.

15.9 (ER-11) - Contaminated Material

(ER-11) - Contaminated Material: If suspected contact with contaminated material occurs:

Immediate Action	Treatment	Notification	Follow up
❑ Assess the situation: - Identify the severity - (if necessary) evacuate ❑ Do not enter an area that could be unsafe for you.	❑ Assuming there is no injury or harm to persons, initiate immediate investigation of materials to determine the level of risk & proposed further course of action.	For **Class 1** incident contact ❑ Site Manager / Foreman ❑ Project Manager ❑ QHSE Manager ❑ Company Director ❑ Lawyer/Solicitor ❑ Client and: ❑ Emergency Response Controller ❑ Emergency Services / 000 Act on their instructions For **Class 2 or 3** incident contact: ❑ Utility/Service provider ❑ Site Manager / Foreman ❑ Project Manager ❑ QHSE Manager ❑ Company Director ❑ **Where danger exists to the public or employees Act on emergency services instructions.**	❑ Isolate the area to prevent harm to persons & minimise damage to property & the environment. This may include the local community plus traffic control. ❑ Complete Part A Accident/Incident Report and forward within 24 hours of notification to QHSE ❑ QHSE /PM undertake an investigation if required ❑ This may include review of SWMS, procedures etc. ❑ Identify the reason for the occurrence of the event & identify ways of preventing repeat incidents. ❑ Debrief – Use a toolbox talk to follow up as soon as practicable.

(ER-11) - Contaminated Material: If suspected contact with contaminated material occurs:

Immediate Action	Treatment	Notification	Follow up
Sudden unexpected disturbance or release of ACM Fibres or Dust Work is to cease ❑ Assess the situation: ❑ Identify the severity - (if necessary) evacuate including other workers and persons nearby ❑ Isolate area • If in a building close doors or seal entry ways if to prevent further contamination to other areas • If outdoors moisten the affected area then erect barriers • Report to site management ❑ Follow directions from site management	❑ Remove any clothing that Asbestos dust / fibre may of come into contact with ❑ Dispose of in sealed bag and dispose of at registered waste facility ❑ Wash areas of skin where Asbestos dust / fibre may of come into contact with ❑ Engage Hygienist to inspect the area to confirm if ACM and develop a plan for removal / remediation ❑ Identify and obtain the details others who may have been inadvertently exposed	For **Class 1** incident contact ❑ Site Manager / Foreman ❑ Project Manager ❑ QHSE Manager ❑ Company Director ❑ Lawyer/Solicitor ❑ Client and: ❑ Emergency Response Controller ❑ Emergency Services / 000 Act on their instructions For **Class 2 or 3** incident contact: ❑ Site Manager / Foreman ❑ Project Manager ❑ QHSE Manager ❑ Company Director	❑ Complete Part A Accident/Incident Report and forward within 24 hours of notification to QHSE ❑ QHSE /PM undertake an investigation if required ❑ Arrange for those who may of been exposed to present themselves to a practitioner for assessment ❑ This may include review of SWMS, procedures etc. ❑ Identify the reason for the occurrence of the event & identify ways of preventing repeat incidents. ❑ Debrief – Use a toolbox talk to follow up as soon as practicable.

15.10 (ER-12) - Chemical, Biological Or Radiological Emergency

(ER-12) - Chemical, Biological or Radiological Emergency / Bomb Threat

If a suspicious package or letter is identified:

Immediate Action	Treatment	Notification	Follow up
Assess suspicious items. Check for: ❑ Protruding wires or foil. ❑ Excessive security such as masking tape, string etc. ❑ Excessive weight. ❑ Handwritten or poorly typed address to senior personnel. ❑ Lopsided or uneven envelopes. ❑ Postage dispatch stamp from a city or state that does not match the return address. ❑ Title of person but no name shown. ❑ Foreign and / or unexpected mail. ❑ Call 000 [Do not use a MOBILE PHONE]	❑ Follow directions given by Police; - evacuate if necessary ❑ Chemical, Biological or Radiological (CBR) incident ❑ staff in the affected area are to isolate the suspicious mail item; ❑ do not touch their mouth or nose, isolate themselves from others in the building; ❑ inform the Project Manager/ Emergency Response Controller ❑ Call 000 - advise them of the nature of the incident & wait for their response; ❑ If concerned about the spread of potential contaminant to other parts of the site / building, or if instructed to do so by 000 or the appropriate Emergency Service, initiate a site evacuation and close off the affected building / site to prevent any further entry.	For **Class 1** incident contact ❑ Site Manager / Foreman ❑ Project Manager ❑ QHSE Manager ❑ Company Director ❑ Client and: ❑ Emergency Response Controller ❑ Emergency Services / 000 Act on their instructions For **Class 2 or 3** incident contact: ❑ Site Manager / Foreman ❑ Project Manager ❑ QHSE Manager ❑ Company Director	❑ Isolate the area to prevent harm to persons & minimise damage to property & the environment. This may include the local community plus traffic control. ❑ Complete Part A Accident/Incident Report and forward within 24 hours of notification to QHSE ❑ QHSE /PM undertake an investigation if required ❑ This may include review of SWMS, procedures etc. ❑ Identify the reason for the occurrence of the event & identify ways of preventing repeat incidents. ❑ Debrief – Use a toolbox talk to follow up as soon as practicable.

15.11 (ER-13) - Plant Rollover/ Vehicle Accident

(ER-13) - Plant Rollover/ Vehicle Accident **If an item of plant rolls over or vehicle accident:**			
Immediate Action	**Treatment**	**Notification**	**Follow up**
❑ Stop work. ❑ Assess the situation: ❑ Identify the severity ❑ (if necessary) evacuate **If the injured person cannot be moved to a medical centre, call Emergency Services 000 (or 112) & ask for an Ambulance. Act on their instructions** ❑ Evacuate area if necessary ❑ Isolate the area to prevent harm to persons & minimise damage to property & the environment. This includes the local community plus traffic control. ❑ Do not enter an area that could be unsafe for you ❑ Where possible prevent access to area; ❑ Determine if anyone is trapped or unaccounted for; ❑ A nominated company representative will call Emergency Services 000 ❑ Where danger exists to the public or employees act on emergency services instructions	❑ Isolate the area to prevent harm to persons. This includes the local community plus traffic control. ❑ If possible and safe to do so, implement corrective action. ❑ Provide assistance to the Service Authorities as requested.	For **Class 1** incident contact ❑ Site Manager / Foreman ❑ Project Manager ❑ QHSE Manager ❑ SafeWork NSW (Notification Only further details to follow) ❑ Company Director ❑ Lawyer/Solicitor ❑ Client and: ❑ Emergency Response Controller ❑ Emergency Services / 000 Act on their instructions For **Class 2 or 3** incident contact: ❑ Site Manager / Foreman ❑ Project Manager ❑ QHSE Manager ❑ Company Director **Where danger exists to the public or employees Act on emergency services instructions.**	❑ Isolate the area to prevent harm to persons & minimise damage to property & the environment. This may include the local community plus traffic control. ❑ Complete Part A Accident/Incident Report and forward within 24 hours of notification to QHSE ❑ QHSE /PM undertake an investigation if required ❑ This may include review of SWMS, procedures etc. ❑ Identify the reason for the occurrence of the event & identify ways of preventing repeat incidents. ❑ Debrief – Use a toolbox talk to follow up as soon as practicable.

15.12 (ER-14) - Environmental Incident

(ER-14) - Environmental Incident;

If there is an incident that causes concern for the health and safety of workers, the public and/or the environment

Immediate Action	Treatment	Notification	Follow up
❑ Stop Work ❑ Assess the situation: - Identify the severity - (if necessary) evacuate ❑ Do not enter an area that could be unsafe for you.	• **Spills / escape of polluted water:** ❑ contain the spill - ensure that no further escape occurs, especially off-site; ❑ determine whether clean-up is likely to be required - recover spilt material; ❑ the Site Manager / Foreman, in consultation with the Project Manager, determines the most suitable process for clean-up & disposal of contaminated materials. • **Odours and dust:** ❑ apply odour / dust suppression agents (including water mists, soil, chemicals); ❑ consider carefully which option to select in light of the scale & type of problem; ❑ the Site Manager / Foreman in consultation with the Project Manager determines the most suitable corrective actions. • **Landslip:** ❑ isolate (turn off) water mains that could discharge into the area; ❑ obtain specialist advice BEFORE attempting to rescue people or equipment - zone of the landslip is likely to be unstable; ❑ once the source is contained or the discharge has stopped, determine whether clean-up is likely to be required; ❑ the Site Manager / Foreman in consultation with the Project Manager, determines the most suitable process for clean-up & disposal of materials.	For **Class 1 or 2** incident contact ❑ Site Manager / Foreman ❑ Project Manager ❑ QHSE Manager ❑ Client and: ❑ Emergency Response Controller ❑ Emergency Services / 000 Act on their instructions ❑ Emergency Services / 000 Act on their instructions ❑ OEH /EPA– Pollution Line For **Class 3** incident contact: ❑ Site Manager / Foreman ❑ Project Manager ❑ QHSE Manager ❑ Company Director	❑ Isolate the area to prevent harm to persons & minimise damage to property & the environment. This may include the local community plus traffic control. ❑ Complete Part A Accident/Incident Report and forward within 24 hours of notification to QHSE ❑ QHSE /PM undertake an investigation if required ❑ This may include review of SWMS, procedures etc. ❑ Identify the reason for the occurrence of the event & identify ways of preventing repeat incidents. ❑ Debrief – Use a toolbox talk to follow up as soon as practicable.

(ER-14) - Environmental Incident;

If there is an incident that causes concern for the health and safety of workers, the public and/or the environment

Immediate Action	Treatment	Notification	Follow up
	• **Release of Waste:** ❑ Cease activity causing the release of wastes off-site; ❑ the method selected must be carefully considered in light of the scale & type of problem; ❑ The Site Manager / Foreman, in consultation with the Project Manager, determines the most suitable process for clean-up.		

15.13 (ER-15) - Bomb Threat Calls:

(ER-15) – BOMB THREAT CALLS:

Immediate Action	Treatment	Notification	Follow up
❑ Stay calm ❑ Keep the caller on the line as long as possible (DO NOT HANG UP) ❑ Use the Bomb Threat Checklist to ask the caller questions to identify where the Bomb is and other factors about the caller/threat ❑ If possible gain the attention of manger or supervisor regards to the type of call you are receiving to contact police ❑ Immediately contact the police after receiving the Bomb Threat ❑ Check evacuation routes and assembly areas to ensure they are free of suspicious objects ❑ Evacuate work area or building ❑ Do not discuss with other personnel other than Site Manager / Foreman or Project Manager ❑ Follow any Police instructions for inspections of work areas ❑ IF YOU FIND ANYTHING SUSPICIOUS – DON'T TOUCH IT, DON'T MOVE IT	❑ Follow any Police instructions for inspections of work areas ❑ IF YOU FIND ANYTHING SUSPICIOUS – DON'T TOUCH IT, DON'T MOVE IT ❑ Site Manager / Foreman or Project Manager to debrief Police on arrival ❑ Remain at the assembly area until given all clear from police	For **Class 1, 2** incidents contact ❑ Site Manager / Foreman ❑ Project Manager ❑ QHSE Manager ❑ Company Director ❑ Police	❑ Isolate the area to prevent harm to persons & minimise damage to property & the environment. This may include the local community plus traffic control. ❑ Provide completed Bomb Threat Checklist and any other information to the police ❑ Provide any counselling if required ❑ Complete Part A Accident/Incident Report and forward within 24 hours of notification to QHSE ❑ QHSE /PM undertake an investigation if required ❑ This may include review of SWMS, procedures etc. ❑ Identify the reason for the occurrence of the event & identify ways of preventing repeat incidents. ❑ Debrief – Use a toolbox talk to follow up as soon as practicable. ❑

BOMB THREAT CHECKLIST

QUESTIONS TO ASK
☐ WHEN IS THE BOMB GOING TO EXPLODE?
☐ WHERE DID YOU PUT THE BOMB?
☐ WHEN DID YOU PUT IT THERE?
☐ WHAT DOES THE BOMB LOOK LIKE?
☐ WHAT KIND OF BOMB IS IT?
☐ WHAT WILL MAKE THE BOMB EXPLODE?
☐ WHAT IS YOUR NAME?
☐ WHERE ARE YOU?
☐ WHAT IS YOUR ADDRESS?
EXACT WORDS OF THREAT

ACTION	
Report call immediately to:	
Phone Number:	

CALLERS VOICE	
Accent (specify):	
Any impediment (specify)"	
Voice (loud, soft, etc.)	
Speech (fast, slow, etc.)	
Diction (Clear, muffed)	
Manner (calm, emotional, etc.)	
Did you recognise the voice?	
If so who do you think it was?	
Was the caller familiar with the area?	

REMEMBER TO KEEP CALM–DON'T HANG UP

THREAT LANGUAGE	
Well spoken:	
Incoherent:	
Irrational:	
Taped:	
Message read by callers:	
Abusive:	
Other:	

BACKGROUND NOISES	
Street noises:	
House noises:	
Aircraft:	
Voices:	
Music:	
Machinery:	
Local Call:	
Long Distance:	
Mobile:	
Other:	

OTHER	
Duration of call:	
Name Print:	
Telephone Number:	
Signature:	

15.14 (ER-16) - Retrieval Of A Person In Water

(ER-16) - Retrieval of a Person in water:

Immediate Action	Treatment	Notification	Follow up
EMERGENCY RESCUE PROCEDURE FOR RETRIEVAL OF PERSON OVERBOARD ❑ Person falls into water ❑ Assess the situation. If required, call Emergency Services. ❑ Everyone on board must keep the person in sight ❑ Manoeuvre vessel to pick them up ❑ Once the person is alongside, stop the engine ❑ Make sure that the weight in the vessel is redistributed before attempting to bring them on board. ❑ Consider bringing them over the stern if the vessel is unstable **EMERGENCY RESCUE PROCEDURE FOR PERSON FALL INTO WATER FROM SHORE/WHARF** ❑ Assess the situation - Do not enter the water after them or you may need to be rescued ❑ Is there something on hand which you could use to reach the person, such as a rope, length of timber if available emergency flotation device? ❑ Is there something you could throw to the person to aid their buoyancy, such as an Emergency Flotation Device or esky lid? ❑ If required, call Emergency Services and notify location, incident type and likely retrieval requirements. **EMERGENCY RESCUE PROCEDURE FOR PERSON FALL INTO WATER FROM OVERHEAD STRUCTURE** ❑ Follow emergency rescue procedure for retrieval of person overboard **EMERGENCY RESCUE PROCEDURE FOR PERSON UNCONSCIOUS WATER** ❑ Assess the situation. Call Emergency Services and notify location, incident type and likely retrieval requirements. **Affect rescue if required :** ❑ Only enter water if a strong swimmer ❑ Swim out to victim with Emergency Flotation Device to assist bring person back to shore **At no time shall a worker place his/her own safety at risk in order to perform these procedures.**	If the patient is unconscious: ❑ Send for help ❑ Commence CPR if required ❑ Airway ❑ Breathing ❑ Circulation ❑ Place in recovery position ❑ Check for bleeding and control with direct pressure. ❑ Monitor vital signs If the patient is conscious: ❑ Response – Establish the patient's level of consciousness ❑ Treat for potential Hypothermia ❑ Check for bleeding and control with direct pressure. ❑ Monitor vital signs ❑ Provide First Aid to the level of your training. ❑ Contact the Site Manager / Foreman or Project Manager.	For **Class 1 or 2** incident contact ❑ Site Manager / Foreman ❑ Project Manager ❑ QHSE Manager ❑ Client and: ❑ Emergency Response Controller ❑ Emergency Services / 000 Act on their instructions ❑ Emergency Services / 000 Act on their instructions For **Class 3** incident contact: ❑ Site Manager / Foreman ❑ Project Manager ❑ QHSE Manager ❑ Company Director	❑ Isolate the area to prevent harm to persons & minimise damage to property & the environment. This may include the local community plus traffic control. ❑ Complete Part A Accident/Incident Report and forward within 24 hours of notification to QHSE ❑ QHSE /PM undertake an investigation if required ❑ This may include review of SWMS, procedures etc. ❑ Identify the reason for the occurrence of the event & identify ways of preventing repeat incidents. ❑ Debrief – Use a toolbox talk to follow up as soon as practicable.

15.15 (ER-18) – Incapacitated Worker Ceiling Space

(ER-18) Incapacitated Worker Ceiling Space

Immediate Action	Treatment	Notification	Follow up
❑ Workers becomes incapacitated or non-responsive ❑ Stop work. ❑ Assess the situation: ❑ Identify the severity ❑ Contact and notify the Site Manager or Supervisor of the situation i.e. status of the worker a rescue is required, and assistance will be needed and if Emergency Services are required	❑ If safe to do so access Ceiling Space at the access point and assess the situation and the worker ❑ If relevant wear task specific PPE ❑ Isolate any electrical power source if applicable ❑ If required and safe to do so apply first at in accordance with the level of First Aid Training ❑ Utilise rescue access equipment on hand identified in SWMS ❑ Once the incapacitated or non-responsive worker has been successfully rescued from the ceiling space apply first at in accordance with the level of First Aid Training ❑ Contact Emergency Services if required ❑ If Emergency Services are required to assist, contact and request Fire Services ❑ Advise of Nature of emergency (i.e. incapacitated worker in ceiling space) ❑ Identify nearest cross street ❑ Work zone location Access, restriction ❑ Site Manager / Supervisor or delegated person to meet and assist emergency services ❑ Preserve incident areas until areas is handed back by Regulator	For **Class 1** incident contact ❑ Site Manager / Foreman ❑ Project Manager ❑ QHSE Manager ❑ SafeWork NSW (Notification Only further details to follow) ❑ Company Director ❑ Lawyer/Solicitor ❑ Client and: ❑ Emergency Response Controller ❑ Emergency Services / 000 Act on their instructions For **Class 2 or 3** incident contact: ❑ Site Manager / Foreman ❑ Project Manager ❑ QHSE Manager ❑ Company Director ❑ Client	❑ Isolate the area to prevent harm to persons & minimise damage to property & the environment. ❑ Complete Part A Accident/Incident Report and forward within 24 hours of notification to QHSE ❑ QHSE /PM undertake an investigation if required ❑ This may include review of SWMS, procedures etc. ❑ Identify the reason for the occurrence of the event & identify ways of preventing repeat incidents. ❑ Debrief – Use a toolbox talk to follow up as soon as practicable.

15.16 (ER-20) - Plant coming into contact with energised services

(ER-20) Breach of a Utility / Service:- Plant coming into contact with energised services

Immediate Action	Treatment	Notification	Follow up
❑ Stop work. ❑ Assess the situation: ❑ Identify the severity ❑ Contact the utility/service provider ❑ An exclusion zone of a minimum of 8 metres must be established if safe to do so **Warning Note:** Under no circumstances run or walk from the crane or item of plant as voltage gradients passing through the ground may cause electricity to pass through the body resulting in an electric shock ❑ Do not enter an area that could be unsafe for you, particularly in the case of connection with a power line.	❑ An attempt should be made to move the boom away from the source of electricity and / or lift the hook clear of the person dogging the load. ❑ If it is not possible to break the contact with the live overhead power line, the operator of the crane or mobile plant should remain inside the cabin of the crane or in the plant ❑ If it is essential to leave the cabin or the operator's position due to fire or other life threatening reason, then jump clear of the equipment. ❑ **Do not touch the equipment and the ground at the same time.** ❑ When moving away from the equipment, the operator and Dogger should hop or shuffle away from the plant item (with both feet together) until at least 8 metres from the nearest part of the crane or plant. ❑ An exclusion zone of a minimum of 8 metres must be established if safe to do so ❑ Isolate the area to prevent harm to persons & minimise damage to property & the environment. This includes the local community plus traffic control. ❑ Provide assistance to the Service Authorities as requested.	For **Class 1** incident contact ❑ Site Manager / Foreman ❑ Project Manager ❑ QHSE Manager ❑ SafeWork NSW (Notification Only further details to follow) ❑ Company Director ❑ Lawyer/Solicitor ❑ Client and: ❑ Emergency Response Controller ❑ Emergency Services / 000 Act on their instructions For **Class 2 or 3** incident contact: ❑ Site Manager / Foreman ❑ Project Manager ❑ QHSE Manager ❑ Company Director ❑ Client **Where danger exists to the public or employees e.g. major gas leak, Act on emergency services instructions.** ❑ Warn all other personnel and members of the public to keep 8 metres clear from the crane or item of plant. ❑ Do not touch or allow persons to touch any part of the crane or plant item	❑ Isolate the area to prevent harm to persons & minimise damage to property & the environment. This may include the local community plus traffic control. ❑ Complete Part A Accident/Incident Report and forward within 24 hours of notification to QHSE ❑ QHSE /PM undertake an investigation if required ❑ This may include review of SWMS, procedures etc. ❑ Identify the reason for the occurrence of the event & identify ways of preventing repeat incidents. Debrief – Use a toolbox talk to follow up as soon as practicable.

15.17 (ER-17) - Retrieval Of A Person Using First Aid Rescue Work Cage

(ER-17) - Retrieval of a Person: using First Aid Rescue Work Cage /Loss of power

Immediate Action	Notification	Treatment	Follow up
❑ Assess the situation. If required, call Emergency Services. **Affect rescue if required :** ❑ Crane operator to lower and place any suspended load in a safe location, Dogger to detach load ❑ Emergency Response Controller to ensure an area is provided to land Rescue Cage to allow the safe and unrestricted entry / exit from Rescue Cage ❑ Dogger to retrieve safety harness from Rescue Cage Rescue Cage and fit o full body fall-arrest harnesses should be worn at all times ❑ Harnesses should be attached to fall-arrest anchorage points in the Rescue Cage or to the main sling ring above the heads of the workers ❑ Directions to the crane operator should only be provided from the Rescue Cage by a person holding a dogging or rigging licence ❑ Workers remain substantially inside the work box while it is lifted or suspended, and ❑ Emergency retrieval arrangements are put in place before the lift so workers can safely exit the Rescue Cage ❑ in the event of crane failure. ❑ Operator to lower Rescue Cage to a suitable stable location ❑ Dogger to assist first aider with transferring injured worker into Rescue Cage ❑ Workers are not to enter or leave the workbox when it is suspended (except in an emergency) ❑ The operator must always remain at the controls **Loss of power/damaged remote Suspended Load** ❑ Assess the situation ❑ Isolate the area below for a radius of ten metres where practicable ❑ Contact Crane Service Provider to undertake an emergency controlled hoist movement	For **Class 1** incident contact ❑ Site Manager / Foreman ❑ Emergency Services / 000 Act on their instructions ❑ Project Manager ❑ QHSE Manager ❑ Company Director ❑ Lawyer/Solicitor ❑ Client For **Class 2 or 3** incident contact: ❑ Site Manager / Foreman ❑ Project Manager ❑ QHSE Manager ❑ Company Director ❑ Client **Loss of power/damaged remote** Contact Crane Service Provider to undertake an emergency controlled hoist movement In the event of an emergency where there is a loss of power or the remote control is damaged or disabled	**If the patient is unconscious:** ❑ Danger – do not enter an area that could be unsafe for you. ❑ Response – Establish the patient's level of consciousness ❑ Send for help ❑ Check Airway ❑ Check Breathing ❑ Check Circulation Apply defibrillator if available and follow the prompts ❑ If the patient is conscious: ❑ Check for bleeding and control with direct pressure. ❑ Do not move patient except where the location is not safe & secure. ❑ Monitor vital signs ❑ Provide First Aid to the level of your training.	❑ Isolate the area to prevent harm to persons & minimise damage to property & the environment. This may include the local community plus traffic control. ❑ Complete Part A Accident/Incident Report and forward within 24 hours of notification to QHSE ❑ QHSE /PM undertake an investigation if required ❑ This may include review of SWMS, procedures etc. ❑ Identify the reason for the occurrence of the event & identify ways of preventing repeat incidents. ❑ Debrief – Use a toolbox talk to follow up as soon as practicable.

15.18 (ER-21) - Site Emergency Evacuation

(ER-21) - Responding to 3 blast of Sites Alert Device or Site Instructions Evacuation or other Emergencies:

Immediate Action	Treatment	Notification	Follow up
❑ Stop your work activity and follow any instruction s given by SEC, assess the situation and check to ensure that this stopping will not endanger others ❑ Before making your way to the **Emergency Assembly Point** indicated on this plan check the following to ensure that the workplace can be left in a safe condition. ○ Switch off all forms of electric or internal combustion power equipment immediately the emergency is sounded ▪ If safe to do so, remove all mobile equipment to the designated safe zone. ○ "Live" electrical equipment must be disconnected where possible. ○ Where possible ensure all equipment is properly shut off before closing any supply of water, gas or air. ○ Cranes with suspended loads must, with the consideration of the safety of all persons (including themselves), bring the load to rest in the shortest operating time without exceeding the normal operating capacity of the crane. ○ Where practicable, road ways, walkways etc. must be left clear of obstructions to permit access if needed. ❑ No worker is to return to the workplace once the evacuation has commenced ❑ Work team supervisors are to notify their workers and follow the directions of the Emergency Response Controller or Deputy to assist in the quick and efficient removal of all personnel from the work site ❑ Emergency controllers if safe to do so to check the site floors and rooms to ensure all personnel are completely vacated prior to proceeding to the Emergency Assembly Point(s).	❑ Sound the alarm to for the site to be evacuated - 3 Long Blasts of the air horn ❑ Emergency Response Controller or Deputy to obtain - First Aid kit - Sign on register - Other emergency equipment - Danger tape ❑ Barricade or apply Danger/Warning once site is clear to prevent others entering ❑ Provide First Aid to the level of your training if required ❑ Emergency Response Controller to meet Emergency Services and provide details of the incident ❑ Hand over to emergency services personnel ❑ Emergency Response Controller or Deputy to manage person's and onlooker **Requirements at the Emergency Assembly Point:** ❑ The Emergency Response Controller or Deputy shall account for all personnel under their control (including visitors) ❑ Report immediately to the Project Manager or Management with the names of any personnel unaccounted for and their last known location ❑ All personnel are required to remain at the muster point for the duration of the emergency unless further risk of harm or otherwise advised to leave by the Emergency Response Controller or Deputy	For **Class 1 or 2** incident contact ❑ Site Manager / Foreman ❑ Project Manager ❑ QHSE Manager ❑ Client and: ❑ Emergency Response Controller ❑ Emergency Services / 000 Act on their instructions ❑ Emergency Services / 000 Act on their instructions For **Class 3** incident contact: ❑ Site Manager / Foreman ❑ Project Manager ❑ QHSE Manager ❑ Company Director	❑ Isolate the area to prevent harm to persons & minimise damage to property & the environment. This may include the local community plus traffic control. ❑ Complete Part A Accident/Incident Report and forward within 24 hours of notification to QHSE ❑ QHSE /PM undertake an investigation if required ❑ This may include review of SWMS, procedures etc. ❑ Identify the reason for the occurrence of the event & identify ways of preventing repeat incidents. ❑ Debrief – Use a toolbox talk to follow up as soon as practicable.

15.19 (ER-22) – Live Site Controllers Emergencies

(ER-22) – Live Site Controllers Emergencies <Replace with their plans>

Immediate Action	Notification	Follow up
EMERGENCY PROCEDURE IN THE EVENT OF HOSPITAL EMERGENCIES INCLUDING WORKS WITHIN ❑ Workers who upon hearing Hunter New England Health Local Health District (HNELHD) 'Emergency controllers alert warning tone ❑ Workers are to stop work ❑ Assess the situation ❑ Await directions from the Area Warden ○ Workers are to remain at any designated assembly point/location as directed by HSFAC until the all clear has been given by HSFAC ❑ Workers who identify an emergency situation are to: ❑ Follow the instructions in the Hunter New England Health Local Health District (HNELHD) 'Emergency Procedures' flipchart (rainbow chart) located at various locations throughout each floor. ❑ In the event of notification of an external disaster, or potential for a disaster, from anyone other than the HNE LHD health service functional area co-ordinator (HSFAC) ○ Phone 7700 from marked phones throughout hospital and ASK TO SPEAK ▪ To The Hospital Incident Controller ❑ The Hospital Incident Controller will then notify the HNE LHD Health Service Functional Area Coordinator HSFAC who will provide assistance as requested. ○ Situations types that may occur and relevant emergency response codes ▪ CODE BROWN - EXTERNAL DISASTER ▪ CODE BLUE - CARDIAC ARREST / MEDICAL EMERGENCY ▪ CODE RED – FIRE ▪ CODE ORANGE - EVACUATION ▪ CODE YELLOW - INTERNAL DISASTER ▪ CODE BLACK - PERSONAL THREAT ▪ CODE PURPLE – BOMB OR ARSON THREAT **Ambulance & Emergency other Vehicles** ❑ Ambulance & Emergency other Vehicles operate adjacent to site, under no circumstance is road to be obstructed ○ All emergency vehicles to be given the RIGHT OF WAY ❑ Upon hearing or seeing emergency vehicles warnings ○ All vehicles entering or exiting are to be stopped until emergency vehicles have passed ○ During traffic control operations the traffic Controller is to stop vehicles to prevent blocking the passage of emergency vehicles ❑ Vehicles in reversing movements are to drive back into site if notification is received for emergency vehicle access ❑ If reversing movement is in the advanced stage complete movement and move vehicle to side of road to allow any emergency vehicles to pass ○ Vehicle drivers to obey emergency vehicle siren	❑ QHSE Manager ❑ Site Manager / Foreman ❑ Site WHS Rep. ❑ Project Manager ❑ Company Director ❑ Client	❑ Once the all clear has been received from the HSFAC workers are to return to the site or other designated area if applicable ❑ Site Emergency Controller is to conduct a roll call of site workers as indicated in site sign on register

15.20 (ER-25) - Traffic Accident during Traffic Control Operations

(ER-25) - Vehicle Accident
If there is a Traffic Accident during Traffic Control Operations

Immediate Action	Treatment	Notification	Follow up
❑ Stop work. ❑ Assess the situation: ❑ Identify the severity ❑ Notify Traffic Control supervisor if applicable ❑ (if necessary) evacuate ❑ All works are to stop ❑ **Call or nominate someone to call Emergency Services 000** ❑ Traffic Control arrangements are to be suspended ❑ If safe to do so, remove all mobile Plant or equipment to the a safe place ❑ Where possible ensure all equipment or services are properly shut off i.e. water, gas or air. ❑ If safe to do so all barricades to be left to protect hazardous areas ❑ Follow any instructions given by SEC or Traffic Supervisor, before making your way to the Emergency Assembly Point indicated on this plan check the following to ensure that the workplace can be left in a safe condition.	❑ Traffic Controllers to place Traffic batons in the stop position to stop approaching traffic in both directions and await further instruction ❑ SEC or Traffic Control supervisor to assess the situation and implement and alternative controls to manage traffic if road is obstructed or partially obstructed ❑ Isolate the area to prevent harm to persons. ❑ Assessment of driver / passengers to be undertaken and treatment to be provided with their first aid capabilities ❑ **If there is injured persons that cannot be moved to a medical centre, call Emergency Services 000 (or 112) & ask for an Ambulance. Act on their instructions** ❑ Provide assistance to the Service Authorities as requested. ❑ Where danger exists to the public or employees act on emergency services instructions	For **Class 1** incident contact ❑ Site Manager / Foreman ❑ Project Manager ❑ QHSE Manager ❑ Clients representative no later than 1 hour after the incident occurs and: ❑ SafeWork NSW (Notification Only further details to follow) ❑ Company Director ❑ Lawyer/Solicitor ❑ Client and: ❑ Emergency Response Controller ❑ Emergency Services / 000 Act on their instructions For **Class 2 or 3** incident contact: ❑ Site Manager / Foreman ❑ Project Manager ❑ QHSE Manager ❑ Company Director	❑ Complete Part A Accident/Incident Report and forward within 24 hours of notification to QHSE ❑ QHSE /PM undertake an investigation if required ❑ This may include review of SWMS, procedures etc. ❑ Identify the reason for the occurrence of the event & identify ways of preventing repeat incidents. ❑ Debrief – Use a toolbox talk to follow up as soon as practicable.

15.21 (ER-26) – Entry into work area by child or other member of public

(ER-26) – Un Authorised Access into site If a child or other member of the public enter into work area			
Immediate Action	**Treatment**	**Notification**	**Follow up**
❑ Someone seen in the work area without Hi Visibility clothing ❑ Once becoming aware that there is someone in the work area. ❑ Sound the Alarm with short rapid blasts of the hooter. ❑ Announce that all mobile plant movements and other works must be stopped.	❑ Call work groups supervisors together. ❑ Advise them that there is someone in the work area. ❑ No works are to continue until the all clear has been given by SEC. ❑ Inform work groups to be on the lookout for some who is not wearing Hi Visibility clothing. ❑ Site Management are to commence a search of the site until the person is located. ❑ Once the person is located escort the person out of the work area ❑ Give the all clear for works to recommence ❑ Inspect site access points ❑ Give the all clear for works to recommence	❑ Site Manager / Foreman ❑ Project Manager ❑ Notify Client if School environment ❑ QHSE Manager	❑ All Incidents are to be reported ❑ Complete Part A Accident/Incident Report and forward within 24 hours of notification to QHSE ❑ QHSE / PM undertake an investigation if required ❑ Identify the reason for the occurrence of the event & identify ways of preventing repeat incidents. ❑ Debrief – Use a toolbox talk to follow up as soon as practicable.

16 Responding to 3 blast of Sites Alert Device or Site Instructions (ER-21)

Evacuation or other Emergencies:

- ❑ **Stop your work activity** and follow any instruction s given by SEC, assess the situation and check to ensure that this stopping will not endanger others
- ❑ Before making your way to the **Emergency Assembly Point** indicated on this plan check the following to ensure that the workplace can be left in a safe condition.
  - Switch off all forms of electric or internal combustion power equipment immediately the emergency is sounded
    - If safe to do so, remove all mobile equipment to the designated safe zone.
  - "Live" electrical equipment must be disconnected where possible.
  - Where possible ensure all equipment is properly shut off before closing any supply of water, gas or air.
  - Cranes with suspended loads must, with the consideration of the safety of all persons (including themselves), bring the load to rest in the shortest operating time without exceeding the normal operating capacity of the crane.
  - Where practicable, road ways, walkways etc. must be left clear of obstructions to permit access if needed.
- ❑ No worker is to return to the workplace once the evacuation has commenced
- ❑ Work team supervisors are to notify their workers and follow the directions of the Emergency Response Controller or Deputy to assist in the quick and efficient removal of all personnel from the work site
- ❑ Emergency controllers if safe to do so to check the site floors and rooms to ensure all personnel are completely vacated prior to proceeding to the Emergency Assembly Point(s).

EMERGENCY EVACUATION FLOWCHART

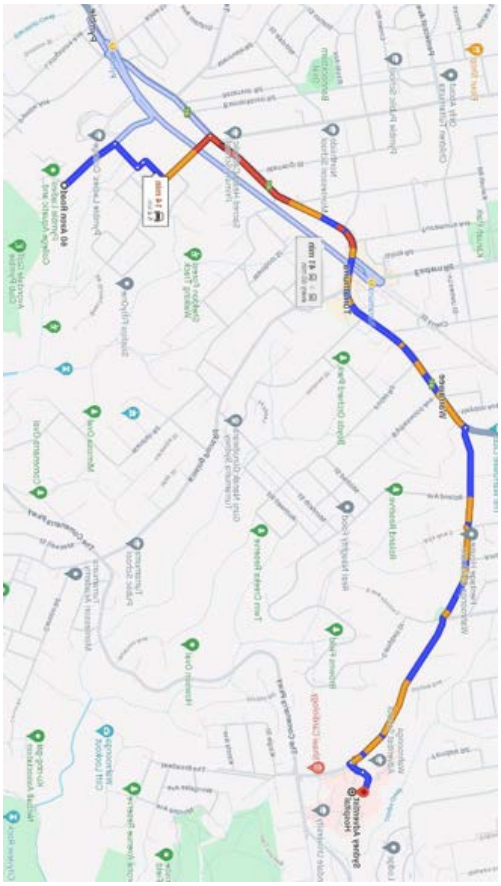
Attachment B:
EMERGENCY CONTACT DETAILS AND EVACUATION PROCEDURE

PROJECT:	**PLC GREY HOUSE**
SITE ADDRESS:	Gate 3, 60 Avon Road, Pymble NSW, 2073
Nearest Cross Road:	Arilla Road

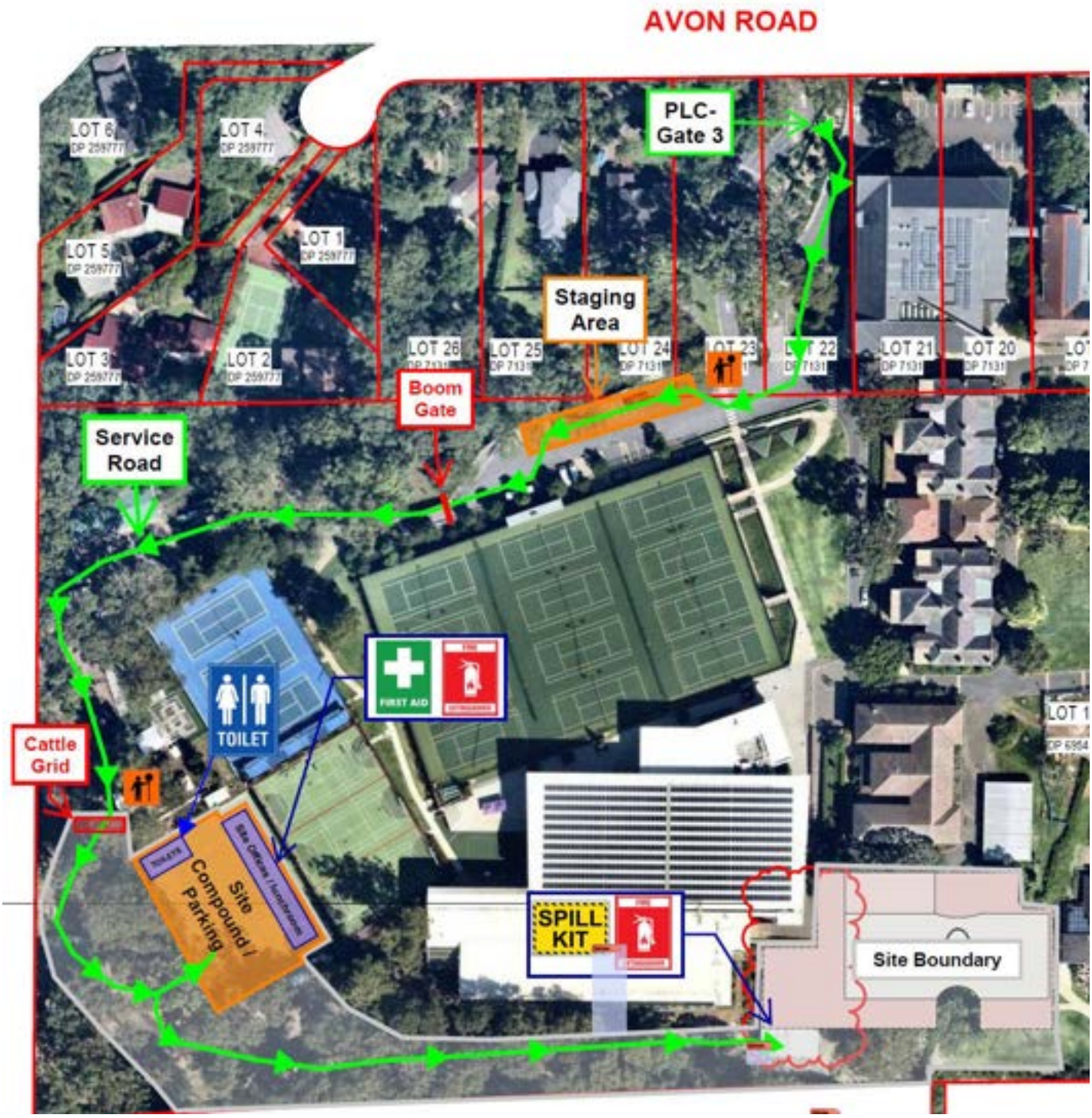
EMERGENCY PHONE NUMBERS		
PRINCIPAL CONTRACTOR: Stephen Edwards Constructions Pty Ltd		**02 9891 3099**
Title	**Name**	**Number**
Company Director	Mathew Edwards	02 9891 3099
Project Director	Tony Macri	0414 306 185
Project Manager	Andrew Kyrillos	0415 257 844
Site Manager	Peter Pawlyzsyn	0403 676 038
Foreman	TBC	
Emergency Controller	Peter Pawlyszyn	0403 676 038
Deputy Emergency Controller	TBC	
QHSE Manager	Paul Homan	02 9891 3099
Critical Incident Management Team	David Cleary	0425 289 440
	Mathew Edwards	0425 209 533
	Paul Homan	0424 236 060
Client Emergency Contact	Greg Hastie	0411 477 006
EXTERNAL EMERGENCY SERVICES		
Safework NSW	24 Hours	13 10 50
Poisons Information Centre		13 11 26
Ambulance, Fire Station, Police		000 or 112 from mobiles
HAZMAT		13 15 55
Medical Centre	Pymble Family Doctors	02 9144 6208
Hospital	Sydney Adventist Hospital	02 9480 9111
OEH /EPA– Pollution Line		13 15 55
State Emergency Service		13 25 00
Telstra – Underground Services		1100
Telstra – Damaged Cables		13 22 03
Local Electricity Supply	Ausgrid	13 13 65
Gas Emergency	Jemena	1300 137 078
Police Services	Gordon Police Station	02 9418 5399
Parks & Wildlife Service (OEH/EPA)		1300 361 967
Local Aboriginal Land Council	Metropolitan LALC	02 8394 9666
Regional Council	Ku-ring-gai Council	9424 0000
Trauma Counselling	Australian Counsellors & Psychologists, Sydney Pty Ltd	02 8205 0566

EMERGENCY TELEPHONE INSTRUCTIONS				
STEP 1:	**Identify your name, number, company & location**			
	STEP 2:	**Nature of incident, names of persons hurt, and actions taken.**		
		STEP 3	**Location of the site / incident – other key details.**	
			STEP 4:	**Stay on the line until the person you called hangs up.**

- **Keep calm – so you can help**
- **Protect yourself from danger at all times**
- **Call for First Aid assistance – First Aider or Supervisor will arrange for Ambulance if required**
- **Direct someone to wait at site entrance to guide emergency vehicles**
- **Maintain a diary of phone calls / details, events and times.**

Hospital Route Map Sydney Adventist Hospital 185 Fox Valley Rd, Wahroonga NSW, 2076 Tel: 02 9480 9111	**Medical Centre Route Map** Pymble Family Doctors 99-101 Grandview St, Pymble NSW, 2073 Tel: 02 9144 6208
	

ATTACHMENT C
SITE PLAN



TAX INVOICE

Biodiversity Conservation Trust
FINANCE SHARED SERVICES , LOCKED BAG 5022, PARRAMATTA NSW 2124
Phone +61 1300720773
E-mail accounts.receivable@environment.nsw.gov.au

NSW GOVERNMENT
ABN: 37 151 321 702

Stephen Edwards Constructions Pty Ltd
140 Wicks Rd
MACQUARIE PARK NSW 2113

Customer Number: 423480
Invoice Number: 1400000460
Invoice Date: 27.02.2024
Your reference: **Fotini Bouranta**

Description	Net $	GST $	TOTAL $
BCF680 - Obligation	72,422.86	7,242.29	79,665.15
BCF680 - Admin fee	3,170.00	317.00	3,487.00
	TOTAL AMOUNT PAYABLE		**83,152.15**

PAYMENT DUE WITHIN 30 DAYS OF INVOICE DATE

Please contact our Accounts staff if you have any payment enquiries. Please note: Failure to pay by the due date may incur penalty interest.
Payments to be made payable to Biodiversity Conservation Trust by cheque, EFT, money order or credit card authority. **Note:** Credit / Debit card payments will incur a surcharge of 0.4% of the total amount of the invoice (including GST if applicable) to recover merchant interchange fees.
To enable correct identification of your payment, please return the Remittance Advice below, and ensure the Invoice number is quoted.

PAYMENT REMITTANCE ADVICE - METHOD OF PAYMENT Tick if receipt is required ☐

Customer Details: Stephen Edwards Constructions Pty Ltd
140 Wicks Rd
MACQUARIE PARK NSW 2113

Company Code: 0600
Customer Number: 423480
Invoice Number: 1400000460
Invoice Date: 27.02.2024
Invoice Total: $83,152.15

☐ Payment by EFT **Must Quote Invoice No. above.**
Westpac Banking Corp BSB: 032-001
Biodiversity Conser. Fund Account No: 181372
Send remittance advice to: accounts.receivable@environment.nsw.gov.au

☐ Payment by VISA/MASTERCARD credit card via the Payment Portal
Alternatively please go to: http://www.environment.nsw.gov.au/Payments.html using your internet browser.
I accept that payment by credit card, will incur an additional 0.4% surcharge, being $332.61 (including GST of $30.24).

☐ Cheque enclosed,made payable to NSW Biodiversity Conservation Trust
Send Payment to: Finance Shared Services, Locked Bag 5022, Parramatta NSW 2124.

Statement confirming payment into the Biodiversity Conservation Fund for an offset obligation

Pursuant to section 6.33 of the *Biodiversity Conservation Act 2016*, the NSW Biodiversity Conservation Trust confirms that the following payments have been made into the Biodiversity Conservation Fund under section 6.30(1) of the Act to satisfy an obligation to retire biodiversity credits.

Payment made by	Stephen Edwards Constructions Pty Ltd
Date received	28 February 2024
NSW statutory obligation reference[1]	SSD 17424905
Commonwealth EPBC Act controlled action reference (if applicable)[2]	N/A
BCT Reference	BCF680

Biodiversity credit retirement obligations satisfied by payment to the Biodiversity Conservation Fund:

Biodiversity credit type (Credit ID and name)	**Offset trading group**	**EPBC Act Controlled Action offset obligation (Y / N)**	**Number of credits**	**Cost per credit (Exc. GST)**	**Total payment per credit type (Exc. GST)**
1281 - Sydney Turpentine - Ironbark forest	Sydney Turpentine-Ironbark Forest in the Sydney Basin Bioregion	N	2	$37,149.00	$74,298.00
10157- *Chalinolobus dwyeri* (Large-eared Pied Bat)	*Chalinolobus dwyeri* (Large-eared Pied Bat)	N	1	$1,294.86	$1,294.86
Total (Exc. GST)					**$75,592.86**
GST					**$7,559.29**
Total (Inc. GST)					**$83,152.15**

Emily McCosker 06/03/2024

Director Strategy & Finance

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[1] This refers to either; a development application number for a development consent under Part 4 of the *Environmental Planning and Assessment Act 1979* (**EP&A Act**), a State significant infrastructure approval under the previous Part 5.1 (now Part 5, Division 5.2) of the EP&A Act, a decision of a determining authority to carry out or approve the carrying out of an activity under Part 5 of the EP&A Act, or a biobank statement number or biodiversity certification number.

[2] This refers to a controlled action under the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* for which a biodiversity offset obligation has been met through payment into the BCF.

Geetha Jayaram

From: Fotini Bouranta <fbouranta@stephenedwards.com.au>
Sent: Friday, 23 February 2024 9:56 AM
To: Andrew Kyrillos
Subject: FW: BCF680 – Acknowledgment of BCF Payment Application received

Fotini Bouranta
Contracts Administrator

Stephen Edwards CONSTRUCTIONS

Mob: 0449 784 731 | Ph: (02) 9891 3099
140 Wicks Rd, Macquarie Park NSW 2113 | www.stephenedwards.com.au

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From: Samantha Dinger <samantha.dinger@bct.nsw.gov.au> **On Behalf Of** BCT BCF Quotes And Payments Mailbox
Sent: Wednesday, February 21, 2024 11:06 AM
To: Fotini Bouranta <fbouranta@stephenedwards.com.au>
Cc: BCT BCF Quotes And Payments Mailbox <bcfpayments@bct.nsw.gov.au>
Subject: BCF680 – Acknowledgment of BCF Payment Application received

Dear Fotini,

This email is to confirm receipt of your application to make payment into the Biodiversity Conservation Fund (BCF) with the following details on **16 February 2024.**

We will now seek approval of your application, to pay into the fund **(this can take up to 3 business days.** Once I have received the necessary approvals, I will send you your payment application with final charges and instructions on how to pay into BCF, including the requested invoice **(this can take up to 10 business days to issue).**

The BCT has reviewed the payment application and all required documents have been provided.

Please do not hesitate to contact the bcfpayments@bct.nsw.gov.au mailbox if you have any questions.

Yours Sincerely,
Samantha

From: Fotini Bouranta <fbouranta@stephenedwards.com.au>
Sent: Tuesday, 20 February 2024 11:43 AM
To: BCT BCF Quotes And Payments Mailbox <bcfpayments@bct.nsw.gov.au>; Samantha Dinger <samantha.dinger@bct.nsw.gov.au>
Subject: CM Record: RE: BCF680 - Acknowledgment of BCF Payment Application received - Payment Application Incomplete

Hi Samantha,

Thank you for confirming.

Please find attached revised application with page 7 filled out.

Please let me know if you need anything further.

Fotini Bouranta
Contracts Administrator

Stephen Edwards CONSTRUCTIONS

Mob: 0449 784 731 | Ph: (02) 9891 3099
140 Wicks Rd, Macquarie Park NSW 2113 | www.stephenedwards.com.au

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From: Samantha Dinger <samantha.dinger@bct.nsw.gov.au> **On Behalf Of** BCT BCF Quotes And Payments Mailbox
Sent: Tuesday, February 20, 2024 11:30 AM
To: Fotini Bouranta <fbouranta@stephenedwards.com.au>
Cc: BCT BCF Quotes And Payments Mailbox <bcfpayments@bct.nsw.gov.au>
Subject: BCF680 - Acknowledgment of BCF Payment Application received - Payment Application Incomplete

Dear Fotini,

This email is to confirm receipt of your application to make payment into the Biodiversity Conservation Fund (BCF) with the following details on 16 February 2024. As per the timelines outlined in the Charge Quote Statement and Payment application on Page 1. If requesting an invoice it can take up to 15 days to receive email confirmation.

Timeframes for finalising a Payment

The BCT proposes the following timeframes to finalise a payment and provide a Section 6.33 Certificate once all required data is supplied:

Stages of paying into the BCF	Timeframe
Acknowledgement of Payment Application	Up to **5 business days** to receive an email confirmation.
Approval to make payment – No invoice requested	Up to **5 business days** to receive email confirmation including instructions on how to pay via bank transfer into the Biodiversity Conservation Fund.
Approval to make payment – Invoice requested	Up to **15 business days** to receive email confirmation including the requested invoice to pay into the Biodiversity Conservation Fund (complete Part A and C for an invoice).
Issue of Section 6.33 Certificate	Up to **5 business days** once payment is made.

The BCT has reviewed the payment application and the following required documentation to allow the payment to proceed:

- **The payment application form you submitted is incomplete** - Please complete the Payment Application form including the IBRA Subregion, Offset trading group/Species name, hollow bearing tree credits (yes or no) and the number of biodiversity credits information on Page 7.

Please do not hesitate to contact the bcfpayments@bct.nsw.gov.au mailbox if you have any questions.

Kind Regards,

Samantha

From: Fotini Bouranta <fbouranta@stephenedwards.com.au>
Sent: Tuesday, 20 February 2024 7:59 AM
To: BCT BCF Quotes And Payments Mailbox <bcfpayments@bct.nsw.gov.au>; Samantha Dinger <samantha.dinger@bct.nsw.gov.au>
Cc: BCT Info Mailbox <info@bct.nsw.gov.au>
Subject: RE: Q00353 – Issue of BCF Charge Quote

Hi Samantha,

Just following up on whether you've received the below.

Thank you

Fotini Bouranta
Contracts Administrator

Stephen Edwards CONSTRUCTIONS

Mob: 0449 784 731 | Ph: (02) 9891 3099
140 Wicks Rd, Macquarie Park NSW 2113 | www.stephenedwards.com.au

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From: Fotini Bouranta
Sent: Monday, February 19, 2024 9:51 AM
To: BCT BCF Quotes And Payments Mailbox <bcfpayments@bct.nsw.gov.au>; samantha.dinger@bct.nsw.gov.au
Cc: info@bct.nsw.com.au
Subject: RE: Q00353 – Issue of BCF Charge Quote
Importance: High

Hi Samantha,

Regarding the payment request in the attached, we want to process payment this week as it will form part of a submission we need to make.

We would really appreciate if we can get the tax invoice as a priority this week so we can process payment by Thursday.

Let me know if you foresee any issues with this.

Thank you

Fotini Bouranta
Contracts Administrator

Stephen Edwards CONSTRUCTIONS

Mob: 0449 784 731 | Ph: (02) 9891 3099
140 Wicks Rd, Macquarie Park NSW 2113 | www.stephenedwards.com.au

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From: Fotini Bouranta
Sent: Friday, February 16, 2024 2:47 PM
To: 'BCT BCF Quotes And Payments Mailbox' <bcfpayments@bct.nsw.gov.au>
Cc: Andrew Kyrillos <akyrillos@stephenedwards.com.au>; Tony Macri <tmacri@stephenedwards.com.au>
Subject: RE: Q00353 – Issue of BCF Charge Quote

Hi Samantha,

Please issue a Tax Invoice for processing of the payment of the credits within the attached – Part A and C have been filled out.

Let me know if you need anything further to issue the Tax Invoice.

Fotini Bouranta
Contracts Administrator

Stephen Edwards CONSTRUCTIONS

Mob: 0449 784 731 | Ph: (02) 9891 3099
140 Wicks Rd, Macquarie Park NSW 2113 | www.stephenedwards.com.au

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From: Samantha Dinger <samantha.dinger@bct.nsw.gov.au> **On Behalf Of** BCT BCF Quotes And Payments Mailbox
Sent: Thursday, February 8, 2024 2:08 PM
To: brooket_eca@outlook.com; Fotini Bouranta <fbouranta@stephenedwards.com.au>
Cc: Andrew Kyrillos <akyrillos@stephenedwards.com.au>; ecologicalca@outlook.com; myrnaeca@outlook.com; BCT BCF Quotes And Payments Mailbox <bcfpayments@bct.nsw.gov.au>
Subject: Q00353 – Issue of BCF Charge Quote

Dear Brooke,

Please find attached the Charge Quote and the application to make payment to the Biodiversity Conservation Fund (BCF).

Development Name	Pymble Ladies College – Grey House Precinct
BCF Quote Number	Q00353
Quote Issued Date	08/02/2024
Quote Expiry Date	07/02/2027

The **Quote expiry date** identifies the expiry date for the Charge Quote. Any payment to the BCF must commence prior to this date.
Please note an applicant can only hold one Charge Quote for a project. The BCT will not issue another quote for the credits identified in this Charge Quote Statement in the current financial year.
If any of the details of the project have changed since the Charge Quote was issued, please contact the BCT to confirm that the Charge Quote is still valid.

How to make a payment into the BCF
Complete the Payment Application form including the IBRA Subregion, Offset trading group/Species name, hollow bearing tree credits (yes or no) and the number of biodiversity credits information on Page 7.
Once completed, send the application form and associated documents to the BCF Quotes and Payments Mailbox at bcfpayments@bct.nsw.gov.au.
The BCT will review your application to make a payment. Once approved, the BCT will provide email confirmation including instructions on how to pay into the Biodiversity Conservation Fund.

Alternatives to paying into BCF
As an alternative to using the BCF, you may also consider purchasing credits to meet your offset obligations from the market, including the NSW Government's Credits Supply Fund, as this may be a more cost-effective option. The following sources of information may help you consider purchasing from the market:

- To Register an Expression of Interest to purchase credits from the Credits Supply Taskforce. The taskforce will get in touch with you about credit availability.
- To find credits from an existing landholder or credit owner, check the BOS Credit Supply Register. This can help you find a credit holder for your credits of interest.
- If you would like to identify how much credits are currently selling for in the market, review the Market Sales Dashboard. The reporting functions allow you to identify the market sale price for credits and regions of interest.

Please do not hesitate to contact the bcfpayments@bct.nsw.gov.au email if you have any questions.

Kind Regards
Samantha

From: Samantha Dinger <samantha.dinger@bct.nsw.gov.au> **On Behalf Of** BCT BCF Quotes And Payments Mailbox
Sent: Thursday, 8 February 2024 12:43 PM
To: brooket_eca@outlook.com; Fotini Bouranta <fbouranta@stephenedwards.com.au>
Cc: Andrew Kyrillos <akyrillos@stephenedwards.com.au>; ecologicalca@outlook.com; myrnaeca@outlook.com; BCT BCF Quotes And Payments Mailbox <bcfpayments@bct.nsw.gov.au>
Subject: Q00353 - BCF Charge Quote – Acknowledgment of Application

Dear Brooke,

This email is to confirm receipt of your application to issue a Charge Quote to make a payment to the Biodiversity Conservation Fund (BCF) with the following details on **23 January 2024.**

Name	Stephen Edwards Constructions Pty Ltd
Development Name	Pymble Ladies College – Grey House Precinct
Development Number	SSD 17424905
BCF Quote Number	Q00353
Quote size	Small
Quote issued by	10 working days by 19 February 2024

The BCT has reviewed the application and the documents provided are complete. Please note you may be required to provide additional information when you submit your request to make a payment.

Please do not hesitate to contact the bcfpayments@bct.nsw.gov.au mailbox if you have any questions.

Yours Sincerely,
Samantha

From: Brooke Thompson <brooket_eca@outlook.com>
Sent: Monday, 5 February 2024 12:03 PM
To: BCT BCF Quotes And Payments Mailbox <bcfpayments@bct.nsw.gov.au>
Cc: akyrillos@stephenedwards.com.au; fbouranta@stephenedwards.com.au; Geraldene Dalby-Ball <ecologicalca@outlook.com>; Myrna Calumpong <myrnaeca@outlook.com>
Subject: CM Record: BCF Quote Request - PLC Grey House Precinct

To BCF Payments,

Please issue a quote for the ecosystem and species credits included in the BCF Quote Application Form.

The attached zip file contains the BCF Quote Application Form, SSD Development Consent, GIS Shapefiles and Biodiversity Credit Report for Pymble Ladies College.

Kind regards,

Brooke Thompson

Ecologist

Ecological Consultants Australia PTY LTD T/A

Kingfisher Urban Ecology and Wetlands

Sydney Melbourne Brisbane

m: 0466 379 853

e: brooket_eca@outlook.com

Making a payment into the Biodiversity Conservation Fund for an offset obligation in NSW

Form 2 - Charge Quote Statement (Stage 2) and Payment Application (Stage 3)

This form is to be completed by persons who propose to meet an offset obligation required under the *Biodiversity Conservation Act 2016* (NSW) (BC Act) by making payment into the Biodiversity Conservation Fund (BCF) under section 6.30 (1) of the BC Act.

This form includes the Charge Quote provided by the BCT, in response to the information provided by the proponent in the Stage 1 Charge Quote Application (Form 1). The Charge Quote has been calculated using the BCF Charge System. This Charge (with monthly indexation) can then be used in Stage 3 of this form to apply to make a Payment into the BCF.

A Charge Quote can be prepared once a development application with an offset obligation has been submitted to a consent authority (including an application for biodiversity certification, approval under Part 5.1 of the *Environmental Planning and Assessment Act* 1979 (EP&A Act) or Part 5A of the *Local Land Services Act* 2013 (LLS Act)). **A Payment to the BCF can only be made once development consent (or biodiversity certification or approval) has been granted.**

Information that is required to be submitted to proceed with a payment to the BCF is identified on page 5 of this form (Stage 3 - Payment Application).

If you need help completing the form or you have other queries, please contact the NSW Biodiversity Conservation Trust (BCT) via telephone on 1300 992 688 or email at bcfpayments@bct.nsw.gov.au.

Timeframes for finalising a Payment

The BCT proposes the following timeframes to finalise a payment and provide a Section 6.33 Certificate once all required data is supplied:

Stages of paying into the BCF	Timeframe
Acknowledgement of Payment Application	Up to **5 business days** to receive an email confirmation.
Approval to make payment – No invoice requested	Up to **5 business days** to receive email confirmation including instructions on how to pay via bank transfer into the Biodiversity Conservation Fund.
Approval to make payment – Invoice requested	Up to **15 business days** to receive email confirmation including the requested invoice to pay into the Biodiversity Conservation Fund (complete Part A and C for an invoice).
Issue of Section 6.33 Certificate	Up to **5 business days** once payment is made.

It is the proponent's responsibility to ensure the application to make payment and required information is provided before the Charge Quote expires. The BCT may require a new Charge Quote Application if the quote expires and required data has not been supplied (i.e. the final approval has not been granted). It is important to note that an applicant can only hold one Charge quote for a project and the BCT will not issue another quote for the same credits identified in this Charge Quote Statement for the same financial year.

Stage 2: Charge Quote Statement

PART A - APPLICANT DETAILS

The BCT has completed the details based on the Stage 1 Application. If the details have changed, contact the BCT directly and we will provide advice on next steps.

Applicant (individual or Sole trader)			
Title			
Full name			
ABN (If applicable)			
Applicant (company)			
Company	Stephen Edwards Constructions Pty Ltd		
ACN	001 824 139	**GST registered**	☒ **Yes** ☐ **No**
ARBN	65 001 824 139	**GST registered**	☒ **Yes** ☐ **No**
Contact details			
Name (if different to above)	Fotini Bouranta		
Phone	(02) 9891 3099	**Mobile**	0449 784 731
Fax		**Email**	fbouranta@stephenedwards.com.au
Mailing address			
Address	140 Wicks Rd		
Suburb / city	Macquarie Park		
State / territory	NSW	**Postcode**	2113
Country	Australia		

PART B – CHARGE QUOTE TO MAKE A PAYMENT TO THE BIODIVERSITY CONSERVATION FUND

1. Project Details[1]

Applicant Name	Stephen Edwards Constructions Pty Ltd	BCF Quote Number	**Q00353**
		Quote Issued Date	08/02/2024
Project Name	Pymble Ladies College - Grey House Precinct	Quote Expiry Date	07/02/2027
		Project Type	Health & Public Service - Education
Statutory Obligation Reference	SSD 17424905	EPBC Act Controlled Action?	No
Statutory Obligation Approved?	Yes	Quote Size	Small
Local Government Area	Ku-ring-gai Council	IBRA Subregion	Cumberland

2. Ecosystem Credits

Plant Comm. Type	Offset Trading Group	Contains HBTs	Number of BAM Credits	Predicted Price per Credit	Risk Premium per Credit	Delivery Fee per Credit	Total Charge per Credit	**Total Charge**	Monthly Indexation per Credit	Method
1281	Sydney Turpentine-Ironbark Forest in the Sydney Basin Bioregion	Yes	2	$30,500.00	$5,124.00	$1,525.00	$37,149.00	**$74,298.00**	$176.46	T1

3. Species Credits

Species	Common Name	Species model category	Number of BAM Credits	Predicted Price per Credit	Risk Premium per Credit	Delivery Fee per Credit	Total Charge per Credit	**Total Charge**	Monthly Indexation per Credit	Method
Chalinolobus dwyeri	Large-eared Pied Bat	M2D1	1	$1,070.00	$104.86	$120.00	$1,294.86	**$1,294.86**	$6.15	T2

[1] If details have changed since the Charge Quote application was submitted, contact the BCT for advice

4. Notes/disclaimers

A Payment can only be made once development consent has been granted. This includes the conferral of biodiversity certification**,** approval under Part 5.1 of the EP&A Act or Part 5A of the LLS Act.

ALL PRICES ARE GST EXCLUSIVE

The total charge is calculated at the time a payment application is submitted, for the number of credits sought and will include monthly indexation for each month between when a charge quote is issued, and payment application is submitted.

The charge estimated is only valid for the project described in 1 above.

A request for a new Charge Quote for the project invalidates any previous Charge Quotes.

Charges are not negotiable.

5. Method Key[2]

T1 = cost structure model – ecosystem credits, Tool 1 in BOPC order

T2 = cost structure model – species credits, Tool 2 in BOPC order

T3 = econometric model, Tool 3 in BOPC order

T4 = market soundings, Tool 4 in BOPC order

+ = price triangulated between methods.

[2] More information on the tools are in the BOPC Order - www.bct.nsw.gov.au/sites/default/files/2022-09/Biodiversity%20Offsets%20Payment%20Calculator%20Order%2030%20Sep%202022.pdf

Making a payment into the Biodiversity Conservation Fund for an offset obligation in NSW

Stage 3: Payment Application

PART C – INVOICE DETAILS

Please consider whether you need an invoice, noting the payment timeframes in the table below:

Invoice requested	Timeframe
NO	**Up to 5 business days** to receive email confirmation including instructions on how to pay via bank transfer into the Biodiversity Conservation Fund.
YES	**Up to 15 business days** to receive email confirmation including the requested invoice to pay into the Biodiversity Conservation Fund.

1. **Do you need an invoice to make a payment?** ☐ **NO** ☑ **YES**
2. If **NO** to Question 1, please continue to Part D.
3. If **YES** to Question 1, please confirm and complete all information in Part A (Page 2).

   To create and issue an invoice with DPE Accounts Receivable we require the following information to be provided:

   - Applicant details: either individual, sole trader, or company including (if applicable) the ACN/ACRN or ABN (for individuals) and if GST registered.
   - Contact details: name, contact number, and email.
   - Mailing address.

PART D – BIODIVERSITY CREDIT OBLIGATIONS AND SUPPORTING DOCUMENTATION

To provide payment into the Biodiversity Conservation Fund to meet an offset obligation you must demonstrate a statutory requirement to retire biodiversity credits (e.g. as part of a development approval). The BCT has completed the details based on the Stage 1 Charge Quote Application (Form 1). If details have changed or additional credit types are included a new Charge Quote may be required – if this is the case, please contact the BCT directly to determine the next steps.

Project Name:	Pymble Ladies College – Grey House Precinct
NSW statutory obligation reference[3] (mandatory):	SSD 17424905
Commonwealth EPBC Act controlled action approval reference (if applicable):	No
BCF Reference (OFFICE USE ONLY):	Q00353

Supporting documentation required

To make payment into the Biodiversity Conservation Fund it is mandatory to provide the following supporting documentation. Where the documentation was previously provided with the Charge Quote Application (Form 1) it is not required to be resubmitted unless the project has changed.

Status of documentation required or previously submitted

Documentation required	Status
Approved NSW statutory development application including all biodiversity credit obligations **OR** **Documentation demonstrating a determining authority's consideration of the environmental impact of an activity assessed under Part 5.1 of the EP&A Act (for example any REF and determination report prepared)** **OR** **Approval by the Native Vegetation Panel for clearing of native vegetation under Part 5A of the LLS Act** **OR** **Order granting biodiversity certification under Part 8 of the BC Act**	☐ **REQUIRED** ☒ **Previously submitted**
Commonwealth EPBC Act controlled action approval including all conditions of approval relating to the offset obligation(s) to be met through payment into the BCF	☐ **REQUIRED** ☐ **Previously submitted** ☒ **N/A**
GIS shape files (projected / georectified) of the development impact boundary	☐ **REQUIRED** ☒ **Previously submitted**

[3] This refers to either: a development application number for a development consent under Part 4 of the Environmental Planning and Assessment Act 1979 (**EP&A Act**); a State significant infrastructure approval under the previous Part 5.1 (now Part 5, Division 5.2) of the EP&A Act; a decision of a determining authority to carry out or approve the carrying out of an activity under Part 5 of the EP&A Act; a biobank statement number; or biodiversity certification number.

Indicate the type and number of credits that you are seeking to make a payment to the Biodiversity Conservation Fund. Refer to the relevant footnotes for each field for assistance completing the table. The BCT will confirm the final payment amount (including monthly indexation) once the application is submitted.

IBRA Subregion	Offset trading group/Species Name[4]	Number of biodiversity credits[5]	HBT credits (Yes/No)	OFFICE USE ONLY: [0] x monthly indexation applied per credit	
				Total Charge per Credit[4]	Final Charge[6]
Cumberland	Sydney Turpentine-Ironbark Forest in the Sydney Basin Bioregion	2	Yes	$37,149.00	$74,298.00
Cumberland	Chalinolobus dwyeri - Large-eared Pied Bat	1		$1,298.86	$1,298.86
				Total (excluding GST)	$75,592.86
				GST	$7,559.29
				Total (including GST)	$83,152.15

Edits in blue made by SD on 20/02/2024

[4] As displayed in the Charge Quote above (Part B). Please note the Expiry Date within the Charge Quote – if the application to make payment is not received before this date a new Charge Quote will be required.

[5] Number must not exceed final obligation in development approval but may be lower than obligation and/or different to the number provided in the Quote above.

[6] The BCT will populate the Final Charge (including the monthly indexation) before the payment can be made.

PART E – LODGING APPLICATION

Once you have fully completed and signed the form, send the application with all attachments to the Biodiversity Conservation Trust in one of the following ways:

By email:

Email your complete application with the required accompanying documentation to bcfpayments@bct.nsw.gov.au.

If the email and its attachments are too large to send, please contact us via the mailbox to organise method of delivery.

By post:

Post your complete application with the required accompanying documentation to:

Biodiversity Conservation Trust

Locked Bag 5022

PARRAMATTA NSW 2124

Australia

PART F – FINANCIAL REPORTING (OFFICE USE ONLY)

Total Breakdown (Inc. GST) - OFFICE USE ONLY			
Admin fee $3,487.00	**GL 8990**	**Cost Center: BC22**	**Tax Code: S1**
Obligation $79,665.15	**GL 2336**	**Cost Center: BC22**	**Tax Code: S1**

Department of Planning and Environment

Our ref: SSD-17424905-PA-4

Sally Prowd
Senior Associate
Willowtree Planning Pty Ltd
Suite 1, Level 10
56 Berry Street
NORTH SYDNEY, NSW 2060

E: sprowd@willowtp.com.au

21/12/2023

Pymble Ladies College - Grey House Precinct (SSD-17424905)
Pre-Clearing Vegetation Plan, Condition D28

Dear Ms Prowd

I refer to the Pre-clearing Vegetation Plan (PVP): Pymble Ladies College – Grey House Precinct (Version 1.0 dated 13 November 2023), submitted for the satisfaction of the Planning Secretary of the Department of Planning and Environment (the Department) under Condition D28 of SSD-17424905. I also acknowledge and thank you for your response to the Department's request for additional information.

I note the PVP:

- was reviewed by the Applicant, and no issues were raised to the Department;
- has been prepared by Narla Environmental Pty Ltd who are specialised in ecology and environmental studies;
- Indicates that no threatened flora and fauna species were found during the pre-clearing inspection; and
- contains the information required by condition D28.

Accordingly, as nominee of the Planning Secretary, I am satisfied that the Pre-clearing Vegetation Plan, Final Version 1.0 dated 13 November 2023, prepared by Narla Environmental, is prepared as per condition D28 of SSD-1742905.

I remind you to ensure that an experienced ecologist is present during the removal of the identified habitat tree to capture and relocate any encountered fauna.

You are reminded that if there are any inconsistencies between the PVP and the conditions of consent, the conditions will prevail.

Please ensure you make the PVP available for public access on the project website as per condition B26.

If you have any questions or wish to discuss the matter further, please contact Swati Sharma at swati.sharma@planning.nsw.gov.au.

Yours sincerely

Dominic Crinnion
Director
Infrastructure Management

As nominee of the Planning Secretary

Pre-clearing Vegetation Plan

Pymble Ladies College – Grey House Precinct

Report prepared by Narla Environmental Pty Ltd

for Pymble Ladies College

November 2023

NARLA

environmental

Report:	Pre-clearing Vegetation Plan: Pymble Ladies College – Grey House Precinct
Prepared for:	Pymble Ladies College
Prepared by:	Narla Environmental Pty Ltd
Project no:	PLCO2
Date:	November 2023
Version:	Final v1.0

Narla Environmental Pty Ltd

www.narla.com.au

Report Certification

Works for this report were undertaken by:

Name	Company / Position
Jonathan Coy *BEnv*	Narla Environmental – Project Manager/ Ecologist
Brooke Mulley *BSc*	Narla Environmental – Ecologist
Philip Maxwell *BSc*	Narla Environmental – Ecologist

Document Control

Revision	Document Name	Issue Date	Internal Document Review
Draft v 1.0	Pre-clearing Vegetation Plan: Pymble Ladies College – Grey House Precinct	26/07/2023	Jonathan Coy
Final v 1.0	Pre-clearing Vegetation Plan: Pymble Ladies College – Grey House Precinct	13/11/2023	Jonathan Coy

Contents

Tables

Figures

Glossary

Acronym/ Term	Definition
BC Act	New South Wales Biodiversity Conservation Act 2016
BoM	Bureau of Meteorology
DPE	Department of Planning and Environment (formerly DPIE and OEH)
DPI	Department of Primary Industries
DPIE	Department of Planning, Industry and Environment (now known as DPE)
EEC	Endangered Ecological Community
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
ha	Hectares
km	Kilometre
Locality	The area within a 10km radius of the Project Area. The same meaning when describing a local population of a species or local occurrence of an ecological community.
m	metres
cm	centremetres
Narla	Narla Environmental Pty Ltd
NSW	New South Wales
Project Area	Area which is to be impacted by construction
TEC	Threatened Ecological Community
Threatened species, populations and ecological communities	Species, populations and ecological communities defined under the BC Act or the EPBC Act
DBH	Diameter of tree at breast height

1. Introduction

1.1 Background

Narla Environmental Pty Ltd (Narla) was engaged by Pymble Ladies College (the 'Proponent') to conduct a pre-clearing survey and install nest boxes at 20-64 Avon Road, Pymble, 2073 NSW (hereafter referred to as the 'Project Area'; (Figure 1).

The pre-clearing survey encompassed all land to be directly affected by Grey House Precinct development within the Subject Property. The pre-clearing process and nest box installation was conducted in accordance with the DA Conditions of Consent (Ku-ring-gai Council 2023), including the following conditions:

- At least one (1) month prior to the commencement of tree removal within the site, a pre-clearing vegetation plan must be prepared and submitted to the satisfaction of the Planning Secretary. The plan must:
    - Be prepare by a suitably qualified ecologist;
    - Map and mark habitat-bearing trees and shrubs to be retained/removed and other fauna habitat features and determine the presence of any resident native fauna using nests, dreys and hollows; and
    - Providence evidence of the pre-clearing surveys and inspections for fauna and relocation of fauna that must be provided.
- If native fauna is found during preparation of pre-clearing vegetation plan, the fauna must be relocated to appropriate nearby habitat;
- Where tree hollow and/or hollow dependent native fauna are found using existing hollows, compensatory tree hollows should be provided prior to the removing the tree hollows and prior to the release of the hollow dependent fauna unless the removed tree hollows can be relocated and installed on the same day they are removed;
- The compensatory nest boxes are to be installed by an appropriately experienced person prior to the removal;
- The applicant must install a minimum of four (4) microbat boxes in the trees being retained; and
- The compensatory nest boxes must be installed at least one (1) month prior to any vegetation removal, to provide alternate habitat for the hollow-dependent fauna displaced during clearing.

1.2 Desktop Study

A literature review of local information relevant to the Project Area was conducted. Online databases (DPE 2023) were utilised to obtain threatened species and biodiversity data recorded from or modelled within the Project Area and surrounds to an area of approximately 100km².

Narla also conducted a review of all relevant project documents including:

- DA Conditions of Consent (Ku-ring-gai Council 2023).
- Pymble Ladies College, Grey House Precinct Project, Arboricultural Impact Assessment (ArborSafe 2023)

1.3 Scope of this Assessment

The objective of this pre-clearing survey was to identify and demarcate all fauna habitat, in accordance with the DA Conditions of Consent (Ku-ring-gai Council 2023) including to:

- Identify the presence, or evidence of threatened flora and fauna species;
- Demarcate, photograph and map all habitat features within the Project Area;

- Inspect bridges and/or culverts prior to demolition for the presences of native fauna and map habitat for (particularly for roosting bats);
- Identifying the location of habitat trees, microhabitat (e.g. hollow bearing logs) and other habitat features (and any other plants which have been marked or otherwise identified for preservation);
- Marking all hollow bearing trees, potential hollow bearing trees, logs, nest boxes and all other fauna containing habitat trees, including tress with nests, dreys and termitaria likely to be occupied by fauna, at least seven days prior to the commencement of clearing in a manner which clearly identifies and demarcates the trees;
- Demarcate and map the occurrence and extent of weeds listed as Priority under the Biosecurity Act 2015; and
- Identifying suitable areas for fauna to be relocated to in the event of fauna capture during clearing.

1.4 Study Limitations

Findings of the pre-clearing survey was restricted to what was observed on the one (1) day of survey.

The timing of the survey may not have coincided with emergence times of some flora and activity of some fauna (e.g. migratory and nesting birds). A follow-up, rapid survey should be conducted immediately prior to vegetation clearing to identify any new habitat features, fauna or flora that could not be identified during pre-clearing or has since established itself in the clearing area.

Figure 1. Project Area within the Subject Property.

2. Methodology

2.1 Site Assessment

The pre-clearing inspection was conducted on the 18th of July 2023 by Narla Ecologists Philip Maxwell and Brooke Mulley. GPS tracks of pre clearing survey can be found in **Figure 2.**

During the assessment, the Ecologists surveyed the entire Project Area (provided by the Proponent) for significant biodiversity features including, but not limited to:

- Habitat of all fauna (particularly threatened fauna) including:
    - Habitat trees including hollow-bearing trees, decorticating bark, existing nest boxes and bird nests (that could provide habitat for birds, frogs, reptiles, small mammals and microbats);
    - Crevices and culverts (habitat for frogs, reptiles, small mammals and microbats);
    - Fauna burrows and warrens;
    - Termite mounds (habitat for reptiles and birds);
    - Soaks and moist areas (habitat for frogs);
    - Wetlands dams and drainage lines (habitat for fish, frogs and water birds);
    - Locations of any suitable threatened fauna habitat;
    - Any other habitat features that may support fauna species;
- Locations of any threatened flora species (including TECs);
- Locations of all weeds listed as priority under the Biosecurity Act 2015;
- Opportunistic sightings or the evidence of fauna (including fresh scats, scratches and remains of prey) utilising habitat within the Project Area; and
- Locations of nearby habitat (outside the Project Area) suitable for the release of fauna that may be encountered during clearing.

2.2 Habitat Demarcation and Photographs

2.2.1 Habitat Trees

A habitat tree is defined as any tree which may feasibly conceal protected fauna. During the pre-clearing survey, the attending Ecologist demarcated each habitat tree using the following method:

- Wrapping white-and-red flagging tape around each tree trunk;
- Writing a tree identification number on a tag attached to each tree, to be referenced in the pre-clearing survey report and post-clearing report; and
- Spray paint a circle enclosing a 'H' for 'habitat' on three sides of each confirmed habitat tree.

Each tree was photographed twice- from a distance to enable view of the whole tree and up close to enable view of the tree identification number.

2.2.2 Microhabitat

During the pre-clearing survey, the ecologist demarcated coarse woody debris, logs and bush rock that were potentially suitable for habitation by protected fauna by:

- Wrapping white-and-red hazard tape around microhabitat item, if possible; and
- Photographing each piece of microhabitat from a distance to enable view of the entire microhabitat item.

Figure 2. GPS tracks of Narla Ecologist to provide evidence of pre clearance survey

2.3 Targeted Threatened Flora Surveys

Targeted surveys were undertaken to identify any threatened flora species known or predicted to occur within the locality (within 10km of the Project Area), with maximum effort directed toward sampling areas with suitable habitat. Targeted surveys were undertaken in accordance with the 'NSW Guide to Surveying Threatened Plants' (DPIE 2020). Narla undertook targeted surveys for all threatened flora with potential to occur within the Project Area whose approved survey period (DPE 2023) coincided with the site assessment, with effort focused on:

- *Rhodamnia rubescens* (Scrub Turpentine)
- *Persoonia hirsute* (Hairy Geebung)
- *Genoplesium baueri* (Yellow Gnat-orchid)
- *Acacia terminalis* (Sunshine Wattle)
- *Melaleuca deanei* (Deane's Melaleuca)
- *Lasiopetalum joyceae*
- *Kunzea rupestris*
- *Syzygium paniculatum* (Magenta Lilly Pilly)
- *Acacia pubescens* (Downy Wattle)
- *Pimelea curviflora var. curviflora*
- *Darwinia biflora*
- *Eucalyptus camfieldii* (Camfield Stringybark)
- *Acacia bynoeana* (Bynoe's Wattle)

Any tentative threatened species found were photographed, with specimens taken for identification using formal keys. Any confirmed or plausible specimens identified were GPS tagged, for future reference. Where identification of plausible specimens could not be made with absolute confidence by Narla Ecologist, specimens were collected and sent to the National Herbarium for expert identification.

2.4 Threatened Fauna Habitat Surveys

Opportunistic surveys were undertaken to identify locations of threatened fauna species known or predicted to occur within the locality. Narla undertook opportunistic survey for all threatened fauna with potential to occur, with effort focused on:

- *Lathamus discolor* (Swift Parrot);
- *Anthochaera phrygia* (Regent Honeyeater);
- *Callocephalon fimbriatum* (Gang-gang Cockatoo);
- *Botaurua poiciloptilus* (Australasian bittern);
- *Rostratula poiciloptiuls* (Australian Painted Snipe);
- *Hirundapus caudacutus* (White-throated Needletail);
- *Grantiella picta* (Painted Honeyeater);
- *Climacteris picumnus* (Brown Treecreeper);
- *Phascolarctos cinereus* (Koala);
- *Cercartetus nanus* (Eastern Pygmy-Possum);
- *Petauroides volans* (Southern Greater Glider);
- *Dasyurus maculatus* (Spot-tailed Quoll);
- *Petaurus australis* (Yellow-bellied Glider);
- *Miniopterus australis* (Little Bent-Winged Bat);
- *Miniopterus orianae oceanensis* (Large Bent-winged bat);
- *Chalinolobus dwyeri* (Large-eared Pied Bat);

- *Calyptorhynchus lathami lathami* (Glossy Black Cockatoo);
- *Ninox connivens* (Powerful Owl);
- *Isoodon obesulus* (Southern Brown Bandicoot);
- *Pseudomys novaehollandiae* (New Holland Mouse);
- *Pteropus poliocephalus* (Grey-headed Flying Fox);
- *Ponnerhelix duralensis* (Dural Land Snail)

During the pre-clearing survey, all trees containing hollows or nests, which is considered potential habitat for threatened avian and crepuscular mammalian species, were identified and demarked in accordance with the methodology described in **Section 2.2.**

2.5 Priority Weeds

The location of all Priority Weeds were recorded with a handheld GPS (GARMIN 64s). Woody priority weeds were demarcated with pink flagging tape. Herbaceous priority weeds were not demarcated due to their size. These weeds must not be chipped/mulched with native vegetation or mixed with mulch mixes that are intended for onsite landscaping works.

2.6 Weather Conditions

A summary of the prevailing weather conditions during the surveys and the lead-up to the surveys is presented (**Table 1**). These data were collected from the nearest weather station 'Terry Hills AWS'. Prevailing weather conditions at the time of the survey were typical for the time of year. Low rainfall and moderate temperatures were recorded in the lead up to the pre-clearing survey, these conditions are not conducive to the emergence of threatened flora species.

Table 1. Weather conditions recorded at Terry Hills (AWS 066059). Survey dates in bold.

Date	Day	Minimum Temp. (°C)	Maximum Temp. (°C)	Rainfall (mm)
11/07/2023	Tuesday	4.3	18.3	0
12/07/2023	Wednesday	7.5	18.8	0
13/07/2023	Thursday	6.7	20.5	0
14/07/2023	Friday	9.5	21.8	0
15/07/2023	Saturday	11.1	22.2	0
16/07/2023	Sunday	13.7	16.4	0
17/07/2023	Monday	11.1	17.8	0.6
18/07/2023	**Tuesday**	**10.7**	**20.9**	**0.2**

2.7 Nest box installation

As per DA Conditions of Consent (Ku-Ring-Gai Council 2023), compensatory nest boxes are required to replace tree hollows lost to clearing, thus, providing alternate habitat for hollow dependent fauna. While no hollows were found within the project area, a minimum of four microbat boxes were still required to be installed to meet council requirements (Ku-Ring-Gai Council 2023). Thus, four (4) microbat boxes were installed by an appropriately experienced person at least one month prior to tree removal. Boxes were mounted between 4-7m high against trees deemed appropriate by project ecologist in adjacent subject property.

3. Results

3.1 Habitat Trees

One (1) habitat tree was identified within and immediately surrounding the Project Area during pre-clearing surveys (**Figure 3**). The habitat tree was demarcated in accordance with the methodology outlined within **section 2.2.** Comprehensive mapping of all habitat features recorded within the Project Area is presented in **Figure 3**.

Table 2. Habitat trees recorded within and immediately surrounding the Project Area.

Tag #	Habitat Feature	Coordinates		Scientific Name	Common Name	Comments
		Latitude	Longitude			
HT1	Pre-existing nest box	-33.748212	151.136248	Stag		Likely not in use

3.2 Threatened Species

No threatened flora or fauna species were identified in the Project Area at the time of survey.

3.3 Priority Weeds

No Priority Weeds were identified within the Project Area during the site assessment.

3.5 Installed Nest Boxes

During pre-clearing inspection clearing works, four (4) nest boxes were installed in close proximity to the Project boundary. The locations of all installed nest boxes are presented in **Figure 4.**

Table 3. Nest boxes installed on Subject Property

Tag #	Coordinates		Box Type	Tree Species	DBH (cm)	Box height (m)	Orientation
	Latitude	Longitude					
NB1	-33.749433	151.135056	Microbat	*Eucalyptus crebra*	100	5	East
NB2	-33.749481	151.135138	Microbat	*Eucalyptus crebra*	40	4	East
NB3	-33.749674	151.134426	Microbat	*Eucalyptus crebra*	80	6	South
NB4	-33.749565	151.134343	Microbat	*Eucalyptus resinifera*	60	5	South

Figure 3. Habitat features identified within and immediately surrounding the Project Area.

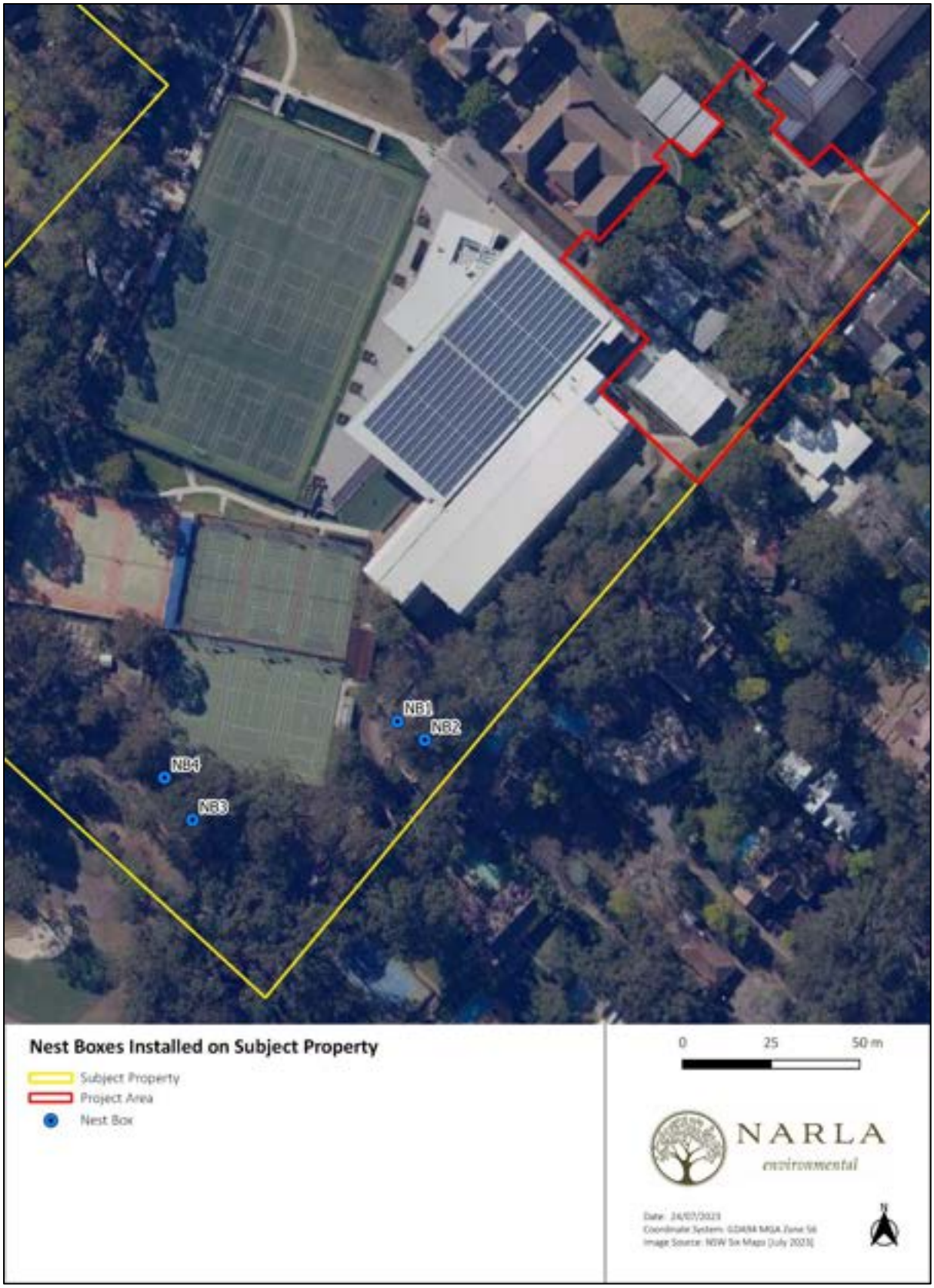

Figure 4. Nest Boxes Installed on Subject Property

4. Recommendations

4.1 Vegetation Clearing

A suitably qualified Ecologist must be present to supervise the felling of habitat trees to avoid injuring wildlife. Where possible, staged habitat removal should be used when identified habitat (eg. hollow-bearing trees, habitat trees) is to be removed. Staged habitat removal should be conducted in at least two stages as outlined in Section 4.1.1 and Section 4.1.2

Any fauna encountered will be relocated to suitable, predesignated areas within the conservation area or transported to the nearest equipped veterinary practice in the event of injury. Following habitat clearing supervision, the Project Ecologist will record:

- The number and size class (based on diameter) of tree hollows;
- Live animal sightings, captures, releases or shocked/injured wildlife;
- Any dead animals located;
- The name and qualification of the Project Ecologist (s) or wildlife carer present during clearing;
- An assessment of the habitat and handling of fauna; and
- Photographs of any rescued fauna.

The information gathered by the supervising Ecologist during habitat clearing will be summarised into a 'post clearing report' that will be provided to the Proponent.

4.1.1 Stage 1- Non-habitat Tree Removal

Where no areas of habitat have been identified to be cleared, clearing can be undertaken in a single-stage process, which includes the under-scrubbing of non-habitat trees, shrubs and other vegetation.

The implementation of Stage 1 clearing allows respite between the initial disturbance and the final removal of habitat. The changed environment along with the disturbance should encourage resident fauna to individually relocate without human handling. The timing should allow resident fauna at least 24 hours or 1 night, after removal of non-habitat trees, to vacate remaining habitat features.

4.1.2 Stage 2 Habitat Tree Removal

The Project Ecologist will be present during the removal of the habitat tree to capture and relocate any encountered fauna. The following objectives should be achieved before and throughout Stage 2 clearing activities:

- Identified habitat (e.g. nest box) will be left for at least 24 hours (or one night) after removing non-habitat vegetation to allow fauna to escape;
- The project ecologists should capture and/or remove fauna within nest box; and, any other fauna that has the potential to be disturbed, injured or killed as a result of clearing activities. Captured fauna will be relocated into pre-determined habitat identified for fauna release;
- The potential on-site reuse of cleared vegetation will be first discussed with the Proponent. If the opportunity exists to use some or all of the cleared vegetation for site restoration /stabilisation (in the form of mulch, or other methods), then such reuse will be prioritized as agreed with the Proponent.

Alternatively, as the nest box is not suitable for reuse due to its poor condition, it can be removed and destroyed prior to clearing. The nest box must be inspected by project ecologist and removed from tree. If any fauna is occupying the nest box at the time of removal, it should be relocated by the Project Ecologist.

4.2 Proposed Relocation Site

Where possible, fauna should be relocated to predesignated areas proposed for fauna relocation. The location of predesignated areas can be reviewed in **Figure 4**.

The attending ecologist will determine the suitability of the proposed release location for the captured species and if deemed unsuitable may be relocated to another nearby location. If large numbers of fauna are captured during clearing, additional release points must be considered so that aggressive fauna (e.g. Brushtail Possum) do not become overabundant at relocation sites and outcompete other more sensitive fauna already occupying the relocation area.

Nocturnal fauna (particularly microbats) should be released after dusk, to avoid predation from diurnal predators such as butcherbirds and raptorial birds.

Figure 5. Proposed Relocation Area

5. References

Bureau of Meteorology (2023) Terry Hills AWS (066059) (July 2023).
http://www.bom.gov.au/climate/dwo/IDCJDW2154.latest.shtml

Department of Planning and Environment (DPE) (2023) NSW Bionet. The website of the Atlas of NSW Wildlife.
http://www.bionet.nsw.gov.au/

Department of Planning Industry and Environment (DPIE) (2020) Surveying Threatened Plants and their habitats NSW Survey guide Biodiversity Assessment Method.

Ku-ring-gai Council (2023) DA Conditions of Consent, Pymble Ladies College.

NARLA

environmental

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Toolijooa
environmental restoration

1st February 2024

Greg Hastie
Project Director
Master Planning and Capital Works
Pymble Ladies' College
m: 0411 477 006
e: ghastie@pymblelc.nsw.edu.au

Re: Native Seed Collection & Propagation for Pymble Ladies College - Grey House Precinct

Dear Greg,

Toolijooa partners with Forest Nursery who have completed the initial seed collection efforts in the Grey House Precinct at Pymble Ladies College. Seed processing, production, and propagation is in progress.

Forest Nursery's specialist seed collectors have gathered seed from bushland within the grounds of Pymble Ladies College with initial seed collection efforts focused in the Grey House Precinct construction footprint. Seed collection has also been undertaken in surrounding bushland at PLC to ensure adequate species diversity and quantities are secured. Target species include Blue Gum High and Sydney Turpentine Ironbark Forest species.

There will be one final seed collection effort in January 2024 within the bushland of PLC to capture warmer months and currently flowering species. Additional seed will be processed and propagated as it is obtained.

During site inspection of the construction footprint no notable juvenile native trees requiring relocation were encountered.

This statement confirms compliance with conditions D30 and D31. If you have any questions in relation to these works, please give me a call on 0416 449 859.

Sincerely,

Maddison Holmes
Project Manager – Bush Regeneration East
Ph: 0416 449 859
E: maddison.holmes@toolijooa.com.au

Vegetation Management Plan

Written as per Australian Standard 4970-2009

Pymble Ladies College
Pymble NSW 2073

Prepared by Mark Bury Consulting ABN:
53 797 009 569
AQF Level 5 Arborist Hortus Australia National Code 1042 Diploma of Horticulture/Arboriculture Parchment Number 6621 31st January 2006 Course Code RTF50203
International Society of Arboriculture Credential License Au-0345AM
10 Arlington Street Gorokan NSW 2263
E-mail mark.bury@bigpond.com Phone 0400485878

19th January 2024

Contents

1. Synopsis

This report advises and concludes that twenty two (22) (Numbers 1775, 1011, 1002,988,987,986, 984, 981, 979, 980, 967, 966, 970, 974, 975, 976, 977, 982, 996, 998, 999, 1774) trees can be preserved as part of the proposed path access which will need to be managed and protected as per appendix 7 in this report. The current pathway has been compressed heavily by vehicle traffic over many years, tree roots from the above trees are situated under the current pathway and the Tree Root Zones of all the trees it is suggested that 100mm be put over the current pathway so the pathway is not compressed any further.

This report has been based on the plans forwarded to me by the client in Appendix 4. Tree Numbers are from the Arborplan report to keep consistency on the site.

The following trees may be required to protected if a further access path is required on the eastern boundary of the school

51,950,943,942,932,931,939,927,924,963,962,954,958,957,956,955,924,923,1771,1770,923, 1772,1769,1766, 1767,1768, 910, 911,912,882,900,889,1765,864,880, 863,861,860,844,845,846, 847,843,840,841,838,839,855,834,837,833,832,835,834,1010,847,831,850,829 and 828

Recommendations have been made in regards to what would be considered appropriate tree management on the site and the effects the proposed development will have on the site

This is determined as, the management of trees as a resource based on sound professional judgement and a competent understanding of what trees to plant where and when or when to remove or retain a tree

The planting or retention of a tree in a position that causes minimal or no conflict with people or property or disturbance of the built environment or services or infrastructure, due to such a decision having been founded upon a competent knowledge of the characteristics of the tree's growth pattern and ultimate dimensions above and below ground at maturity, and the suitability of space available into which it will develop

The removal of a tree that will grow to be in conflict with the constraints of its growing environment either above or below ground at its ultimate dimensions. At maturity and especially where replanting could be undertaken with an advanced specimen of species of more suitable growth characteristics and mature dimensions

The removal of a vigorous tree in a poor condition in a prominent position where its potential failure in full or part poses a risk of hazard to the safety of people or damage to property

This report should be read in its entirety before further comment

This report is based on the plans in appendix 4 supplied for the report by the client

Arboricultural Impact Report on: Twenty-Two (22) Trees

Tree Inspection: 19th January 2023

Report Prepared: 19th January 2023

Report Commissioned by: **Andrew Kyrillos Project Manager**
Stephen Edwards Construction

Legislation:

Kuringai Council DCP

Scope of Works:
To determine the effects of the proposed development (See Appendix 4) at Pymble Ladies College NSW on twenty-two (22) trees located on the southern boundary. See Appendix 3 and Appendix 4 proposed development.

2. Background/Brief

2.1 Stephen Edwards Constructions has requested a Vegetation Management report on twenty-two (22) trees on the property to determine their suitability for retention on the site as part of a proposed truck access for the Council Approved development on the site.

2.2 A visual tree inspection (VTA) of the tree was carried out by Mark Bury. The inspection included observing branch structure and condition, any insect or disease damage, inspection of surface roots and observations of the tree canopy. The inspection also involved measuring the height, canopy and diameter at breast height and diameter at base height of the tree.

2.3 An onsite inspection occurred on 19th January 2023 at the location. No aerial (climbing inspections) was taken as part of the assessment.

2.4 The conclusions and recommendations contained in this assessment are based on the aforementioned inspection and discussions.

3. Method of Assessment

3.1 The site was inspected on 19th January 2024. An objective visual inspection was made from the ground of the health and condition of the trees. This assessment has been carried out in reference to the accepted methods of tree assessment by Mattheck and Breloer (VTA) Page 119 of The Body Language of Trees and Strouts and Winter (Page 1) in Diagnosis of ill health in trees A Tree Schedule (Appendix 3) Binoculars were used to inspect the crown of the tree. Trees on the property have been tagged with numbers.

3.2 Photographs used in this report are originals taken at the inspection and are not altered in any way. Tree heights are determined with a Silva Clinomaster/Heightmeter™ and canopy spread were determined by visual estimations. Soil compaction was assessed by using an 8mm x 400mm steel spike being pushed by hand vertically into the ground. Soil samples were tested using a pH Meter and confirmed using a Manutec pH Soil Kit. Tree Protection Zones and Structural Root Zones are calculated using the Australian Standard AS 4970-2009 Protection of Trees on Development Sites. From this information conclusions were drawn.

3.3 The tree root zones have been inspected and unless stated in this report are stable except for were stated. The tree has not displayed the normal signs of root plate shear failure on the day of this inspection the 19th January 2024. This was a visual inspection only and I have little history of works which involved work in the root zone of the tree which could affect the stability of the tree in the future.

4. Site Analysis

4.1 The site is located in Pymble on the eastern side of Avon Road Pymble. The site is a medium density College property located on a flat and sloping site. The site is considered not to be urban bushland. The site is less than 1km to any area of bushland.

4.2 The trees are planted on Glenorie (gn) soils which have limitations high soil erosion hazard, low wet strength, localised impermeable highly plastic subsoil and are moderately reactive

4.3 These species of trees normally do well in this soil type and some are indigenous to this area of Pymble. I stress that my inspection of this site was of an ISA Level 2 Inspection and did not involve any climbing or detailed investigation beyond what was visible from accessible points at ground level.

5. Discussion

5.1 **Tree 1775** (*Callistemon salignus* White Bottlebrush) is a tree in fair condition Appendix 1 gives a description of the tree as per AS-4970-2009 Section 2. Appendix 4 gives the location of the tree on the property.

5.2 The tree will not be affected by the proposed development (See Appendix 6

Construction Impact Statement) as it will only have 0% incursion into the root TPZ of the tree (See Appendix 6). The trees soil and hydrological environments will not be affected by the proposed development. Appropriate tree management in this situation would be the preservation of the tree.

5.3 The tree should be managed as per appendix 7 (Tree Protection Plan) and regular compliance inspections should be carried out to ensure tree's root zone is not being impacted by the proposed works and trunk protection works have been carried out. An AQF Level 5 arborist should be present at the pruning of branches of the tree overgrowing the site as per recognized standards, photographed and reported to Council as part of the ongoing management of the trees usually required by Council. All works are to be carried out as per Australian Standard AS 4970-2009 Protection of Trees on Development Sites

5.4 **Tree 1017** (*Eucalyptus microcorys* Tallowood) is a tree in good condition Appendix 1 gives a description of the tree as per AS-4970-2009 Section 2. Appendix 4 gives the location of the tree on the property.

5.5 The tree will not be affected by the proposed development (See Appendix 6 Construction Impact Statement) as it will only have 0% incursion into the root TPZ of the tree (See Appendix 6). The trees soil and hydrological environments will not be affected by the proposed development. Appropriate tree management in this situation would be the preservation of the tree.

5.6 The tree should be managed as per appendix 7 (Tree Protection Plan) and regular compliance inspections should be carried out to ensure tree's root zone is not being impacted by the proposed works and trunk protection works have been carried out. An AQF Level 5 arborist should be present at the pruning of branches of the tree overgrowing the site as per recognized standards, photographed and reported to Council as part of the ongoing management of the trees usually required by Council. All works are to be carried out as per Australian Standard AS 4970-2009 Protection of Trees on Development Sites.

5.7 **Tree 1002** (*Eucalyptus paniculata* Grey Ironbark) is a tree in good condition Appendix 1 gives a description of the tree as per AS-4970-2009 Section 2. Appendix 4 gives the location of the tree on the property.

5.8 The tree will not be affected by the proposed development (See Appendix 6 Construction Impact Statement) as it will only have 0% incursion into the root TPZ of the tree (See Appendix 6). The trees soil and hydrological environments will not be affected by the proposed development. Appropriate tree management in this situation would be the preservation of the tree.

5.9 The tree should be managed as per appendix 7 (Tree Protection Plan) and regular compliance inspections should be carried out to ensure tree's root zone is not being impacted by the proposed works and trunk protection works have been carried out. An AQF Level 5 arborist should be present at the pruning of branches of the tree overgrowing the site as per recognized standards, photographed and reported to Council as part of the ongoing management of the trees usually required by Council. All works are to be carried out as per Australian Standard AS 4970-2009 Protection of Trees on Development Sites.

5.10 **Tree 988** (*Syncarpia glomulifera* Turpentine) is a tree in good condition Appendix 1 gives a description of the tree as per AS-4970-2009 Section 2. Appendix 4 gives the location of the tree on the property.

5.11 The tree will not be affected by the proposed development (See Appendix 6 Construction Impact Statement) as it will only have 0% incursion into the root TPZ of the tree (See Appendix 6). The trees soil and hydrological environments will not be affected by the proposed development. Appropriate tree management in this situation would be the preservation of the tree.

5.12 The tree should be managed as per appendix 7 (Tree Protection Plan) and regular compliance inspections should be carried out to ensure tree's root zone is not being impacted by the proposed works and trunk protection works have been carried out. An AQF Level 5 arborist should be present at the pruning of branches of the tree overgrowing the site as per recognized standards, photographed and reported to Council as part of the ongoing management of the trees usually required by Council. All works are to be carried out as per Australian Standard AS 4970-2009 Protection of Trees on Development Sites

5.13 **Tree 987** (*Eucalyptus paniculata* Grey Ironbark) is a tree in good condition Appendix 1 gives a description of the tree as per AS-4970-2009 Section 2. Appendix 4 gives the location of the tree on the property.

5.14 The tree will not be affected by the proposed development (See Appendix 6 Construction Impact Statement) as it will only have 0% incursion into the root TPZ of the tree (See Appendix 6). The trees soil and hydrological environments will not be affected by the proposed development. Appropriate tree management in this situation would be the preservation of the tree.

5.15 The tree should be managed as per appendix 7 (Tree Protection Plan) and regular compliance inspections should be carried out to ensure tree's root zone is not being impacted by the proposed works and trunk protection works have been carried out. An AQF Level 5 arborist should be present at the pruning of branches of the tree overgrowing the site as per recognized standards, photographed and reported to Council as part of the ongoing management of the trees usually required by Council. All works are to be carried out as per Australian Standard AS 4970-2009 Protection of Trees on Development Sites.

5.16 **Tree 984** (*Eucalyptus paniculata* Grey Ironbark) is a tree in good condition Appendix 1 gives a description of the tree as per AS-4970-2009 Section 2. Appendix 4 gives the location of the tree on the property.

5.17 The tree will not be affected by the proposed development (See Appendix 6 Construction Impact Statement) as it will only have 0% incursion into the root TPZ of the tree (See Appendix 6). The trees soil and hydrological environments will not be affected by the proposed development. Appropriate tree management in this situation would be the preservation of the tree.

5.18 The tree should be managed as per appendix 7 (Tree Protection Plan) and regular compliance inspections should be carried out to ensure tree's root zone is not being impacted by the proposed works and trunk protection works have been carried out. An AQF Level 5 arborist should be present at the pruning of branches

of the tree overgrowing the site as per recognized standards, photographed and reported to Council as part of the ongoing management of the trees usually required by Council. All works are to be carried out as per Australian Standard AS 4970-2009 Protection of Trees on Development Sites

5.19 **Tree 981** (*Eucalyptus paniculata* Grey Ironbark) is a tree in good condition Appendix 1 gives a description of the tree as per AS-4970-2009 Section 2. Appendix 4 gives the location of the tree on the property.

5.20 The tree will not be affected by the proposed development (See Appendix 6 Construction Impact Statement) as it will only have 0% incursion into the root TPZ of the tree (See Appendix 6). The trees soil and hydrological environments will not be affected by the proposed development. Appropriate tree management in this situation would be the preservation of the tree.

5.21 The tree should be managed as per appendix 7 (Tree Protection Plan) and regular compliance inspections should be carried out to ensure tree's root zone is not being impacted by the proposed works and trunk protection works have been carried out. An AQF Level 5 arborist should be present at the pruning of branches of the tree overgrowing the site as per recognized standards, photographed and reported to Council as part of the ongoing management of the trees usually required by Council. All works are to be carried out as per Australian Standard AS 4970-2009 Protection of Trees on Development Sites

5.22 **Tree 979** (*Eucalyptus paniculata* Grey Ironbark) is a tree in good condition Appendix 1 gives a description of the tree as per AS-4970-2009 Section 2. Appendix 4 gives the location of the tree on the property.

5.23 The tree will not be affected by the proposed development (See Appendix 6 Construction Impact Statement) as it will only have 0% incursion into the root TPZ of the tree (See Appendix 6). The trees soil and hydrological environments will not be affected by the proposed development. Appropriate tree management in this situation would be the preservation of the tree.

5.24 The tree should be managed as per appendix 7 (Tree Protection Plan) and regular compliance inspections should be carried out to ensure tree's root zone is not being impacted by the proposed works and trunk protection works have been carried out. An AQF Level 5 arborist should be present at the pruning of branches of the tree overgrowing the site as per recognized standards, photographed and reported to Council as part of the ongoing management of the trees usually required by Council. All works are to be carried out as per Australian Standard AS 4970-2009 Protection of Trees on Development Sites

5.25 **Tree 980** (*Eucalyptus paniculata* Grey Ironbark) is a tree in good condition Appendix 1 gives a description of the tree as per AS-4970-2009 Section 2. Appendix 4 gives the location of the tree on the property.

5.26 The tree will not be affected by the proposed development (See Appendix 6 Construction Impact Statement) as it will only have 0% incursion into the root TPZ of the tree (See Appendix 6). The trees soil and hydrological environments will not be affected by the proposed development. Appropriate tree management in this situation would be the preservation of the tree.

5.27 The tree should be managed as per appendix 7 (Tree Protection Plan) and regular compliance inspections should be carried out to ensure tree's root zone is not being impacted by the proposed works and trunk protection works have been carried out. An AQF Level 5 arborist should be present at the pruning of branches of the tree overgrowing the site as per recognized standards, photographed and reported to Council as part of the ongoing management of the trees usually required by Council. All works are to be carried out as per Australian Standard AS 4970-2009 Protection of Trees on Development Sites

5.28 **Tree 967** (*Eucalyptus saligna* Sydney Blue Gum) is a tree in good condition Appendix 1 gives a description of the tree as per AS-4970-2009 Section 2. Appendix 4 gives the location of the tree on the property.

5.29 The tree will not be affected by the proposed development (See Appendix 6 Construction Impact Statement) as it will only have 0% incursion into the root TPZ of the tree (See Appendix 6). The trees soil and hydrological environments will not be affected by the proposed development. Appropriate tree management in this situation would be the preservation of the tree.

5.30 The tree should be managed as per appendix 7 (Tree Protection Plan) and regular compliance inspections should be carried out to ensure tree's root zone is not being impacted by the proposed works and trunk protection works have been carried out. An AQF Level 5 arborist should be present at the pruning of branches of the tree overgrowing the site as per recognized standards, photographed and reported to Council as part of the ongoing management of the trees usually required by Council. All works are to be carried out as per Australian Standard AS 4970-2009 Protection of Trees on Development Sites

5.31 **Tree 966** (*Eucalyptus paniculata* Grey Ironbark) is a tree in good condition Appendix 1 gives a description of the tree as per AS-4970-2009 Section 2. Appendix 4 gives the location of the tree on the property.

5.32 The tree will not be affected by the proposed development (See Appendix 6 Construction Impact Statement) as it will only have 0% incursion into the root TPZ of the tree (See Appendix 6). The trees soil and hydrological environments will not be affected by the proposed development. Appropriate tree management in this situation would be the preservation of the tree.

5.33 The tree should be managed as per appendix 7 (Tree Protection Plan) and regular compliance inspections should be carried out to ensure tree's root zone is not being impacted by the proposed works and trunk protection works have been carried out. An AQF Level 5 arborist should be present at the pruning of branches of the tree overgrowing the site as per recognized standards, photographed and reported to Council as part of the ongoing management of the trees usually required by Council. All works are to be carried out as per Australian Standard AS 4970-2009 Protection of Trees on Development Sites

5.34 **Tree 970** (*Eucalyptus paniculata* Grey Ironbark) is a tree in good condition Appendix 1 gives a description of the tree as per AS-4970-2009 Section 2. Appendix 4 gives the location of the tree on the property.

5.35 The tree will not be affected by the proposed development (See Appendix 6 Construction Impact Statement) as it will only have 0% incursion into the root TPZ of the tree (See Appendix 6). The trees soil and hydrological environments will not be affected by the proposed development. Appropriate tree management in this situation would be the preservation of the tree.

5.36 The tree should be managed as per appendix 7 (Tree Protection Plan) and regular compliance inspections should be carried out to ensure tree's root zone is not being impacted by the proposed works and trunk protection works have been carried out. An AQF Level 5 arborist should be present at the pruning of branches of the tree overgrowing the site as per recognized standards, photographed and reported to Council as part of the ongoing management of the trees usually required by Council. All works are to be carried out as per Australian Standard AS 4970-2009 Protection of Trees on Development Sites

5.37 **Tree 974** (*Eucalyptus resinfera* Red Mahogany) is a tree in good condition Appendix 1 gives a description of the tree as per AS-4970-2009 Section 2. Appendix 4 gives the location of the tree on the property.

5.38 The tree will not be affected by the proposed development (See Appendix 6 Construction Impact Statement) as it will only have 0% incursion into the root TPZ of the tree (See Appendix 6). The trees soil and hydrological environments will not be affected by the proposed development. Appropriate tree management in this situation would be the preservation of the tree.

5.39 The tree should be managed as per appendix 7 (Tree Protection Plan) and regular compliance inspections should be carried out to ensure tree's root zone is not being impacted by the proposed works and trunk protection works have been carried out. An AQF Level 5 arborist should be present at the pruning of branches of the tree overgrowing the site as per recognized standards, photographed and reported to Council as part of the ongoing management of the trees usually required by Council. All works are to be carried out as per Australian Standard AS 4970-2009 Protection of Trees on Development Sites.

5.40 **Tree 975** (*Eucalyptus resinfera* Red Mahogany) is a tree in good condition Appendix 1 gives a description of the tree as per AS-4970-2009 Section 2. Appendix 4 gives the location of the tree on the property.

5.41 The tree will not be affected by the proposed development (See Appendix 6 Construction Impact Statement) as it will only have 0% incursion into the root TPZ of the tree (See Appendix 6). The trees soil and hydrological environments will not be affected by the proposed development. Appropriate tree management in this situation would be the preservation of the tree.

5.42 The tree should be managed as per appendix 7 (Tree Protection Plan) and regular compliance inspections should be carried out to ensure tree's root zone is not being impacted by the proposed works and trunk protection works have been carried out. An AQF Level 5 arborist should be present at the pruning of branches of the tree overgrowing the site as per recognized standards, photographed and reported to Council as part of the ongoing management of the trees usually required by Council. All works are to be carried out as per Australian Standard AS 4970-2009 Protection of Trees on Development Sites.

5.43 **Tree 976** (*Eucalyptus paniculata* Grey Ironbark) is a tree in good condition Appendix 1 gives a description of the tree as per AS-4970-2009 Section 2. Appendix 4 gives the location of the tree on the property.

5.44 The tree will not be affected by the proposed development (See Appendix 6 Construction Impact Statement) as it will only have 0% incursion into the root TPZ of the tree (See Appendix 6). The trees soil and hydrological environments will not be affected by the proposed development. Appropriate tree management in this situation would be the preservation of the tree.

5.45 The tree should be managed as per appendix 7 (Tree Protection Plan) and regular compliance inspections should be carried out to ensure tree's root zone is not being impacted by the proposed works and trunk protection works have been carried out. An AQF Level 5 arborist should be present at the pruning of branches of the tree overgrowing the site as per recognized standards, photographed and reported to Council as part of the ongoing management of the trees usually required by Council. All works are to be carried out as per Australian Standard AS 4970-2009 Protection of Trees on Development Sites.

5.46 **Tree 977** (*Syncarpia glomulifera* Turpentine) is a tree in good condition Appendix 1 gives a description of the tree as per AS-4970-2009 Section 2. Appendix 4 gives the location of the tree on the property.

5.47 The tree will not be affected by the proposed development (See Appendix 6 Construction Impact Statement) as it will only have 0% incursion into the root TPZ of the tree (See Appendix 6). The trees soil and hydrological environments will not be affected by the proposed development. Appropriate tree management in this situation would be the preservation of the tree.

5.48 The tree should be managed as per appendix 7 (Tree Protection Plan) and regular compliance inspections should be carried out to ensure tree's root zone is not being impacted by the proposed works and trunk protection works have been carried out. An AQF Level 5 arborist should be present at the pruning of branches of the tree overgrowing the site as per recognized standards, photographed and reported to Council as part of the ongoing management of the trees usually required by Council. All works are to be carried out as per Australian Standard AS 4970-2009 Protection of Trees on Development Sites.

5.49 **Tree 982** (*Eucalyptus paniculata* Grey Ironbark) is a tree in good condition Appendix 1 gives a description of the tree as per AS-4970-2009 Section 2. Appendix 4 gives the location of the tree on the property.

5.50 The tree will not be affected by the proposed development (See Appendix 6 Construction Impact Statement) as it will only have 0% incursion into the root TPZ of the tree (See Appendix 6). The trees soil and hydrological environments will not be affected by the proposed development. Appropriate tree management in this situation would be the preservation of the tree.

5.51 The tree should be managed as per appendix 7 (Tree Protection Plan) and regular compliance inspections should be carried out to ensure tree's root zone is not being impacted by the proposed works and trunk protection works have been carried out. An AQF Level 5 arborist should be present at the pruning of branches

of the tree overgrowing the site as per recognized standards, photographed and reported to Council as part of the ongoing management of the trees usually required by Council. All works are to be carried out as per Australian Standard AS 4970-2009 Protection of Trees on Development Sites

5.52 **Tree 996** (*Eucalyptus saligna* Sydney Blue Gum) is a tree in good condition Appendix 1 gives a description of the tree as per AS-4970-2009 Section 2. Appendix 4 gives the location of the tree on the property.

5.53 The tree will not be affected by the proposed development (See Appendix 6 Construction Impact Statement) as it will only have 0% incursion into the root TPZ of the tree (See Appendix 6). The trees soil and hydrological environments will not be affected by the proposed development. Appropriate tree management in this situation would be the preservation of the tree.

5.54 The tree should be managed as per appendix 7 (Tree Protection Plan) and regular compliance inspections should be carried out to ensure tree's root zone is not being impacted by the proposed works and trunk protection works have been carried out. An AQF Level 5 arborist should be present at the pruning of branches of the tree overgrowing the site as per recognized standards, photographed and reported to Council as part of the ongoing management of the trees usually required by Council. All works are to be carried out as per Australian Standard AS 4970-2009 Protection of Trees on Development Sites.

5.55 **Tree 998** (*Eucalyptus saligna* Sydney Blue Gum) is a tree in good condition Appendix 1 gives a description of the tree as per AS-4970-2009 Section 2. Appendix 4 gives the location of the tree on the property.

5.56 The tree will not be affected by the proposed development (See Appendix 6 Construction Impact Statement) as it will only have 0% incursion into the root TPZ of the tree (See Appendix 6). The trees soil and hydrological environments will not be affected by the proposed development. Appropriate tree management in this situation would be the preservation of the tree.

5.57 The tree should be managed as per appendix 7 (Tree Protection Plan) and regular compliance inspections should be carried out to ensure tree's root zone is not being impacted by the proposed works and trunk protection works have been carried out. An AQF Level 5 arborist should be present at the pruning of branches of the tree overgrowing the site as per recognized standards, photographed and reported to Council as part of the ongoing management of the trees usually required by Council. All works are to be carried out as per Australian Standard AS 4970-2009 Protection of Trees on Development Sites.

5.58 **Tree 999** (*Eucalyptus scoparia* Willow Gum) is a tree in good condition Appendix 1 gives a description of the tree as per AS-4970-2009 Section 2. Appendix 4 gives the location of the tree on the property.

5.59 The tree will not be affected by the proposed development (See Appendix 6 Construction Impact Statement) as it will only have 0% incursion into the root TPZ of the tree (See Appendix 6). The trees soil and hydrological environments will not be affected by the proposed development. Appropriate tree management in this situation would be the preservation of the tree.

5.60 The tree should be managed as per appendix 7 (Tree Protection Plan) and regular compliance inspections should be carried out to ensure tree's root zone is not being impacted by the proposed works and trunk protection works have been carried out. An AQF Level 5 arborist should be present at the pruning of branches of the tree overgrowing the site as per recognized standards, photographed and reported to Council as part of the ongoing management of the trees usually required by Council. All works are to be carried out as per Australian Standard AS 4970-2009 Protection of Trees on Development Sites

5.61 **Tree 1774** (*Eucalyptus paniculata* Grey Ironbark) is a tree in good condition Appendix 1 gives a description of the tree as per AS-4970-2009 Section 2. Appendix 4 gives the location of the tree on the property.

5.62 The tree will not be affected by the proposed development (See Appendix 6 Construction Impact Statement) as it will only have 0% incursion into the root TPZ of the tree (See Appendix 6). The trees soil and hydrological environments will not be affected by the proposed development. Appropriate tree management in this situation would be the preservation of the tree.

5.63 The tree should be managed as per appendix 7 (Tree Protection Plan) and regular compliance inspections should be carried out to ensure tree's root zone is not being impacted by the proposed works and trunk protection works have been carried out. An AQF Level 5 arborist should be present at the pruning of branches of the tree overgrowing the site as per recognized standards, photographed and reported to Council as part of the ongoing management of the trees usually required by Council. All works are to be carried out as per Australian Standard AS 4970-2009 Protection of Trees on Development Sites

5.64 The following trees may be required to be protected as per the Tree Management Plan in Appendix 7 if an extra access road is required.

51,950,943,942,932,931,939,927,924,963,962,954,958,957,956,955,924,923,1771,1770,923,1772,1769,1766, 1767,1768, 910,911,912,882,900,889,1765,864,880,863,861,860,844,845,846,847,843,840,841,838,839,855,834,837,833,832,835,834,1010,847,831,850,829 and 828

6. Overall Recommendations from Arboricultural assessment and Development impact Statements

6.1 Trees (Numbers 1775, 1011, 1002,988,987,986, 984, 981, 979, 980, 967, 966, 970, 974, 975, 976, 977, 982, 996, 998, 999, 1774) will not be impacted by the proposed development and mitigation works as suggested above should be carried out. Some pruning of branches will be required and the works should be carried out by an AQF 3 Arborist as per the Australian Standard of Amenity Pruning AS4373-2007.

6.2 Trees 1035, 1021,1018 and 1019 will require removal to allow access for trucks to the site.

6.3 All mitigation works as advised above are to be carried out so that the proposed

works can be carried out.

6.4 If any trees are considered by Council to be preserved an AQF 5 Arborist should be on site during all future excavation works near the tree. Furthermore, the site arborist should carry out regular inspections to ensure compliance with Appendix 6 AIS.

6.5 This will include compliance certifications being issued before construction commences that all tree protection measures are installed, that an AQF Level 5 Arborist is present during excavations to ensure roots are not damaged before further works can be commenced and a compliance certificate is issued prior to further works being carried out and a compliance certificate being issued when the development has been completed before the development can be occupied.

6.6 That all tree pruning works if required are carried out as per the Australian Standard AS 4373-2007 Pruning of amenity trees and as per the Code of Practice Amenity Tree Industry August 1998. Works specified in Appendix 7 Arboricultural Impact Statement are to be followed.

6.7 That tree works is to be carried out, by a suitably qualified arborist with adequate Public Liability Coverage. The Tree Contractors Association of NSW recommends 20 million Dollars coverage.

7. Analyse of Plans

The plans from an arboricultural point of view will not, significantly impact the trees (Numbers 1775, 1011, 1002,988,987,986, 984, 981, 979, 980, 967, 966, 970, 974, 975, 976, 977, 982, 996, 998, 999, 1774) which should be preserved and protected as per the Generic Tree Management Plan in appendix 7 and the Tree Specific Management Plan Detail and Specifications in appendix 7

8. Assessment of Impact of Development on Trees

In my opinion trees 1775, 1011, 1002,988,987,986, 984, 981, 979, 980, 967, 966, 970, 974, 975, 976, 977, 982, 996, 998, 999, 1774, will not be affected in anyway by the proposed works as can be seen from the plans in Appendix 4 of this report.

The presence of the Site Arborist at the site to supervise pruning of the tree will be required and compliance inspections and reports will be required at the commencement of the project to ensure all protection measures are installed, at the middle of the project to ensure all protection measures are continuing to be provide protection tree protection on the site and at the completion of the project to ensure all tree protection measures have been uninstalled.

Compliance with the Generic Tree Management Plan in Appendix 7 is strongly recommended throughout the construction of the new proposed development.

Trees 1035 (which is dead) , 1021, 1018 and 1019 will require removal for truck access to the site.

All works are to be carried out as per the Australian Standard AS 4970-2009 Protection of

Mark Bury Principal Consultant Mark Bury Consulting

MarkBury

AQF Level 5 Arborist Hortus Australia National Code 1042 Diploma of Horticulture/Arboriculture Parchment Number 6621 31st January 2006 Course Code RTF50203 International Society of Arboriculture Certified Arborist and Municipal
Arborist License Number AU-0345AM

Appendix 1 - Tree Schedule

Tree Number	1775
Species	*Callistemon salignus*
Common Name	White Bottlebrush
Vigour	Normal Vigour- Ability of a tree to maintain and sustain its life processes. This may be evident by the typical growth of leaves, crown cover and crown density, branches, roots and trunk and resistance to predation. This is independent of the condition of a tree but may impact upon it, and especially the ability of a tree but may impact upon it, and especially the ability of a tree to sustain itself against predation
Condition	Fair Condition - tree is of good habit or misshapen, a form not severely restricted for space and light has some physical indication of decline due to the early effects of predation by pests and diseases, fungal, bacterial, or insect infestation, or has suffered physical injury to itself that may be contributing to instability or structural weaknesses, or its basic survival. Such a tree may recover with remedial works where appropriate, or without intervention may stabilise or improve over time where appropriate, or without intervention may stabilise or improve over time, or in response to the implementation of beneficial changes to its local environment. This may be independent from, or contributed to by vigour.
Form	Poor Form - Tree of atypical crown shape and habit with proportions not representative of the species considering constraints and appears to have been adversely influenced in its development by environmental factors in situ such as soil water availability, prevailing winds cultural practices such as lopping and competition for space and light; causing it to be misshapen on disfigured by disease or vandalism
Height (M)	5
Crown Spread and (M)	5
Diameter at Brest Height (MM) **Tree Root Zone (M)**	150 2
Diameter at Base Height (MM) **Structural Root Zone (M)**	150 1.5
Age Class	Mature- Tree aged 20-80% of life expectancy
Estimated Life Expectancy Sule **Landscape Significance** **Overall Significance** **See Attachment 3**	3b- Trees that may live for more than 15 years but would be removed for safety or nuisance reasons. Overall Significance. Medium –Tree Suitable for Preservation See Appendix 3 SULE and Significance of a Tree Assessment Rating System IACA Australia SULE and Significance of a Tree Assessment Rating System IACA Australia
Heritage/Cultural	Tree does not have a Heritage or Cultural Significance
Ecological and Habitat Matters	Tree has no Ecological or Habitat matters
Location to Site Features	The tree will be required to be preserved for the development to be constructed on the site, pruning to be carried out as per Tree Management Plan. The tree has wounds
Tree Protection	Tree to be protected as per Generic and Individual tree management plans in appendix 7

Tree Number	1018
Species	*Eucalyptus paniculata*
Common Name	Grey Ironbark
Vigour	**Low vigour**- Reduced ability of a tree to sustain its life processors. This may be evident by a typical growth of leaves, reduced crown cover and reduced crown density, branches, roots and trunk, and a deterioration of their function with reduced resistance to predation. This is independent of the condition of a tree but may impact upon it , and especially the ability of a tree to sustain itself against predation
Condition	**Poor Condition**- Tree is of good habit or misshapen, a form that may be severely restricted for space and light , exhibits symptoms of advanced and irreversible decline such as fungal or bacterial infestation, major dieback in the branch and Foilage crown , structural deterioration from insect damage . Deterioration physically often characterised by a gradual and continuous reduction on vigour but maybe I dependent of a change in vigour but characterised by a proportionate increase in susceptibility to and predation by pests and diseases against which the tree cannot be sustained. Such conditions may also be evident in trees of advanced senescence due to normal phenological processors, without modifications to the growing environment or physical damage having been inflicted upon the tree. This may be dependent from or contributed to by vigour
Form	**Poor Form** - Tree of atypical crown shape and habit with proportions not representative of the species considering constraints and appears to have been adversely influenced in its development by environmental factors in situ such as soil water availability, prevailing winds cultural practices such as lopping and competition for space and light; causing it to be misshapen on disfigured by disease or vandalism
Height (M)	25
Crown Spread and (M)	15
Diameter at Brest Height (MM) **Tree Root Zone (M)**	750 9
Diameter at Base Height (MM) **Structural Root Zone (M)**	810 3.1
Age Class	Mature- Tree aged 20-80% of life expectancy
Estimated Life Expectancy Sule **Landscape Significance** **Overall Significance** **See Attachment 3**	3b- Trees that may live for more than 15 years but would be removed for safety or nuisance reasons. Overall Significance. Medium –Tree Not Suitable for Preservation See Appendix 3 SULE and Significance of a Tree Assessment Rating System IACA Australia SULE and Significance of a Tree Assessment Rating System IACA Australia
Heritage/Cultural	Tree does not have a Heritage or Cultural Significance
Ecological and Habitat Matters	Tree has no Ecological or Habitat matters
Location to Site Features	The tree will be required to be removed for the development to be constructed on the site Deadwood/stubs < 30mm; Epicormic growth; Previous failure(s); Soil problems; Wound(s); .
Tree Protection	N/A

Tree Number	1017
Species	*Eucalyptus microcorys*
Common Name	Tallowood
Vigour	Normal Vigour- Ability of a tree to maintain and sustain its life processes. This may be evident by the typical growth of leaves, crown cover and crown density, branches, roots and trunk and resistance to predation. This is independent of the condition of a tree but may impact upon it, and especially the ability of a tree but may impact upon it, and especially the ability of a tree to sustain itself against predation
Condition	Fair Condition - tree is of good habit or misshapen, a form not severely restricted for space and light has some physical indication of decline due to the early effects of predation by pests and diseases, fungal, bacterial, or insect infestation, or has suffered physical injury to itself that may be contributing to instability or structural weaknesses, or its basic survival. Such a tree may recover with remedial works where appropriate, or without intervention may stabilise or improve over time where appropriate, or without intervention may stabilise or improve over time, or in response to the implementation of beneficial changes to its local environment. This may be independent from, or contributed to by vigour.
Form	Poor Form - Tree of atypical crown shape and habit with proportions not representative of the species considering constraints and appears to have been adversely influenced in its development by environmental factors in situ such as soil water availability, prevailing winds cultural practices such as lopping and competition for space and light; causing it to be misshapen on disfigured by disease or vandalism
Height (M)	15
Crown Spread and (M)	10
Diameter at Brest Height (MM) **Tree Root Zone (M)**	500 6
Diameter at Base Height (MM) **Structural Root Zone (M)**	540 2.5
Age Class	Mature- Tree aged 20-80% of life expectancy
Estimated Life Expectancy Sule **Landscape Significance** **Overall Significance** **See Attachment 3**	3b- Trees that may live for more than 15 years but would be removed for safety or nuisance reasons. Overall Significance. Medium –Tree Suitable for Preservation See Appendix 3 SULE and Significance of a Tree Assessment Rating System IACA Australia SULE and Significance of a Tree Assessment Rating System IACA Australia
Heritage/Cultural	Tree does not have a Heritage or Cultural Significance
Ecological and Habitat Matters	Tree has no Ecological or Habitat matters
Location to Site Features	The tree will be required to be preserved for the development to be constructed on the site, pruning to be carried out as per Tree Management Plan. Crossing/rubbing branches; Deadwood/stubs < 30mm; Dieback; Epicormic growth; Excessive thinning; Mechanical damage to root(s); Soil compaction; Soil problems; Wound(s);
Tree Protection	Tree to be protected as per Generic and Individual tree management plans in appendix 7

Tree Number	1002
Species	*Eucalyptus paniculata*
Common Name	Grey Ironbark
Vigour	Normal Vigour- Ability of a tree to maintain and sustain its life processes. This may be evident by the typical growth of leaves, crown cover and crown density, branches, roots and trunk and resistance to predation. This is independent of the condition of a tree but may impact upon it, and especially the ability of a tree but may impact upon it, and especially the ability of a tree to sustain itself against predation
Condition	Fair Condition - tree is of good habit or misshapen, a form not severely restricted for space and light has some physical indication of decline due to the early effects of predation by pests and diseases, fungal, bacterial, or insect infestation, or has suffered physical injury to itself that may be contributing to instability or structural weaknesses, or its basic survival. Such a tree may recover with remedial works where appropriate, or without intervention may stabilise or improve over time where appropriate, or without intervention may stabilise or improve over time, or in response to the implementation of beneficial changes to its local environment. This may be independent from, or contributed to by vigour.
Form	Good form -Tree of typical crown shape and habit with proportions representative of the taxa considering constraints such as origin e.g. indigenous exotic, but does not appear to have been adversely influenced on its development by environment factors in situ such as soil water availability prevailing wind of cultural practices such as lopping and competition for space and light.
Height (M)	30
Crown Spread and (M)	15
Diameter at Brest Height (MM) **Tree Root Zone (M)**	900 10.8
Diameter at Base Height (MM) **Structural Root Zone (M)**	1020 3.5
Age Class	Mature- Tree aged 20-80% of life expectancy
Estimated Life Expectancy Sule **Landscape Significance** **Overall Significance** **See Attachment 3**	3b- Trees that may live for more than 15 years but would be removed for safety or nuisance reasons. Overall Significance. Medium –Tree Suitable for Preservation See Appendix 3 SULE and Significance of a Tree Assessment Rating System IACA Australia SULE and Significance of a Tree Assessment Rating System IACA Australia
Heritage/Cultural	Tree does not have a Heritage or Cultural Significance
Ecological and Habitat Matters	Tree has no Ecological or Habitat matters
Location to Site Features	The tree will be required to be preserved for the development to be constructed on the site, pruning to be carried out as per Tree Management Plan. Co-dominant stems; Deadwood/stubs < 30mm; Epicormic growth; Soil problems;
Tree Protection	Tree to be protected as per Generic and Individual tree management plans in appendix 7

Tree Number	988
Species	*Syncarpia glomulifera*
Common Name	Turpentine
Vigour	Normal Vigour- Ability of a tree to maintain and sustain its life processes. This may be evident by the typical growth of leaves, crown cover and crown density, branches, roots and trunk and resistance to predation. This is independent of the condition of a tree but may impact upon it, and especially the ability of a tree but may impact upon it, and especially the ability of a tree to sustain itself against predation
Condition	Fair Condition - tree is of good habit or misshapen, a form not severely restricted for space and light has some physical indication of decline due to the early effects of predation by pests and diseases, fungal, bacterial, or insect infestation, or has suffered physical injury to itself that may be contributing to instability or structural weaknesses, or its basic survival. Such a tree may recover with remedial works where appropriate, or without intervention may stabilise or improve over time where appropriate, or without intervention may stabilise or improve over time, or in response to the implementation of beneficial changes to its local environment. This may be independent from, or contributed to by vigour.
Form	Good form -Tree of typical crown shape and habit with proportions representative of the taxa considering constraints such as origin e.g. indigenous exotic, but does not appear to have been adversely influenced on its development by environment factors in situ such as soil water availability prevailing wind of cultural practices such as lopping and competition for space and light.
Height (M)	20
Crown Spread and (M)	15
Diameter at Brest Height (MM) **Tree Root Zone (M)**	900 10.8
Diameter at Base Height (MM) **Structural Root Zone (M)**	1080 3.4
Age Class	Mature- Tree aged 20-80% of life expectancy
Estimated Life Expectancy Sule **Landscape Significance** **Overall Significance** **See Attachment 3**	3b- Trees that may live for more than 15 years but would be removed for safety or nuisance reasons. Overall Significance. Medium –Tree Suitable for Preservation See Appendix 3 SULE and Significance of a Tree Assessment Rating System IACA Australia SULE and Significance of a Tree Assessment Rating System IACA Australia
Heritage/Cultural	Tree does not have a Heritage or Cultural Significance
Ecological and Habitat Matters	Tree has no Ecological or Habitat matters
Location to Site Features	The tree will be required to be preserved for the development to be constructed on the site, pruning to be carried out as per Tree Management Plan. Co-dominant stems; Epicormic growth; Included bark;
Tree Protection	Tree to be protected as per Generic and Individual tree management plans in appendix 7

Tree Number	987
Species	*Eucalyptus paniculata*
Common Name	Grey Ironbark
Vigour	Normal Vigour- Ability of a tree to maintain and sustain its life processes. This may be evident by the typical growth of leaves, crown cover and crown density, branches, roots and trunk and resistance to predation. This is independent of the condition of a tree but may impact upon it, and especially the ability of a tree but may impact upon it, and especially the ability of a tree to sustain itself against predation
Condition	Fair Condition - tree is of good habit or misshapen, a form not severely restricted for space and light has some physical indication of decline due to the early effects of predation by pests and diseases, fungal, bacterial, or insect infestation, or has suffered physical injury to itself that may be contributing to instability or structural weaknesses, or its basic survival. Such a tree may recover with remedial works where appropriate, or without intervention may stabilise or improve over time where appropriate, or without intervention may stabilise or improve over time, or in response to the implementation of beneficial changes to its local environment. This may be independent from, or contributed to by vigour.
Form	Poor Form - Tree of atypical crown shape and habit with proportions not representative of the species considering constraints and appears to have been adversely influenced in its development by environmental factors in situ such as soil water availability, prevailing winds cultural practices such as lopping and competition for space and light; causing it to be misshapen on disfigured by disease or vandalism
Height (M)	20
Crown Spread and (M)	15
Diameter at Brest Height (MM) **Tree Root Zone (M)**	500 6
Diameter at Base Height (MM) **Structural Root Zone (M)**	580 2.6
Age Class	Mature- Tree aged 20-80% of life expectancy
Estimated Life Expectancy Sule **Landscape Significance** **Overall Significance** **See Attachment 3**	3b- Trees that may live for more than 15 years but would be removed for safety or nuisance reasons. Overall Significance. Medium –Tree Suitable for Preservation See Appendix 3 SULE and Significance of a Tree Assessment Rating System IACA Australia SULE and Significance of a Tree Assessment Rating System IACA Australia
Heritage/Cultural	Tree does not have a Heritage or Cultural Significance
Ecological and Habitat Matters	Tree has no Ecological or Habitat matters
Location to Site Features	The tree will be required to be preserved for the development to be constructed on the site, pruning to be carried out as per Tree Management Plan. Epicormic growth; Previous failure(s); Soil problems;
Tree Protection	Tree to be protected as per Generic and Individual tree management plans in appendix 7

Tree Number	986
Species	*Eucalyptus resinfera*
Common Name	Red Mahogany
Vigour	Normal Vigour- Ability of a tree to maintain and sustain its life processes. This may be evident by the typical growth of leaves, crown cover and crown density, branches, roots and trunk and resistance to predation. This is independent of the condition of a tree but may impact upon it, and especially the ability of a tree but may impact upon it, and especially the ability of a tree to sustain itself against predation
Condition	Fair Condition - tree is of good habit or misshapen, a form not severely restricted for space and light has some physical indication of decline due to the early effects of predation by pests and diseases, fungal, bacterial, or insect infestation, or has suffered physical injury to itself that may be contributing to instability or structural weaknesses, or its basic survival. Such a tree may recover with remedial works where appropriate, or without intervention may stabilise or improve over time where appropriate, or without intervention may stabilise or improve over time, or in response to the implementation of beneficial changes to its local environment. This may be independent from, or contributed to by vigour.
Form	Poor Form - Tree of atypical crown shape and habit with proportions not representative of the species considering constraints and appears to have been adversely influenced in its development by environmental factors in situ such as soil water availability, prevailing winds cultural practices such as lopping and competition for space and light; causing it to be misshapen on disfigured by disease or vandalism
Height (M)	30
Crown Spread and (M)	15
Diameter at Brest Height (MM) **Tree Root Zone (M)**	500 6
Diameter at Base Height (MM) **Structural Root Zone (M)**	550 2.6
Age Class	Mature- Tree aged 20-80% of life expectancy
Estimated Life Expectancy Sule **Landscape Significance** **Overall Significance** **See Attachment 3**	3b- Trees that may live for more than 15 years but would be removed for safety or nuisance reasons. Overall Significance. Medium –Tree Suitable for Preservation See Appendix 3 SULE and Significance of a Tree Assessment Rating System IACA Australia SULE and Significance of a Tree Assessment Rating System IACA Australia
Heritage/Cultural	Tree does not have a Heritage or Cultural Significance
Ecological and Habitat Matters	Tree has no Ecological or Habitat matters
Location to Site Features	The tree will be required to be preserved for the development to be constructed on the site, pruning to be carried out as per Tree Management Plan. Cavity(s); Deadwood/stubs < 30mm; Epicormic growth; Previous failure(s); Soil problems; Suppressed;
Tree Protection	Tree to be protected as per Generic and Individual tree management plans in appendix 7

Tree Number	984
Species	*Eucalyptus paniculata*
Common Name	Grey Ironbark
Vigour	Normal Vigour- Ability of a tree to maintain and sustain its life processes. This may be evident by the typical growth of leaves, crown cover and crown density, branches, roots and trunk and resistance to predation. This is independent of the condition of a tree but may impact upon it, and especially the ability of a tree but may impact upon it, and especially the ability of a tree to sustain itself against predation
Condition	Fair Condition - tree is of good habit or misshapen, a form not severely restricted for space and light has some physical indication of decline due to the early effects of predation by pests and diseases, fungal, bacterial, or insect infestation, or has suffered physical injury to itself that may be contributing to instability or structural weaknesses, or its basic survival. Such a tree may recover with remedial works where appropriate, or without intervention may stabilise or improve over time where appropriate, or without intervention may stabilise or improve over time, or in response to the implementation of beneficial changes to its local environment. This may be independent from, or contributed to by vigour.
Form	Poor Form - Tree of atypical crown shape and habit with proportions not representative of the species considering constraints and appears to have been adversely influenced in its development by environmental factors in situ such as soil water availability, prevailing winds cultural practices such as lopping and competition for space and light; causing it to be misshapen on disfigured by disease or vandalism
Height (M)	10
Crown Spread and (M)	5
Diameter at Brest Height (MM) **Tree Root Zone (M)**	150 2
Diameter at Base Height (MM) **Structural Root Zone (M)**	150 1.5
Age Class	Mature- Tree aged 20-80% of life expectancy
Estimated Life Expectancy Sule **Landscape Significance** **Overall Significance** **See Attachment 3**	3b- Trees that may live for more than 15 years but would be removed for safety or nuisance reasons. Overall Significance. Medium –Tree Suitable for Preservation See Appendix 3 SULE and Significance of a Tree Assessment Rating System IACA Australia SULE and Significance of a Tree Assessment Rating System IACA Australia
Heritage/Cultural	Tree does not have a Heritage or Cultural Significance
Ecological and Habitat Matters	Tree has no Ecological or Habitat matters
Location to Site Features	The tree will be required to be preserved for the development to be constructed on the site, pruning to be carried out as per Tree Management Plan. Deadwood/stubs > 100mm; Epicormic growth; Previous failure(s); Suppressed; Wound(s);
Tree Protection	Tree to be protected as per Generic and Individual tree management plans in appendix 7

Tree Number	981
Species	*Eucalyptus paniculata*
Common Name	Grey Ironbark
Vigour	Normal Vigour- Ability of a tree to maintain and sustain its life processes. This may be evident by the typical growth of leaves, crown cover and crown density, branches, roots and trunk and resistance to predation. This is independent of the condition of a tree but may impact upon it, and especially the ability of a tree but may impact upon it, and especially the ability of a tree to sustain itself against predation
Condition	Fair Condition - tree is of good habit or misshapen, a form not severely restricted for space and light has some physical indication of decline due to the early effects of predation by pests and diseases, fungal, bacterial, or insect infestation, or has suffered physical injury to itself that may be contributing to instability or structural weaknesses, or its basic survival. Such a tree may recover with remedial works where appropriate, or without intervention may stabilise or improve over time where appropriate, or without intervention may stabilise or improve over time, or in response to the implementation of beneficial changes to its local environment. This may be independent from, or contributed to by vigour.
Form	Poor Form - Tree of atypical crown shape and habit with proportions not representative of the species considering constraints and appears to have been adversely influenced in its development by environmental factors in situ such as soil water availability, prevailing winds cultural practices such as lopping and competition for space and light; causing it to be misshapen on disfigured by disease or vandalism
Height (M)	15
Crown Spread and (M)	10
Diameter at Brest Height (MM) **Tree Root Zone (M)**	200 2.4
Diameter at Base Height (MM) **Structural Root Zone (M)**	250 1.9
Age Class	Mature- Tree aged 20-80% of life expectancy
Estimated Life Expectancy Sule **Landscape Significance** **Overall Significance** **See Attachment 3**	3b- Trees that may live for more than 15 years but would be removed for safety or nuisance reasons. Overall Significance. Medium –Tree Suitable for Preservation See Appendix 3 SULE and Significance of a Tree Assessment Rating System IACA Australia SULE and Significance of a Tree Assessment Rating System IACA Australia
Heritage/Cultural	Tree does not have a Heritage or Cultural Significance
Ecological and Habitat Matters	Tree has no Ecological or Habitat matters
Location to Site Features	The tree will be required to be preserved for the development to be constructed on the site, pruning to be carried out as per Tree Management Plan. Deadwood/stubs > 30mm; Epicormic growth; Soil grade changes; Suppressed;
Tree Protection	Tree to be protected as per Generic and Individual tree management plans in appendix 7

Tree Number	979
Species	*Eucalyptus paniculata*
Common Name	Grey Ironbark
Vigour	Normal Vigour- Ability of a tree to maintain and sustain its life processes. This may be evident by the typical growth of leaves, crown cover and crown density, branches, roots and trunk and resistance to predation. This is independent of the condition of a tree but may impact upon it, and especially the ability of a tree but may impact upon it, and especially the ability of a tree to sustain itself against predation
Condition	Fair Condition - tree is of good habit or misshapen, a form not severely restricted for space and light has some physical indication of decline due to the early effects of predation by pests and diseases, fungal, bacterial, or insect infestation, or has suffered physical injury to itself that may be contributing to instability or structural weaknesses, or its basic survival. Such a tree may recover with remedial works where appropriate, or without intervention may stabilise or improve over time where appropriate, or without intervention may stabilise or improve over time, or in response to the implementation of beneficial changes to its local environment. This may be independent from, or contributed to by vigour.
Form	Poor Form - Tree of atypical crown shape and habit with proportions not representative of the species considering constraints and appears to have been adversely influenced in its development by environmental factors in situ such as soil water availability, prevailing winds cultural practices such as lopping and competition for space and light; causing it to be misshapen on disfigured by disease or vandalism
Height (M)	30
Crown Spread and (M)	15
Diameter at Brest Height (MM) **Tree Root Zone (M)**	350 4.2
Diameter at Base Height (MM) **Structural Root Zone (M)**	480 2.7
Age Class	Mature- Tree aged 20-80% of life expectancy
Estimated Life Expectancy Sule **Landscape Significance** **Overall Significance** **See Attachment 3**	3b- Trees that may live for more than 15 years but would be removed for safety or nuisance reasons. Overall Significance. Medium –Tree Suitable for Preservation See Appendix 3 SULE and Significance of a Tree Assessment Rating System IACA Australia SULE and Significance of a Tree Assessment Rating System IACA Australia
Heritage/Cultural	Tree does not have a Heritage or Cultural Significance
Ecological and Habitat Matters	Tree has no Ecological or Habitat matters
Location to Site Features	The tree will be required to be preserved for the development to be constructed on the site, pruning to be carried out as per Tree Management Plan. Deadwood/stubs < 30mm; Epicormic growth; Soil compaction; Soil grade changes; Suppressed; Wound(s);
Tree Protection	Tree to be protected as per Generic and Individual tree management plans in appendix 7

Tree Number	980
Species	*Eucalyptus paniculata*
Common Name	Grey Ironbark
Vigour	Normal Vigour- Ability of a tree to maintain and sustain its life processes. This may be evident by the typical growth of leaves, crown cover and crown density, branches, roots and trunk and resistance to predation. This is independent of the condition of a tree but may impact upon it, and especially the ability of a tree but may impact upon it, and especially the ability of a tree to sustain itself against predation
Condition	Fair Condition - tree is of good habit or misshapen, a form not severely restricted for space and light has some physical indication of decline due to the early effects of predation by pests and diseases, fungal, bacterial, or insect infestation, or has suffered physical injury to itself that may be contributing to instability or structural weaknesses, or its basic survival. Such a tree may recover with remedial works where appropriate, or without intervention may stabilise or improve over time where appropriate, or without intervention may stabilise or improve over time, or in response to the implementation of beneficial changes to its local environment. This may be independent from, or contributed to by vigour.
Form	Poor Form - Tree of atypical crown shape and habit with proportions not representative of the species considering constraints and appears to have been adversely influenced in its development by environmental factors in situ such as soil water availability, prevailing winds cultural practices such as lopping and competition for space and light; causing it to be misshapen on disfigured by disease or vandalism
Height (M)	30
Crown Spread and (M)	15
Diameter at Brest Height (MM) **Tree Root Zone (M)**	700 8.4
Diameter at Base Height (MM) **Structural Root Zone (M)**	890 3.2
Age Class	Mature- Tree aged 20-80% of life expectancy
Estimated Life Expectancy Sule **Landscape Significance** **Overall Significance** **See Attachment 3**	3b- Trees that may live for more than 15 years but would be removed for safety or nuisance reasons. Overall Significance. Medium –Tree Suitable for Preservation See Appendix 3 SULE and Significance of a Tree Assessment Rating System IACA Australia SULE and Significance of a Tree Assessment Rating System IACA Australia
Heritage/Cultural	Tree does not have a Heritage or Cultural Significance
Ecological and Habitat Matters	Tree has no Ecological or Habitat matters
Location to Site Features	The tree will be required to be preserved for the development to be constructed on the site, pruning to be carried out as per Tree Management Plan.
Tree Protection	Tree to be protected as per Generic and Individual tree management plans in appendix 7

Tree Number	967
Species	*Eucalyptus saligna*
Common Name	Sydney Blue Gum
Vigour	Normal Vigour- Ability of a tree to maintain and sustain its life processes. This may be evident by the typical growth of leaves, crown cover and crown density, branches, roots and trunk and resistance to predation. This is independent of the condition of a tree but may impact upon it, and especially the ability of a tree but may impact upon it, and especially the ability of a tree to sustain itself against predation
Condition	Fair Condition - tree is of good habit or misshapen, a form not severely restricted for space and light has some physical indication of decline due to the early effects of predation by pests and diseases, fungal, bacterial, or insect infestation, or has suffered physical injury to itself that may be contributing to instability or structural weaknesses, or its basic survival. Such a tree may recover with remedial works where appropriate, or without intervention may stabilise or improve over time where appropriate, or without intervention may stabilise or improve over time, or in response to the implementation of beneficial changes to its local environment. This may be independent from, or contributed to by vigour.
Form	Poor Form - Tree of atypical crown shape and habit with proportions not representative of the species considering constraints and appears to have been adversely influenced in its development by environmental factors in situ such as soil water availability, prevailing winds cultural practices such as lopping and competition for space and light; causing it to be misshapen on disfigured by disease or vandalism
Height (M)	30
Crown Spread and (M)	20
Diameter at Brest Height (MM) **Tree Root Zone (M)**	1250 15
Diameter at Base Height (MM) **Structural Root Zone (M)**	1380 3.8
Age Class	Mature- Tree aged 20-80% of life expectancy
Estimated Life Expectancy Sule **Landscape Significance** **Overall Significance** **See Attachment 3**	3b- Trees that may live for more than 15 years but would be removed for safety or nuisance reasons. Overall Significance. Medium –Tree Suitable for Preservation See Appendix 3 SULE and Significance of a Tree Assessment Rating System IACA Australia SULE and Significance of a Tree Assessment Rating System IACA Australia
Heritage/Cultural	Tree does not have a Heritage or Cultural Significance
Ecological and Habitat Matters	Tree has no Ecological or Habitat matters
Location to Site Features	The tree will be required to be preserved for the development to be constructed on the site, pruning to be carried out as per Tree Management Plan.
Tree Protection	Tree to be protected as per Generic and Individual tree management plans in appendix 7

Tree Number	966
Species	*Eucalyptus paniculata*
Common Name	Grey Ironbark
Vigour	Normal Vigour- Ability of a tree to maintain and sustain its life processes. This may be evident by the typical growth of leaves, crown cover and crown density, branches, roots and trunk and resistance to predation. This is independent of the condition of a tree but may impact upon it, and especially the ability of a tree but may impact upon it, and especially the ability of a tree to sustain itself against predation
Condition	Fair Condition - tree is of good habit or misshapen, a form not severely restricted for space and light has some physical indication of decline due to the early effects of predation by pests and diseases, fungal, bacterial, or insect infestation, or has suffered physical injury to itself that may be contributing to instability or structural weaknesses, or its basic survival. Such a tree may recover with remedial works where appropriate, or without intervention may stabilise or improve over time where appropriate, or without intervention may stabilise or improve over time, or in response to the implementation of beneficial changes to its local environment. This may be independent from, or contributed to by vigour.
Form	Poor Form - Tree of atypical crown shape and habit with proportions not representative of the species considering constraints and appears to have been adversely influenced in its development by environmental factors in situ such as soil water availability, prevailing winds cultural practices such as lopping and competition for space and light; causing it to be misshapen on disfigured by disease or vandalism
Height (M)	20
Crown Spread and (M)	15
Diameter at Brest Height (MM) **Tree Root Zone (M)**	550 6.6
Diameter at Base Height (MM) **Structural Root Zone (M)**	680 2.8
Age Class	Mature- Tree aged 20-80% of life expectancy
Estimated Life Expectancy Sule **Landscape Significance** **Overall Significance** **See Attachment 3**	3b- Trees that may live for more than 15 years but would be removed for safety or nuisance reasons. Overall Significance. Medium –Tree Suitable for Preservation See Appendix 3 SULE and Significance of a Tree Assessment Rating System IACA Australia SULE and Significance of a Tree Assessment Rating System IACA Australia
Heritage/Cultural	Tree does not have a Heritage or Cultural Significance
Ecological and Habitat Matters	Tree has no Ecological or Habitat matters
Location to Site Features	The tree will be required to be preserved for the development to be constructed on the site, pruning to be carried out as per Tree Management Plan.
Tree Protection	Tree to be protected as per Generic and Individual tree management plans in appendix 7

Tree Number	970
Species	*Eucalyptus paniculata*
Common Name	Grey Ironbark
Vigour	Normal Vigour- Ability of a tree to maintain and sustain its life processes. This may be evident by the typical growth of leaves, crown cover and crown density, branches, roots and trunk and resistance to predation. This is independent of the condition of a tree but may impact upon it, and especially the ability of a tree but may impact upon it, and especially the ability of a tree to sustain itself against predation
Condition	Fair Condition - tree is of good habit or misshapen, a form not severely restricted for space and light has some physical indication of decline due to the early effects of predation by pests and diseases, fungal, bacterial, or insect infestation, or has suffered physical injury to itself that may be contributing to instability or structural weaknesses, or its basic survival. Such a tree may recover with remedial works where appropriate, or without intervention may stabilise or improve over time where appropriate, or without intervention may stabilise or improve over time, or in response to the implementation of beneficial changes to its local environment. This may be independent from, or contributed to by vigour.
Form	Poor Form - Tree of atypical crown shape and habit with proportions not representative of the species considering constraints and appears to have been adversely influenced in its development by environmental factors in situ such as soil water availability, prevailing winds cultural practices such as lopping and competition for space and light; causing it to be misshapen on disfigured by disease or vandalism
Height (M)	15
Crown Spread and (M)	10
Diameter at Brest Height (MM) **Tree Root Zone (M)**	200 2.4
Diameter at Base Height (MM) **Structural Root Zone (M)**	280 1.9
Age Class	Mature- Tree aged 20-80% of life expectancy
Estimated Life Expectancy Sule **Landscape Significance** **Overall Significance** **See Attachment 3**	3b- Trees that may live for more than 15 years but would be removed for safety or nuisance reasons. Overall Significance. Medium –Tree Suitable for Preservation See Appendix 3 SULE and Significance of a Tree Assessment Rating System IACA Australia SULE and Significance of a Tree Assessment Rating System IACA Australia
Heritage/Cultural	Tree does not have a Heritage or Cultural Significance
Ecological and Habitat Matters	Tree has no Ecological or Habitat matters
Location to Site Features	The tree will be required to be preserved for the development to be constructed on the site, pruning to be carried out as per Tree Management Plan.
Tree Protection	Tree to be protected as per Generic and Individual tree management plans in appendix 7

Tree Number	974
Species	*Eucalyptus resinfera*
Common Name	Red Mahogany
Vigour	Normal Vigour- Ability of a tree to maintain and sustain its life processes. This may be evident by the typical growth of leaves, crown cover and crown density, branches, roots and trunk and resistance to predation. This is independent of the condition of a tree but may impact upon it, and especially the ability of a tree but may impact upon it, and especially the ability of a tree to sustain itself against predation
Condition	Fair Condition - tree is of good habit or misshapen, a form not severely restricted for space and light has some physical indication of decline due to the early effects of predation by pests and diseases, fungal, bacterial, or insect infestation, or has suffered physical injury to itself that may be contributing to instability or structural weaknesses, or its basic survival. Such a tree may recover with remedial works where appropriate, or without intervention may stabilise or improve over time where appropriate, or without intervention may stabilise or improve over time, or in response to the implementation of beneficial changes to its local environment. This may be independent from, or contributed to by vigour.
Form	Poor Form - Tree of atypical crown shape and habit with proportions not representative of the species considering constraints and appears to have been adversely influenced in its development by environmental factors in situ such as soil water availability, prevailing winds cultural practices such as lopping and competition for space and light; causing it to be misshapen on disfigured by disease or vandalism
Height (M)	20
Crown Spread and (M)	15
Diameter at Brest Height (MM) **Tree Root Zone (M)**	600 7.2
Diameter at Base Height (MM) **Structural Root Zone (M)**	680 2.8
Age Class	Mature- Tree aged 20-80% of life expectancy
Estimated Life Expectancy Sule **Landscape Significance** **Overall Significance** **See Attachment 3**	3b- Trees that may live for more than 15 years but would be removed for safety or nuisance reasons. Overall Significance. Medium –Tree Suitable for Preservation See Appendix 3 SULE and Significance of a Tree Assessment Rating System IACA Australia SULE and Significance of a Tree Assessment Rating System IACA Australia
Heritage/Cultural	Tree does not have a Heritage or Cultural Significance
Ecological and Habitat Matters	Tree has no Ecological or Habitat matters
Location to Site Features	The tree will be required to be preserved for the development to be constructed on the site, pruning to be carried out as per Tree Management Plan. Bird browsing damage; Cavity(s); Deadwood/stubs < 30mm; Epicormic growth; Mechanical damage to root(s); Previous failure(s); Soil grade changes; Wound(s);
Tree Protection	Tree to be protected as per Generic and Individual tree management plans in appendix 7

Tree Number	975
Species	*Eucalyptus resinfera*
Common Name	Red Mahogany
Vigour	Normal Vigour- Ability of a tree to maintain and sustain its life processes. This may be evident by the typical growth of leaves, crown cover and crown density, branches, roots and trunk and resistance to predation. This is independent of the condition of a tree but may impact upon it, and especially the ability of a tree but may impact upon it, and especially the ability of a tree to sustain itself against predation
Condition	Fair Condition - tree is of good habit or misshapen, a form not severely restricted for space and light has some physical indication of decline due to the early effects of predation by pests and diseases, fungal, bacterial, or insect infestation, or has suffered physical injury to itself that may be contributing to instability or structural weaknesses, or its basic survival. Such a tree may recover with remedial works where appropriate, or without intervention may stabilise or improve over time where appropriate, or without intervention may stabilise or improve over time, or in response to the implementation of beneficial changes to its local environment. This may be independent from, or contributed to by vigour.
Form	Poor Form - Tree of atypical crown shape and habit with proportions not representative of the species considering constraints and appears to have been adversely influenced in its development by environmental factors in situ such as soil water availability, prevailing winds cultural practices such as lopping and competition for space and light; causing it to be misshapen on disfigured by disease or vandalism
Height (M)	10
Crown Spread and (M)	15
Diameter at Brest Height (MM) **Tree Root Zone (M)**	300 3.6
Diameter at Base Height (MM) **Structural Root Zone (M)**	320 2.1
Age Class	Mature- Tree aged 20-80% of life expectancy
Estimated Life Expectancy Sule **Landscape Significance** **Overall Significance** **See Attachment 3**	3b- Trees that may live for more than 15 years but would be removed for safety or nuisance reasons. Overall Significance. Medium –Tree Suitable for Preservation See Appendix 3 SULE and Significance of a Tree Assessment Rating System IACA Australia SULE and Significance of a Tree Assessment Rating System IACA Australia
Heritage/Cultural	Tree does not have a Heritage or Cultural Significance
Ecological and Habitat Matters	Tree has no Ecological or Habitat matters
Location to Site Features	The tree will be required to be preserved for the development to be constructed on the site, pruning to be carried out as per Tree Management Plan. Deadwood/stubs > 30mm; Epicormic growth; Mechanical damage; Suppressed; Wound(s);
Tree Protection	Tree to be protected as per Generic and Individual tree management plans in appendix 7

Tree Number	976
Species	*Eucalyptus paniculata*
Common Name	Grey Ironbark
Vigour	Normal Vigour- Ability of a tree to maintain and sustain its life processes. This may be evident by the typical growth of leaves, crown cover and crown density, branches, roots and trunk and resistance to predation. This is independent of the condition of a tree but may impact upon it, and especially the ability of a tree but may impact upon it, and especially the ability of a tree to sustain itself against predation
Condition	Fair Condition - tree is of good habit or misshapen, a form not severely restricted for space and light has some physical indication of decline due to the early effects of predation by pests and diseases, fungal, bacterial, or insect infestation, or has suffered physical injury to itself that may be contributing to instability or structural weaknesses, or its basic survival. Such a tree may recover with remedial works where appropriate, or without intervention may stabilise or improve over time where appropriate, or without intervention may stabilise or improve over time, or in response to the implementation of beneficial changes to its local environment. This may be independent from, or contributed to by vigour.
Form	Poor Form - Tree of atypical crown shape and habit with proportions not representative of the species considering constraints and appears to have been adversely influenced in its development by environmental factors in situ such as soil water availability, prevailing winds cultural practices such as lopping and competition for space and light; causing it to be misshapen on disfigured by disease or vandalism
Height (M)	10
Crown Spread and (M)	5
Diameter at Brest Height (MM) **Tree Root Zone (M)**	150 2
Diameter at Base Height (MM) **Structural Root Zone (M)**	210 1.7
Age Class	Mature- Tree aged 20-80% of life expectancy
Estimated Life Expectancy Sule **Landscape Significance** **Overall Significance** **See Attachment 3**	3b- Trees that may live for more than 15 years but would be removed for safety or nuisance reasons. Overall Significance. Medium –Tree Suitable for Preservation See Appendix 3 SULE and Significance of a Tree Assessment Rating System IACA Australia SULE and Significance of a Tree Assessment Rating System IACA Australia
Heritage/Cultural	Tree does not have a Heritage or Cultural Significance
Ecological and Habitat Matters	Tree has no Ecological or Habitat matters
Location to Site Features	The tree will be required to be preserved for the development to be constructed on the site, pruning to be carried out as per Tree Management Plan. Epicormic growth; Previous failure(s); Soil compaction; Suppressed; Uncharacteristic form; Wound(s);
Tree Protection	Tree to be protected as per Generic and Individual tree management plans in appendix 7

Tree Number	977
Species	*Syncarpia glomulifera*
Common Name	Turpentine
Vigour	Normal Vigour- Ability of a tree to maintain and sustain its life processes. This may be evident by the typical growth of leaves, crown cover and crown density, branches, roots and trunk and resistance to predation. This is independent of the condition of a tree but may impact upon it, and especially the ability of a tree but may impact upon it, and especially the ability of a tree to sustain itself against predation
Condition	Fair Condition - tree is of good habit or misshapen, a form not severely restricted for space and light has some physical indication of decline due to the early effects of predation by pests and diseases, fungal, bacterial, or insect infestation, or has suffered physical injury to itself that may be contributing to instability or structural weaknesses, or its basic survival. Such a tree may recover with remedial works where appropriate, or without intervention may stabilise or improve over time where appropriate, or without intervention may stabilise or improve over time, or in response to the implementation of beneficial changes to its local environment. This may be independent from, or contributed to by vigour.
Form	Poor Form - Tree of atypical crown shape and habit with proportions not representative of the species considering constraints and appears to have been adversely influenced in its development by environmental factors in situ such as soil water availability, prevailing winds cultural practices such as lopping and competition for space and light; causing it to be misshapen on disfigured by disease or vandalism
Height (M)	20
Crown Spread and (M)	10
Diameter at Brest Height (MM) **Tree Root Zone (M)**	400 4.8
Diameter at Base Height (MM) **Structural Root Zone (M)**	450 2.4
Age Class	Mature- Tree aged 20-80% of life expectancy
Estimated Life Expectancy Sule **Landscape Significance** **Overall Significance** **See Attachment 3**	3b- Trees that may live for more than 15 years but would be removed for safety or nuisance reasons. Overall Significance. Medium –Tree Suitable for Preservation See Appendix 3 SULE and Significance of a Tree Assessment Rating System IACA Australia SULE and Significance of a Tree Assessment Rating System IACA Australia
Heritage/Cultural	Tree does not have a Heritage or Cultural Significance
Ecological and Habitat Matters	Tree has no Ecological or Habitat matters
Location to Site Features	The tree will be required to be preserved for the development to be constructed on the site, pruning to be carried out as per Tree Management Plan. Deadwood/stubs < 30mm; Epicormic growth; Previous failure(s); Wound(s);
Tree Protection	Tree to be protected as per Generic and Individual tree management plans in appendix 7

Tree Number	982
Species	*Eucalyptus paniculata*
Common Name	Grey Ironbark
Vigour	Normal Vigour- Ability of a tree to maintain and sustain its life processes. This may be evident by the typical growth of leaves, crown cover and crown density, branches, roots and trunk and resistance to predation. This is independent of the condition of a tree but may impact upon it, and especially the ability of a tree but may impact upon it, and especially the ability of a tree to sustain itself against predation
Condition	Fair Condition - tree is of good habit or misshapen, a form not severely restricted for space and light has some physical indication of decline due to the early effects of predation by pests and diseases, fungal, bacterial, or insect infestation, or has suffered physical injury to itself that may be contributing to instability or structural weaknesses, or its basic survival. Such a tree may recover with remedial works where appropriate, or without intervention may stabilise or improve over time where appropriate, or without intervention may stabilise or improve over time, or in response to the implementation of beneficial changes to its local environment. This may be independent from, or contributed to by vigour.
Form	Poor Form - Tree of atypical crown shape and habit with proportions not representative of the species considering constraints and appears to have been adversely influenced in its development by environmental factors in situ such as soil water availability, prevailing winds cultural practices such as lopping and competition for space and light; causing it to be misshapen on disfigured by disease or vandalism
Height (M)	30
Crown Spread and (M)	20
Diameter at Brest Height (MM) **Tree Root Zone (M)**	1000 12
Diameter at Base Height (MM) **Structural Root Zone (M)**	1230 3.6
Age Class	Mature- Tree aged 20-80% of life expectancy
Estimated Life Expectancy Sule **Landscape Significance** **Overall Significance** **See Attachment 3**	3b- Trees that may live for more than 15 years but would be removed for safety or nuisance reasons. Overall Significance. Medium –Tree Suitable for Preservation See Appendix 3 SULE and Significance of a Tree Assessment Rating System IACA Australia SULE and Significance of a Tree Assessment Rating System IACA Australia
Heritage/Cultural	Tree does not have a Heritage or Cultural Significance
Ecological and Habitat Matters	Tree has no Ecological or Habitat matters
Location to Site Features	The tree will be required to be preserved for the development to be constructed on the site, pruning to be carried out as per Tree Management Plan. Co-dominant stems; Deadwood/stubs > 100mm; Previous failure(s);
Tree Protection	Tree to be protected as per Generic and Individual tree management plans in appendix 7

Tree Number	996
Species	*Eucalyptus saligna*
Common Name	Sydney Blue Gum
Vigour	Normal Vigour- Ability of a tree to maintain and sustain its life processes. This may be evident by the typical growth of leaves, crown cover and crown density, branches, roots and trunk and resistance to predation. This is independent of the condition of a tree but may impact upon it, and especially the ability of a tree but may impact upon it, and especially the ability of a tree to sustain itself against predation
Condition	Fair Condition - tree is of good habit or misshapen, a form not severely restricted for space and light has some physical indication of decline due to the early effects of predation by pests and diseases, fungal, bacterial, or insect infestation, or has suffered physical injury to itself that may be contributing to instability or structural weaknesses, or its basic survival. Such a tree may recover with remedial works where appropriate, or without intervention may stabilise or improve over time where appropriate, or without intervention may stabilise or improve over time, or in response to the implementation of beneficial changes to its local environment. This may be independent from, or contributed to by vigour.
Form	Poor Form - Tree of atypical crown shape and habit with proportions not representative of the species considering constraints and appears to have been adversely influenced in its development by environmental factors in situ such as soil water availability, prevailing winds cultural practices such as lopping and competition for space and light; causing it to be misshapen on disfigured by disease or vandalism
Height (M)	30
Crown Spread and (M)	15
Diameter at Brest Height (MM) **Tree Root Zone (M)**	650 9.8
Diameter at Base Height (MM) **Structural Root Zone (M)**	790 3
Age Class	Mature- Tree aged 20-80% of life expectancy
Estimated Life Expectancy Sule **Landscape Significance** **Overall Significance** **See Attachment 3**	3b- Trees that may live for more than 15 years but would be removed for safety or nuisance reasons. Overall Significance. Medium –Tree Suitable for Preservation See Appendix 3 SULE and Significance of a Tree Assessment Rating System IACA Australia SULE and Significance of a Tree Assessment Rating System IACA Australia
Heritage/Cultural	Tree does not have a Heritage or Cultural Significance
Ecological and Habitat Matters	Tree has no Ecological or Habitat matters
Location to Site Features	The tree will be required to be preserved for the development to be constructed on the site, pruning to be carried out as per Tree Management Plan. Deadwood/stubs > 30mm; Epicormic growth; Soil compaction; Soil problems;
Tree Protection	Tree to be protected as per Generic and Individual tree management plans in appendix 7

Tree Number	998
Species	*Eucalyptus saligna*
Common Name	Sydney Blue Gum
Vigour	Normal Vigour- Ability of a tree to maintain and sustain its life processes. This may be evident by the typical growth of leaves, crown cover and crown density, branches, roots and trunk and resistance to predation. This is independent of the condition of a tree but may impact upon it, and especially the ability of a tree but may impact upon it, and especially the ability of a tree to sustain itself against predation
Condition	Fair Condition - tree is of good habit or misshapen, a form not severely restricted for space and light has some physical indication of decline due to the early effects of predation by pests and diseases, fungal, bacterial, or insect infestation, or has suffered physical injury to itself that may be contributing to instability or structural weaknesses, or its basic survival. Such a tree may recover with remedial works where appropriate, or without intervention may stabilise or improve over time where appropriate, or without intervention may stabilise or improve over time, or in response to the implementation of beneficial changes to its local environment. This may be independent from, or contributed to by vigour.
Form	Poor Form - Tree of atypical crown shape and habit with proportions not representative of the species considering constraints and appears to have been adversely influenced in its development by environmental factors in situ such as soil water availability, prevailing winds cultural practices such as lopping and competition for space and light; causing it to be misshapen on disfigured by disease or vandalism
Height (M)	20
Crown Spread and (M)	10
Diameter at Brest Height (MM) **Tree Root Zone (M)**	400 4.8
Diameter at Base Height (MM) **Structural Root Zone (M)**	520 2.5
Age Class	Mature- Tree aged 20-80% of life expectancy
Estimated Life Expectancy Sule **Landscape Significance** **Overall Significance** **See Attachment 3**	3b- Trees that may live for more than 15 years but would be removed for safety or nuisance reasons. Overall Significance. Medium –Tree Suitable for Preservation See Appendix 3 SULE and Significance of a Tree Assessment Rating System IACA Australia SULE and Significance of a Tree Assessment Rating System IACA Australia
Heritage/Cultural	Tree does not have a Heritage or Cultural Significance
Ecological and Habitat Matters	Tree has no Ecological or Habitat matters
Location to Site Features	The tree will be required to be preserved for the development to be constructed on the site, pruning to be carried out as per Tree Management Plan. Co-dominant stems; Deadwood/stubs < 30mm; Epicormic growth; Fungal fruiting body(s); Wound(s);
Tree Protection	Tree to be protected as per Generic and Individual tree management plans in appendix 7

Tree Number	999
Species	*Eucalyptus scoparia*
Common Name	Willow Gum
Vigour	Normal Vigour- Ability of a tree to maintain and sustain its life processes. This may be evident by the typical growth of leaves, crown cover and crown density, branches, roots and trunk and resistance to predation. This is independent of the condition of a tree but may impact upon it, and especially the ability of a tree but may impact upon it, and especially the ability of a tree to sustain itself against predation
Condition	Fair Condition - tree is of good habit or misshapen, a form not severely restricted for space and light has some physical indication of decline due to the early effects of predation by pests and diseases, fungal, bacterial, or insect infestation, or has suffered physical injury to itself that may be contributing to instability or structural weaknesses, or its basic survival. Such a tree may recover with remedial works where appropriate, or without intervention may stabilise or improve over time where appropriate, or without intervention may stabilise or improve over time, or in response to the implementation of beneficial changes to its local environment. This may be independent from, or contributed to by vigour.
Form	Poor Form - Tree of atypical crown shape and habit with proportions not representative of the species considering constraints and appears to have been adversely influenced in its development by environmental factors in situ such as soil water availability, prevailing winds cultural practices such as lopping and competition for space and light; causing it to be misshapen on disfigured by disease or vandalism
Height (M)	15
Crown Spread and (M)	10
Diameter at Brest Height (MM) **Tree Root Zone (M)**	400 4.8
Diameter at Base Height (MM) **Structural Root Zone (M)**	490 2.3
Age Class	Mature- Tree aged 20-80% of life expectancy
Estimated Life Expectancy Sule **Landscape Significance** **Overall Significance** **See Attachment 3**	3b- Trees that may live for more than 15 years but would be removed for safety or nuisance reasons. Overall Significance. Medium –Tree Suitable for Preservation See Appendix 3 SULE and Significance of a Tree Assessment Rating System IACA Australia SULE and Significance of a Tree Assessment Rating System IACA Australia
Heritage/Cultural	Tree does not have a Heritage or Cultural Significance
Ecological and Habitat Matters	Tree has no Ecological or Habitat matters
Location to Site Features	The tree will be required to be preserved for the development to be constructed on the site, pruning to be carried out as per Tree Management Plan. Co-dominant stems; Crossing/rubbing branches; Deadwood/stubs > 30mm; Previous failure(s);
Tree Protection	Tree to be protected as per Generic and Individual tree management plans in appendix 7

Tree Number	1774
Species	*Eucalyptus pilularis*
Common Name	Black Butt
Vigour	Normal Vigour- Ability of a tree to maintain and sustain its life processes. This may be evident by the typical growth of leaves, crown cover and crown density, branches, roots and trunk and resistance to predation. This is independent of the condition of a tree but may impact upon it, and especially the ability of a tree but may impact upon it, and especially the ability of a tree to sustain itself against predation
Condition	Fair Condition - tree is of good habit or misshapen, a form not severely restricted for space and light has some physical indication of decline due to the early effects of predation by pests and diseases, fungal, bacterial, or insect infestation, or has suffered physical injury to itself that may be contributing to instability or structural weaknesses, or its basic survival. Such a tree may recover with remedial works where appropriate, or without intervention may stabilise or improve over time where appropriate, or without intervention may stabilise or improve over time, or in response to the implementation of beneficial changes to its local environment. This may be independent from, or contributed to by vigour.
Form	Poor Form - Tree of atypical crown shape and habit with proportions not representative of the species considering constraints and appears to have been adversely influenced in its development by environmental factors in situ such as soil water availability, prevailing winds cultural practices such as lopping and competition for space and light; causing it to be misshapen on disfigured by disease or vandalism
Height (M)	10
Crown Spread and (M)	5
Diameter at Brest Height (MM) **Tree Root Zone (M)**	150 2
Diameter at Base Height (MM) **Structural Root Zone (M)**	2 1.7
Age Class	Mature- Tree aged 20-80% of life expectancy
Estimated Life Expectancy Sule **Landscape Significance** **Overall Significance** **See Attachment 3**	3b- Trees that may live for more than 15 years but would be removed for safety or nuisance reasons. Overall Significance. Medium –Tree Suitable for Preservation See Appendix 3 SULE and Significance of a Tree Assessment Rating System IACA Australia SULE and Significance of a Tree Assessment Rating System IACA Australia
Heritage/Cultural	Tree does not have a Heritage or Cultural Significance
Ecological and Habitat Matters	Tree has no Ecological or Habitat matters
Location to Site Features	The tree will be required to be preserved for the development to be constructed on the site, pruning to be carried out as per Tree Management Plan. Co-dominant stems; Deadwood/stubs < 30mm; Epicormic growth; Suppressed; Wound(s);
Tree Protection	Tree to be protected as per Generic and Individual tree management plans in appendix 7

Tree Protection Zone Tables

(mm)	TPZ (m)	SRZ (m)	(mm)	TPZ (m)	SRZ (m)	(mm)	TPZ (m)	SRZ (m)
100	2.0	1.5	500	6.0	2.5	900	10.8	3.2
110	2.0	1.5	510	6.1	2.5	910	10.9	3.2
120	2.0	1.5	520	6.2	2.5	920	11.0	3.2
130	2.0	1.5	530	6.4	2.5	930	11.2	3.2
140	2.0	1.5	540	6.5	2.6	940	11.3	3.2
150	2.0	1.5	550	6.6	2.6	950	11.4	3.2
160	2.0	1.5	560	6.7	2.6	960	11.5	3.3
170	2.0	1.6	570	6.8	2.6	970	11.6	3.3
180	2.2	1.6	580	7.0	2.6	980	11.8	3.3
190	2.3	1.7	590	7.1	2.7	990	11.9	3.3
200	2.4	1.7	600	7.2	2.7	1000	12.0	3.3
210	2.5	1.7	610	7.3	2.7	1010	12.1	3.3
220	2.6	1.8	620	7.4	2.7	1020	12.2	3.3
230	2.8	1.8	630	7.6	2.7	1030	12.4	3.4
240	2.9	1.8	640	7.7	2.7	1040	12.5	3.4
250	3.0	1.9	650	7.8	2.8	1050	12.6	3.4
260	3.1	1.9	660	7.9	2.8	1060	12.7	3.4
270	3.2	1.9	670	8.0	2.8	1070	12.8	3.4
280	3.4	1.9	680	8.2	2.8	1080	13.0	3.4
290	3.5	2.0	690	8.3	2.8	1090	13.1	3.4
300	3.6	2.0	700	8.4	2.9	1100	13.2	3.4
310	3.7	2.0	710	8.5	2.9	1110	13.3	3.5
320	3.8	2.1	720	8.6	2.9	1120	13.4	3.5
330	4.0	2.1	730	8.8	2.9	1130	13.6	3.5
340	4.1	2.1	740	8.9	2.9	1140	13.7	3.5
350	4.2	2.1	750	9.0	2.9	1150	13.8	3.5
360	4.3	2.1	760	9.1	3.0	1160	13.9	3.5
370	4.4	2.2	770	9.2	3.0	1170	14.0	3.5
380	4.6	2.2	780	9.4	3.0	1180	14.2	3.6
390	4.7	2.2	790	9.5	3.0	1190	14.3	3.6
400	4.8	2.3	800	9.6	3.0	1200	14.4	3.6
410	4.9	2.3	810	9.7	3.0	1210	14.5	3.6
420	5.0	2.3	820	9.8	3.0	1220	14.6	3.6
430	5.2	2.3	830	10.0	3.1	1230	14.8	3.6
440	5.3	2.3	840	10.1	3.1	1240	14.9	3.6
450	5.4	2.4	850	10.2	3.1	1250	15.0	3.6
460	5.5	2.4	860	10.3	3.1	1260	15.0	3.7
470	5.6	2.4	870	10.4	3.1	1270	15.0	3.7
480	5.8	2.4	880	10.6	3.1	1280	15.0	3.7
490	5.9	2.5	890	10.7	3.2	1290	15.0	3.7

(mm)	TPZ (m)	SRZ (m)	(mm)	TPZ (m)	SRZ (m)	(mm)	TPZ (m)	SRZ (m)
1300	15.0	3.7	1700	15.0	4.1	2100	15.0	4.5
1310	15.0	3.7	1710	15.0	4.2	2110	15.0	4.5
1320	15.0	3.7	1720	15.0	4.2	2120	15.0	4.5
1330	15.0	3.7	1730	15.0	4.2	2130	15.0	4.6
1340	15.0	3.7	1740	15.0	4.2	2140	15.0	4.6
1350	15.0	3.8	1750	15.0	4.2	2150	15.0	4.6
1360	15.0	3.8	1760	15.0	4.2	2160	15.0	4.6
1370	15.0	3.8	1770	15.0	4.2	2170	15.0	4.6
1380	15.0	3.8	1780	15.0	4.2	2180	15.0	4.6
1390	15.0	3.8	1790	15.0	4.2	2190	15.0	4.6
1400	15.0	3.8	1800	15.0	4.2	2200	15.0	4.6
1410	15.0	3.8	1810	15.0	4.3	2210	15.0	4.6
1420	15.0	3.8	1820	15.0	4.3	2220	15.0	4.6
1430	15.0	3.9	1830	15.0	4.3	2230	15.0	4.6
1440	15.0	3.9	1840	15.0	4.3	2240	15.0	4.6
1450	15.0	3.9	1850	15.0	4.3	2250	15.0	4.7
1460	15.0	3.9	1860	15.0	4.3	2260	15.0	4.7
1470	15.0	3.9	1870	15.0	4.3	2270	15.0	4.7
1480	15.0	3.9	1880	15.0	4.3	2280	15.0	4.7
1490	15.0	3.9	1890	15.0	4.3	2290	15.0	4.7
1500	15.0	3.9	1900	15.0	4.3	2300	15.0	4.7
1510	15.0	3.9	1910	15.0	4.3	2310	15.0	4.7
1520	15.0	4.0	1920	15.0	4.4	2320	15.0	4.7
1530	15.0	4.0	1930	15.0	4.4	2330	15.0	4.7
1540	15.0	4.0	1940	15.0	4.4	2340	15.0	4.7
1550	15.0	4.0	1950	15.0	4.4	2350	15.0	4.7
1560	15.0	4.0	1960	15.0	4.4	2360	15.0	4.8
1570	15.0	4.0	1970	15.0	4.4	2370	15.0	4.8
1580	15.0	4.0	1980	15.0	4.4	2380	15.0	4.8
1590	15.0	4.0	1990	15.0	4.4	2390	15.0	4.8
1600	15.0	4.0	2000	15.0	4.4	2400	15.0	4.8
1610	15.0	4.0	2010	15.0	4.4	2410	15.0	4.8
1620	15.0	4.1	2020	15.0	4.5	2420	15.0	4.8
1630	15.0	4.1	2030	15.0	4.5	2430	15.0	4.8
1640	15.0	4.1	2040	15.0	4.5	2440	15.0	4.8
1650	15.0	4.1	2050	15.0	4.5	2450	15.0	4.8
1660	15.0	4.1	2060	15.0	4.5	2460	15.0	4.8
1670	15.0	4.1	2070	15.0	4.5	2470	15.0	4.8
1680	15.0	4.1	2080	15.0	4.5	2480	15.0	4.9
1690	15.0	4.1	2090	15.0	4.5	2490	15.0	4.9

Appendix 3 - SULE Safe Useful Life Expectancy (Barell 1995)

	1. Long	2. Medium	3. Short	4. Removal	5. Moved or replaced
	Trees that appeared to be retainable at the time of assessment for more than 40 years with an acceptable level of risk.	Trees that appeared to be retainable at the time of assessment for 15 - 40 years with an acceptable level of risk.	Trees that appeared to be retainable at the time of assessment for 5 - 15 years with an acceptable level of risk.	Trees that should be removed within the next 5 years	Trees, which can be reliably moved or replaced.
A	Structurally sound trees located in positions that can accommodate future growth.	Trees that may only live between 15 and 40 years.	Trees that may only live between 5 and 15 more years.	Dead, dying, suppressed or declining trees through disease or inhospitable conditions.	Small trees less than 5m in height.
B	Trees that could be made suitable for retention in the long term by remedial tree care.	Trees that may live for more than 40 years but would be removed for safety or nuisance reasons.	Trees that may live for more than 15 years but would be removed for safety or nuisance reasons.	Dangerous trees through instability or recent loss of adjacent trees.	Young trees less than 15 years old but over 5m in height.
C	Trees of special significance for historical, commemorative or rarity reasons that would warrant extraordinary efforts to secure their long-term retention.	Trees that may live for more than 40 years but would be removed to prevent interference with more suitable individuals or to provide space for new planting.	Trees that may live for more than 15 years but should be removed to prevent interference with more suitable individuals or to provide space for new planting.	Damaged trees through structural defects including cavities, decay, included bark, wounds or poor form.	Trees that have been pruned to artificially control growth.
D		Trees that could be made suitable for retention in the medium term by remedial tree care.	Trees that require substantial remedial tree care and are only suitable for retention in the short term.	Damaged trees that are clearly not safe to retain.	
E				Trees that may live for more than 5 years but should be removed to prevent interference with more suitable individuals or to provide space for new plantings.	
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 reasons given in A) to F).	

Safe Use Life Expectancy (SULE)

SULE is the length of time an Arborist assesses an individual tree can be retained with an acceptable level of risk based on the information available at the time of inspection. SULE is not static and is closely related to tree health and the surrounding conditions. Alterations to the variables may result in changes in the SULE assessment. SULE may have to be reassessed if a significant amount of time passes from the initial inspection to the eventual development. Once a tree survey has been carried out (as described above) the Arborist would then estimate the remaining life expectancy. This can be difficult if it is not known how long a particular species may live for in a particular location, however, the exercise is very useful for categorising which trees have the best chance of long-term survival once construction is completed.

Categories for retention or removal.
The trees in each category could be colour coded both on site plans and on the ground.
These categories are adapted and modified from BS5837:1991 and Barrell.

Category A:
Trees whose retention is most desirable; long safe useful life expectancy - retainable with an acceptable level of risk for more than 40 years+. Long category SULE.

(i) Structurally sound trees of good form in positions that are compatible with the proposed development and where future growth can be accommodated.
(ii) Trees for screening or softening the effect of existing structures in the near vicinity, or of particular visual importance to the locality.
(iii) Trees of special significance for historical, commemorative or rarity reasons that would warrant extraordinary efforts to secure their long-term retention.

Category B:
Trees whose retention is desirable or that would be retainable with an acceptable level of risk for 15-40 years. Moderate category: medium category SULE.

(i) Trees that may only live for another 15-40 years.
(ii) Trees that may live for more than 40 years but which have defects which may lead to their removal within this period.
(iii) Trees which may live more than 40 years but which would be removed to allow the safe development of more suitable individuals.
(iv) Storm damaged or defective trees which can be made suitable for retention in the medium term by remedial treatment.
(v) Immature trees with potential to develop into the high category.

Category C:
Trees that could be retained or those with an acceptable level of risk for 5-15 years. Short category SULE.

(i) Trees that may only live for 5-15 years.
(ii) Trees that may live for more than 15 years but which have defects that would lead to their removal within this period.
(iii) Trees that may live for more than 15 years but which would be removed to allow the safe development of more suitable individuals.
(iv) Damaged or defective trees which warrant remedial work for their short-term retention.
(v) Immature trees of no particular merit.

Category D:
Trees to be removed. Removal category SULE.

(i) Dead trees.
(ii) Unstable or structurally defective trees with a high hazard rating.
(iii) Trees which will be impossible to retain or irreparably damaged by construction activities where no realistic compromise is possible.

Trees can be coded in reports and on-site plans e.g., Tree 15. Ficus rubiginosa Category B (ii).

Note: These assessments should be carried out by a suitable qualified and experienced Arborist. (Judy Fakes, 1996)

Survey:
Peter Castor and John Douglas have both made the point that some species deteriorate more quickly than others. That is, a SULE rating of 5-15 years might not be sensible for a species such as Eucalyptus scoparia which might only have a useful life of some 2 years from when it first shows signs of deterioration. Eucalyptus nicholii in Sydney might also fit into this category. Perhaps it is sensible to recommend the removal of a Chilean Willow as soon as it first displays borer damage. It would not be sensible to apply that standard to a Eucalyptus saligna (Sydney Blue Gum)

Safe Useful Lifespans

Depending on the pattern of decline (a distinction needs to be drawn between biological life and useful life.

Acacia elata	30-50, decline rapidly if lopped
Acacia parramattensis / decurrens	5-15 years
Acacia binervia (glaucescens) (Costal Myall)	30 – 50
Acacia melanoxylon	50-90 years
Acer negundo	30-50
Acmena smithii	40-70
Agonis flexuosa	30-50
Angophora costata	70-90 (400+ in the bush)
Banksia integrifolia	50-60
Banksia serrata	20-30
Bauhinia galpini	30-50
Betula pendula	7-15
Brachychiton acerifolius	50-70, 10 after lopping
Callistemon viminalis	25
Calodendrum capense	50-70
Castanospermum australis	70
Celtis australis	70
Celtis occidentalis	15
Ceratopetalum gummiferum	90 in the bush Rarely in gardens.
Ceratopetalum apetalum	20
Cinnamomum camphora	90
Corimbya. maculata	50-70
Corimbya citriodora	70-90
Corimbya gummifera	25, if in right location 50
Corimbya. eximia	25, if in right location 70
Cupaniopsis anacardioides	60
Elaeocarpus reticulatus	40
Erythrina x sykesii	15-60
Erythrina crista-galli	30-40
Eucalyptus camaldulensis	70-90
Corimbya ficifolia	15
Eucalyptus globulus subspecies globulus	15-35
Eucalyptus globulus subspecies bicostata	15.35
Eucalyptus microcorys	50-70
Eucalyptus nicholii	35 years
Eucalyptus pilularis	70-90 (100-200 In the bush)
Eucalyptus saligna	70-90 (100-200 In the bush)
Eucalyptus tereticornis	70-90 (150-200)
Ficus macrophylia	90-200
Ficus microcarpa var hillii	30-70 Plus
Ficus rubiginosa	70-200
Fraxinus excelsior	10-30

Gingko Biloba	10-30
Grevillea robusta	35 years, 50 occasionally
Jacaranda mimosifolia	50-70 Plus
Lagerstroemia indica	30-90
Lagunaria patersonia	30-90
Liquidambar styraciflua	30-90
Lophostemon confertus	70 plus
Magnolia grandiflora	70 plus
Melaleuca quinuenervia	70 plus
Melia azedarach	50
Metrosideros excelsior	5-30, 50
Michelia figo	10-20
Morus nigra	50
Olea africana	70
Pistacia chinensis	40
Pittosporum undulatum	25-50
Platanus x hybrida	90 plus
Populus nigra	40- 70 years
Prunus serratifolia	5-35 years
Pyrus calleryana	30-50
Quercus robur	70-160
Robinia pseudoacacia	25-50 years
Salix species	7 Chilean, 30-50 years babylonica, fragilis
Sapium sebiferum	Up to 60
Schinus areira	70
Stenocarpus sinuatus	50
Syncarpia glomulifera	90
Syzigium parvifolia	90
Ulmus	70
Virgilia hupehensis	7 years

References:

Barrell, J.D. (1993) Pre-planning Tree Surveys: Safe Useful Life expectancy in the Natural Progression. Arboricultural Journal 17: pp33-46

Barrell, J.D. (1995 Pre-development Tree Assessment in Trees and Building Sites, (Ed) G.W. Watson and D. Neely, International Society of Arboriculture, Savoy, Illinois.

British Standard 5837 (1991) Guide for Trees in relation to Construction, BSI. Fakes

J.A, (1996) Summary of SULE (unpublished)

Hewett P, (1996) Personal communication.

Matheny, N.P & Clark, J.R. (1994) A Photographic Guide to the evaluation of Hazard Trees in Urban Areas, 2nd edition, International Society of Arboriculture, Savoy, Illinois.

Appendix E - Significance of a Tree, Assessment Rating System

(STARS) IACA, Australia

1. High Significance in landscape

- The tree is in good condition and good vigour;
- The tree has a form typical for the species;
- The tree is a remnant or is a planted locally indigenous specimen and/or is rare or uncommon in the local area or of botanical interest or of substantial age;
- The tree is listed as a Heritage Item, Threatened Species or part of an Endangered ecological community or listed on Councils significant Tree Register;
- The tree is visually prominent and visible from a considerable distance when viewed from most directions within the landscape due to its size and scale and makes a positive contribution to the local amenity;
- The tree supports social and cultural sentiments or spiritual associations, reflected by the broader population or community group or has commemorative values;
- The tree's growth is unrestricted by above and below ground influences, supporting its ability to reach dimensions typical for the taxa in situ - tree is appropriate to the site conditions.

2. Medium Significance in landscape

- The tree is in fair-good condition and good or low vigour;
- The tree has form typical or atypical of the species;
- The tree is a planted locally indigenous or a common species with its taxa commonly planted in the local area
- The tree is visible from surrounding properties, although not visually prominent as partially obstructed by other vegetation or buildings when viewed from the street,
- The tree provides a fair contribution to the visual character and amenity of the local area,
- The tree's growth is moderately restricted by above or below ground influences, reducing its ability to reach dimensions typical for the taxa in situ.

3. Low Significance in landscape

- The tree is in fair-poor condition and good or low vigour;
- The tree has form atypical of the species;
- The tree is not visible or is partly visible from surrounding properties as obstructed by other vegetation or buildings,
- The tree provides a minor contribution or has a negative impact on the visual character and amenity of the local area,
- The tree is a young specimen which may or may not have reached dimension to be protected by local Tree Preservation orders or similar protection mechanisms and can easily be replaced with a suitable specimen,
- The tree's growth is severely restricted by above or below ground influences, unlikely to reach dimensions typical for the taxa in situ - tree is inappropriate to the site conditions,
- The tree is listed as exempt under the provisions of the local Council Tree Preservation Order or similar protection mechanisms,
- The tree has a wound or defect that has potential to become structurally unsound.
- Environmental Pest / Noxious Weed Species
- The tree is an Environmental Pest Species due to its invasiveness or poisonous/ allergenic properties,
- The tree is a declared noxious weed by legislation.
- Hazardous/Irreversible Decline
- The tree is structurally unsound and/or unstable and is considered potentially dangerous,
- The tree is dead, or is in irreversible decline, or has the potential to fail or collapse in full or part in the immediate to short term.

The tree is to have a minimum of three (3) criteria in a category to be classified in that group.

Note: The assessment criteria are for individual trees only, however, can be applied to a monocultural stand in its entirety e.g.

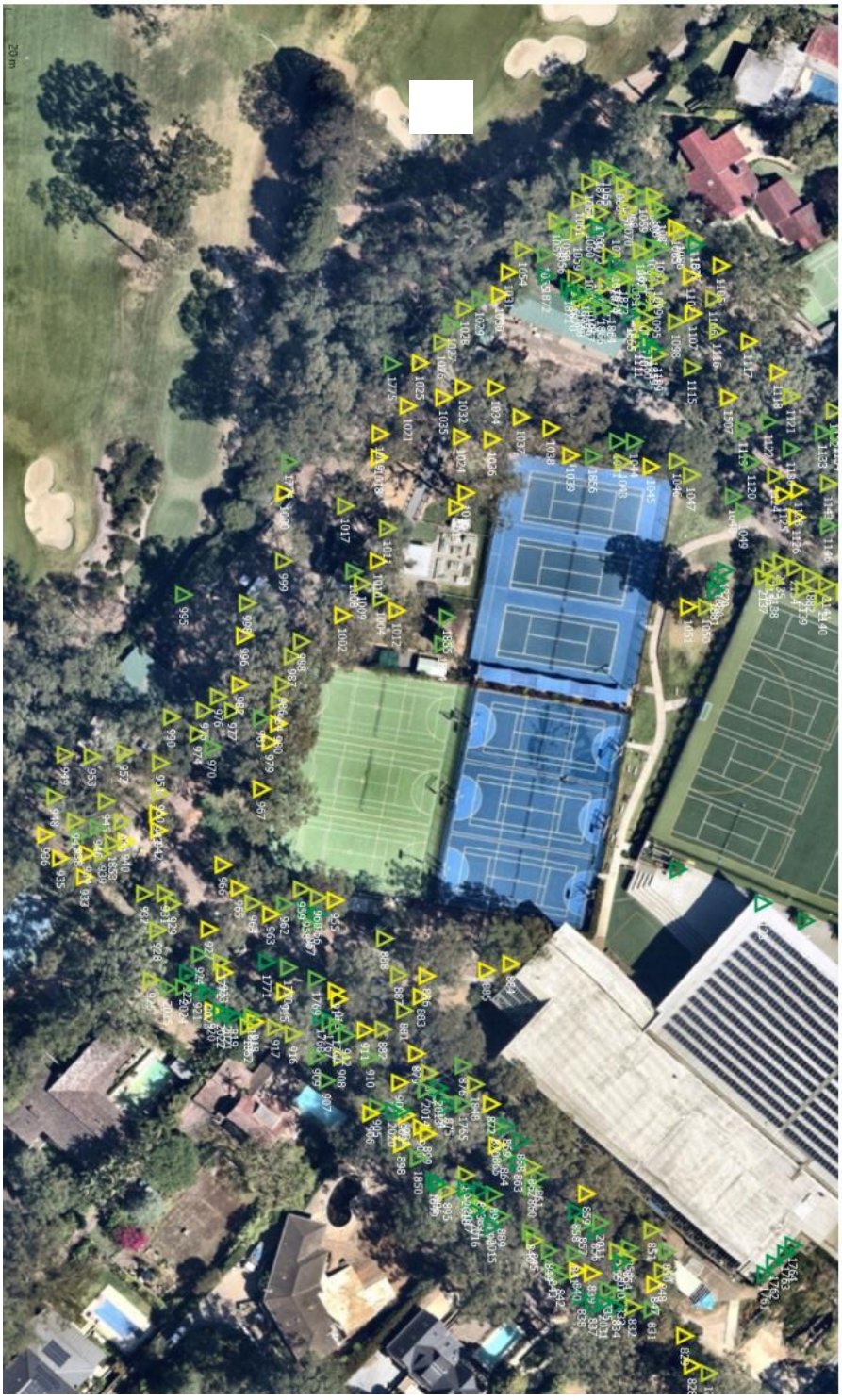
Significance of a Tree, Assessment Rating System cont.

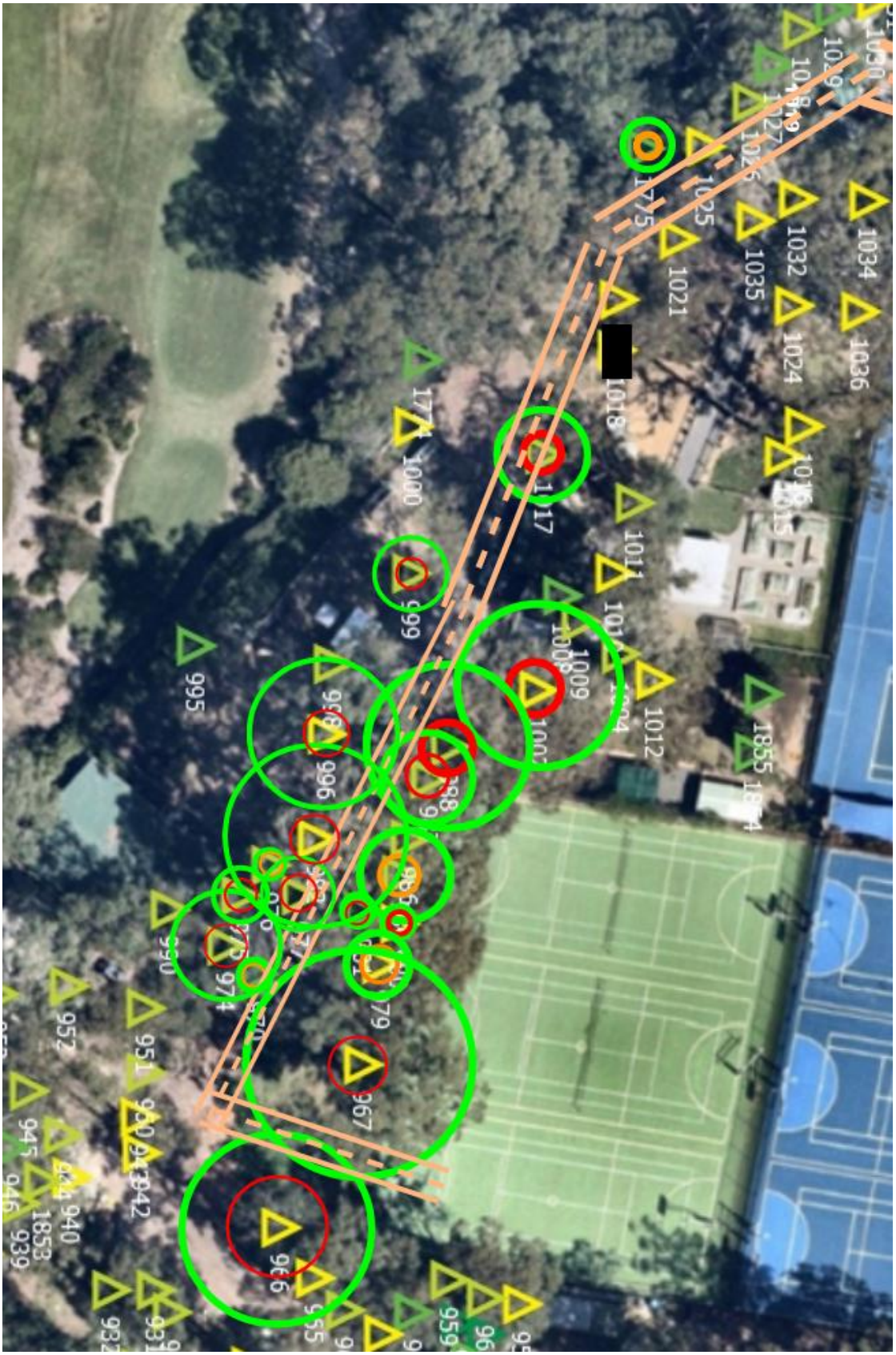
Landscape Significance						
		1. High	2. Medium	3. Low		
		Significance in landscape			Environmental Pest / Noxious Weed Species	Hazardous / Irreversible Decline
Estimated Life Expectancy	1. Long >40 years					
	2. Medium 15-40 years					
	3. Short <1-15 years					
	Dead					

Legend For Matrix Assessment

	Priority for Retention (High) – These trees are considered important for retention and should be retained and protected. Design modification or re-location of building/s should be considered to accommodate the setbacks as prescribed by the Australian Standard AS4980 Protection of trees on development sites. Tree sensitive construction measures must be implemented e.g. pier and beam etc if works are to proceed within the Tree Protection Zone.
	Consider for Retention (Medium) – These trees may be retained and protected. These are considered less critical; however their retention should remain priority with removal considered only if adversely affecting the proposed building/works and all other alternatives have been considered and exhausted.
	Consider for Removal (Low) – These trees are not considered important for retention, nor require special works or design modification to be implemented for their retention.
	Priority for Removal – These trees are considered hazardous, or in irreversible decline, or weeds and should be removed irrespective of development.

Appendix 4 - Overall Site Map and Tree Location and Proposed Development





Tree TPZ and CRZ

Tree No	Species	DBH MM	TPZ M	DBB MM	SRZ M	Incursion	Incursion Area M2	Tpz Area M2	Incursion Percentage
1775	*Callistemon salignus* White Bottlebrush	150	2	150	1.5	0	0	12.57	0
1017	*Eucalyptus microcorys* Tallowood	500	6	540	2.5	0	0	113.10	0
1002	*Eucalyptus paniculata* Grey Ironbark	900	10.8	1020	3.3	0	0	366.44	0
988	*Syncarpia glomulifera* Turpentine	900	10.8	1080	3.4	0	0	366.44	0
987	*Eucalyptus paniculata* Grey Ironbark	500	6	680	2.8	0	0	113.10	0
986	*Eucalyptus resinfera* Red Mahogany	500	6	580	2.6	0	0	113.10	0
984	*Eucalyptus paniculata* Grey Ironbark	300	3.6	300	2	0	0	40.72	0
981	*Eucalyptus paniculata* Grey Ironbark	200	2.4	250	1.9	0	0	18.10	0
979	*Eucalyptus paniculata* Grey Ironbark	350	4.2	480	2.4	0	0	55.42	0
980	*Eucalyptus paniculata* Grey Ironbark	700	8.4	890	3.2	0	0	221.67	0
967	*E*ucalyptus *saligna* Sydney Blue Gum	1250	15	1380	3.8	0	0	706.86	0
966	*Eucalyptus paniculata* Grey Ironbark	550	6.6	680	2.8	0	0	136.85	0
970	*Eucalyptus paniculata* Grey Ironbark	200	2.4	280	1.9	0	0	18.10	0
974	*Eucalyptus resinfera* Red Mahogany	600	7.2	680	2.8	0	0	40.72	0

No	Species	DBH MM	TPZ M	DBB MM	SRZ M	Incursion	Incursion Area M2	Tpz Area M2	Incursion Percentage
975	*Eucalyptus resinfera* Red Mahogany	300	3.6	320	2.1	0	0	40.72	0
976	*Eucalyptus paniculata* Grey Ironbark	150	2	210	1.7	0	0	12.75	0
977	*Syncarpia glomulifera* Turpentine	400	4.8	450	2.4	0	0	72.38	0
982	*Eucalyptus paniculata* Grey Ironbark	1000	12	1230	3.6	0	0	452.39	0
996	*E*ucalyptus *saligna* Sydney Blue Gum	650	9.8	790	3	0	0	301.72	0
998	*E*ucalyptus *saligna* Sydney Blue Gum	400	4.8	520	2.5	0	0	72.38	0
999	*E*ucalyptus scoparia Willow Gum	400	4.8	490	2.3	0	0	72.38	0
1774	*Eucalyptus pilularis* Black Butt	150	2	200	1.7	0	0	12.57	0

Appendix 5 - Brief Qualifications and Experience of Mark Bury

1. **Qualifications:** Diploma of Horticulture/Arboriculture 2005, Advanced Certificate of Management 1995, Graduate Certificate in Parks Management UTS 2001. Advanced Certificate Horticulture TAFE 1986, Hadlington Certificate of Tree Care 1995 Licensed QTRA Practitioner since 2006. International Society of Arboriculture Tree Risk Assessment Qualification 2014, Completed refresher Course in 2018 and 2023 and licensed till 2029 International Society of Arboriculture Certified Arborist 2014,2018, 2021 and 2024 Licensed till 2029, International Society of Arboriculture Certified Municipal Specialist 2015, 2018,2021,2023 Licensed till 2029, currently studying International Society of Arboriculture Board Master Arborist Course

2. **Practical experience:** Twenty-eight (28) years' experience as a consulting arborist, 20 years' experience in Local Government as a consulting arborist. A Founding member of the Institute of Australian Consulting Arborist (Resigned 2006) and The Local Government Tree Resources Group which I was Secretary of in 1995.

3. **Continuing professional development:** Member of International Society of Arboriculture (AU0345A). Member of Australian Institute of Horticulture (MXB0615), attended courses by Jeremy Barrell and Claus Matteck. I attended the update of QTRA certification March 2015 and completed course in Visual Tree Assessment in 2015 and Visual Tree Assessment and Estimating the probability of failure in 2015. TRAQ updates 2018, 2023, ISA Certified Arborist Updates 2018, 2021and 2023., Municipal Arborist Updates 2018, 2021, 2023

4. **Relevant experience** Twenty-eight (28) Years experience as a consulting arborist and Twenty years' experience in tree management in local government. Twenty (20) years' experience in Local Government assessing development applications in regards to tree management issues. (Councils; Warringah, North Sydney, Mosman, Manly, Ashfield, Pittwater, Marrickville and Hornsby).

   With my qualifications and experience I am an AQF 5. Furthermore, I have written and published books on Trees and Asset Management, Trees and Real Estate, Planning and Trees and Inherent Failure Patterns of Trees in the Greater Sydney Area.

   I have also been a High-Level Asset Manager in Local Government for 10 years and have carried out numerous courses in asset management and risk management and developed Council Budgets in this area for a number of years.

   I also have lectured at UTS on Asset Management. I have worked in the industry for 41 years and have carried out major Asset management inventories including trees for large Local Government Areas and developed financial and operations plans to manage assets. Furthermore, I have developed, written and implemented asset tree master plans for Ashfield, Pittwater, Hornsby and Marrickville Councils.

International Society of Arboriculture Continuing Education Units Completed 2014, 2015 and 2016

Tree Risk-Strategies for Preserving Heritage Trees
Tree Risk-Mitigation and Reporting
Tree Risk-Structural Defects and Conditions
Tree Risk-Tree Load: Concept
Tree Risk—Loads and Growth Response
Tree Risk-Levels of Tree Risk Assessment
Tree Risk- Sap Rot
Tree Risk- Anchorage: Root Plate Resistance to Failure
Tree Risk- Indicators of Decay in Urban Trees
Tree Risk- Visual Inspection Prior to Dismantling
Urban Forestry-Wildfire and the Role of the Arborist
Urban Forestry-Managing Trees during Construction Part 1 and 2
Urban Forestry-Tree Risk Assessment: A Foundation
Urban Forestry-Tree Inventories Part 1 and Part 2
Trees & Their Environment- Fertilizing Trees & Shrubs Part 1 and Part 2
Urban Forestry-Root Management Challenges on Urban Sites
Urban Forestry-Challenges for the Built Environment
Urban Forestry - The Benefit of Trees
Urban Forestry- Root Planting Friendly Site Design
Urban Forestry- Root Management Challenges on Urban Sites
Urban Forestry- Tree Inventories Part 1
Urban Forestry- Tree Inventories Part 2
Urban Forestry- Tree Risk Assessment a Foundation
Urban Forestry- Managing Trees during Construction Parts 1 and 2
Urban Forestry- Wildfire and the Role of the Arborist
Trees & Their Environment- Soil Properties: Part 1 and Part 2
Trees & Their Environment- Fertilizing Trees & Shrubs Part 1 and Part 2
Trees & Their Environment- Analyse Before You Fertilize
Trees & Their Environment- Back to Basics: Tree Fertilization
Trees & Their Environment- Slow or Controlled Release Fertilizers
Tree Maintenance- Trees & Lightning
Tree Maintenance- Cabling
Tree Maintenance- Pollarding: What Was Old Is New Again
Tree Maintenance- Why Utilities "V-Out" Trees
Tree Maintenance- Pruning Trees Part 1: Principles, Objectives & Pruning Types
Tree Maintenance- Pruning Trees Part 2: How, Where and How Much
Plant Health Care- Plant Health Care
Plant Health Care- Maintaining Tree and Turf Associations
Plant Health Care- Preserving Trees during the Construction Process
Plant Health Care- Mulch
Plant Health Care- Preserving trees during the Construction Process
Plant Health Care- Trees v Turf
Plant Health Care- Resource Allocation Trade Off
Plant Health Care- Root System Care
Safe Working Practices –Innovations in Climbing Techniques and Equipment
Safe Working Practices- Basic Chain Saw Maintenance
Safe Working Practices- Felling Techniques
Safe Working Practices- Engineering Concepts for Arborists
Safe Working Practices- Tree Removals
Safe Working Practices- Chain Saw Cutting Techniques
Tree Science-Palms just not for the Tropics

Tree Science-Damage and Diagnosis Steps to Proper Diagnosis
Tree Science- Plant Traits that Resemble Abiotic Disorders
Tree Science- Adventitious Roots Occurrence and Management in Trees
Tree Science- Cool Trees Surviving Cold Temperatures
Tree Science- Identifying Wood Decay and Wood Decay Fungi in Urban Trees
Tree Science- How Pests use Bark or Wood as Food
Tree Science- How trees get to fat
Tree Science- Kissing under the Mistletoe
Biology-Tree Failure Risk Evaluations
Biology-Tree Growth Rings Formation and Form
Biology- Regulating Tree Growth Keeping the Green Side Up
Biology- How Wind Affects Trees
Biology- Allelopathy in Trees
Biology- Fantasy Facts and Fall Colour
Biology- Blowing in the Wind
Biology-Tree Physiology
Biology-Basic Woody Plant Biology
Diagnosis and Treatment- Plant Health Care and the Diagnostic Process
Diagnosis and Treatment- Want to be a Better Plant Diagnostician
Diagnosis and Treatment- Diagnosing Disease Problems on Trees
Diagnosis and Treatment- How Weather Influences Insect and Mite Populations
Diagnosis and Treatment- Understanding and Diagnosing Scale Insects
Diagnosis and Treatment- Surefire Rules of Diagnosis
Diagnosis and Treatment- Diagnosing Abiotic Disorders
Tree Selection and Planting- A plant by any Other Name
Tree Selection and Planting- Installation and Establishment of Trees and Shrubs
Tree Selection and Planting- Ten Keys to Plant and Site Selection
Tree Selection and Planting- Tree Transplanting
Tree Selection and Planting- Tree Transplanting and Establishment
Tree Selection and Planting- Post Planting Maintenance of Trees and Shrubs
Tree Selection and Planting- Tree Trunk Protection
Tree Selection and Planting- Siting Selecting and Planting Problems
Tree Selection and Planting- Girdling Root Formation in Landscape Trees
Tree Selection and Planting- Right Tree, Right Location
Tree Selection and Planting- Dendrology and Taxonomy
Tree and Development
The Landscape below Ground
General- Arborist Equipment Study Program

International Society of Arboriculture
Continuing Education Units Completed 2017
Root Pruning Part 2
Palms: Woody Giants of the Monocots Part 2
Biology and Assessment of Callus and Woundwood
Managing Soils That Support Urban Trees Part 1
Palms: Woody Giants of the Monocots Part 1
Tree Injection Part 1
Plant Health Care and Diagnostics
Root Management: An Introduction
Bark Traits are Important to Tree health and Survival
The Cost of Not Maintaining the Urban Forest
Flood Tolerant Trees in the Urban Sphere
Integrated Vegetation Management
Advanced Twig Anatomy
Tree Lightning Protection Systems Part 2
Tree Safety

Continuing Education Units Completed 2018

Managing Soils That Support Urban Trees Part Two
Preserving Trees During Construction
Arborists and Wildlife Retaining Trees for Wildlife Habitat
Understanding Tree Responses to Abiotic and Biotic Stress Complexes
Storm Response Part 1 Types of Storms and Their Effects on Trees
Storm Response Part 2 Preparing for Safe and Effective Responses to Storms
Storm Response Part 3 Effective Response to Large and Small –Scale Storm Emergencies
Storm Response Part 4 Unique Aspects :Keeping Employees Safe, Talking to the Media, Saving Damaged Trees, Winding Down, and Lessons Learned
Tree Inventories
Understanding Tree Responses to Stress
Tree Lightning Protection Systems (Part One)
Root Management Challenges on Urban Sites Achieving a Healthy Root Crown Balance
Root Management Challenges on Urban Sites Human Intervention in Root Development
Tree Risk Assessment Structural Defects and Conditions that Affect the Likelihood of Failure
Basic Tree Plumbing Translocation
Tree Injection (Part 2)
Advanced Twig Anatomy Starting Little to Get Big (Part 1)
Biology and Identification of Fungi
Urban Tree Inventory Data
Comparison of Tree Conditions
Roadside Soil Enhancement
Tree Species as Tools for Biodiversity and Phytemediation
Homeowner Interactions with Residential Trees In Urban Areas
Does Modulus of Elasticity Vary
Long Term Fluctuations in Water Status and Crown Die Back
Maximum Size Expectations in Designed Space
The Arboricultural and Economic Benefits of Formative Pruning
Protecting Your Assets
The Management of Tree Roots in Urban and Suburban Settings
The Costs on Not Maintaining and Maintaining Urban Forest
Tree Performance during Early Years and Future Performance
Effects of Urbanisation on Tree Species Composition and Structure
Things Arborist Should Know about Soil Microbes
Wood Chips and Compost Improve Compacted Urban Soil
The Linear Index of Tree Appraisal Model
The Influence of Abiotic factors on street tree condition and mortality in a commercial retail Streetscape
Water Management Strategies in Dry Environments
Comparison of Shading Effectiveness
Vines and Utility Arboriculture
Vegetation and Storm Water Run Off

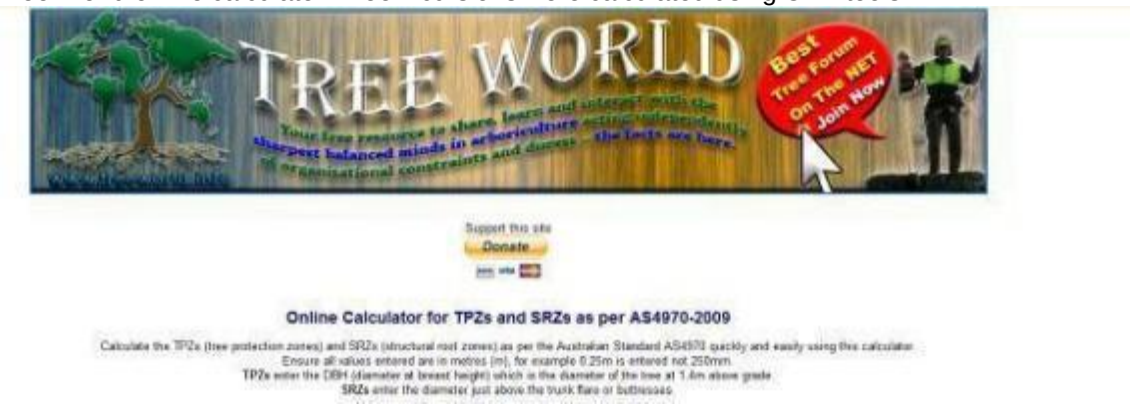
International Society of Arboriculture Continuing Education Units Completed 2021

Wood Decay Fungi Identification and Management
Nursery Production Systems
Core Concepts of Plant Appraisal
Plant Appraisal Data Collection (Part One)
Plant Appraisal Data Collection (Part Two)
The Cost Approach: Methods, Techniques, and Depreciation
Pruning Systems: Best Management Practices
Pruning Cuts: Best Management Practices—Tree Pruning, 3rd Edition
Applications of Biochar for Arboriculture
Arboricultural Operation Safety Standards: A Global Perspective, Part 2
Reducing the Tension Between Promoting Tree Diversity Versus Planting Natives
The Surprising Benefits of Biodiversity
Tree Defect Identification
The Case of the Lamentable
Reports: The Write Way
The Case of the Ailing Avenues
The Case of the Plane Plan
The Case of the Eloquent Elephant
The Case of the Redwood Roots
The Case of the Defiant Ficus
New Zealand Tree Project
The Case of the Movie Star Trees
The Case of the Mysterious Sugar Maple
Understanding Fall Protection
What Does Science Say About Pruning Mature Trees
The Case of the Beach House Beech
The Case of the Perished Pine
Tree-Size Variables for Appraisal Methods
Insect Vectors and Their Role in Disease Transmission Part II
The Case of the Curious Conifer
The Case of the Confounding Clues
The Case of the Frizzled Fronds
The Case of the Lonely Lashing Leader
The Case of the Lamentable Maples
The Reforestation of Chihuahua Mexico
The Case of Justine's Junipers
Wildlife Retention
The Case of the Quercus Calamity
The Case of the Rooftop Restaurant
The Case of the Avocado Aficionado
The Case of the Midsummer Misery
The Case of the Baffling Butternut
The Case of the Beach House Beech
The Case of the Terrifying Twister
The Case of the Perished Pine

Appendix 6 - Construction Impact Statement

(Trees that are less than 100mm in both Diameter at Breast Height and Diameter at Base Height have a standard TPZ of 2 metres and SRZ of 1.5 metres) All calculations were calculated using the

Tree World online calculator. Tree incursions were calculated using CAD tools.



Tree 1775 – *Callistemon salignus* White Bottlebrush

The proposed excavations will not impact the (TPZ) Tree Protection Zone of the tree

The tree has a dbh of 150mm

Tree Protection Zone = 12 X DBH (150mm) = 2 Metres

Tree has a diameter at base height of 150mm

Structural Root Zone SRZ Radius = (150x70)0.42 x.64= 1.5 Metres

Incursion 0 Metres

Radius 2 Metres

The tree will not be affected by the proposed excavation for the development. The tree's TPZ will have an incursion of 0% (Segment Area (0m2) / Total Circle Area (12.57m2) Area x 100 which is acceptable as the largest inclusion allowed for is normally 20%, for the proposed development on the site.

The tree will not be affected by the proposed excavation for the development. The overland water flow patterns of the tree on the site will not change and as well as the soil environment of the tree.

Gradient of Impacts

No Impact of Significance

0% of root zone impacted – no impact of significance
0 to 10% of root zone impacted – low level of impact
10 to 15% of root zone impacted – low to moderate level of impact

15 to 20% of root zone impacted – moderate level of impact
20 to 25% of root zone impacted – moderate to high level of impact
25 to 35% of root zone impacted – high level of impact
>35% of root zone impact ted – significant level of impact

Used with permission of Landscape Matrix Pty Ltd.

Significance for Visual Effects – Small Medium
Significance Matrix for effects on Landscape Character and Features- Small Local

Tree 1017 – *Eucalyptus microcorys* Tallowood

The proposed excavations will not impact the (TPZ) Tree Protection Zone of the tree

The tree has a dbh of 500mm

Tree Protection Zone = 12 X DBH (500mm) = 6 Metres

Tree has a diameter at base height of 540mm

Structural Root Zone SRZ Radius = (540x70)0.42 x.64= 2.5 Metres

Incursion 0 Metres

Radius 6 Metres

The tree will not be affected by the proposed excavation for the development. The tree's TPZ will have an incursion of 0% (Segment Area (0m2) / Total Circle Area (113.10m2) Area x 100 which is acceptable as the largest inclusion allowed for is normally 10%, for the proposed development on the site.

The tree will not be affected by the proposed excavation for the development. The overland water flow patterns of the tree on the site will not change and as well as the soil environment of the tree.

Gradient of Impacts

No Impact of Significance

0% of root zone impacted – no impact of significance
0 to 10% of root zone impacted – low level of impact
10 to 15% of root zone impacted – low to moderate level of impact
15 to 20% of root zone impacted – moderate level of impact
20 to 25% of root zone impacted – moderate to high level of impact
25 to 35% of root zone impacted – high level of impact
>35% of root zone impact ted – significant level of impact

Used with permission of Landscape Matrix Pty Ltd.

Significance for Visual Effects – Medium Medium
Significance Matrix for effects on Landscape Character and Features- Medium Local

Tree 1002 – *Eucalyptus paniculata* Grey Ironbark

The proposed excavations will not impact the (TPZ) Tree Protection Zone of the tree

The tree has a dbh of 900mm

Tree Protection Zone = 12 X DBH (900mm) = 10.8 Metres

Tree has a diameter at base height of 1020mm

Structural Root Zone SRZ Radius = (1020x70)0.42 x.64= 3.3 Metres

Incursion 0 Metres

Radius 10.8 Metres

The tree will not be affected by the proposed excavation for the development. The tree's TPZ will have an incursion of 0% (Segment Area (0m2) / Total Circle Area (366.44m2) Area x 100 which is acceptable as the largest inclusion allowed for is normally 10%, for the proposed development on the site.

The tree will not be affected by the proposed excavation for the development. The overland water flow patterns of the tree on the site will not change and as well as the soil environment of the tree.

Gradient of Impacts

No Impact of Significance

0% of root zone impacted – no impact of significance
0 to 10% of root zone impacted – low level of impact
10 to 15% of root zone impacted – low to moderate level of impact
15 to 20% of root zone impacted – moderate level of impact
20 to 25% of root zone impacted – moderate to high level of impact
25 to 35% of root zone impacted – high level of impact
>35% of root zone impact ted – significant level of impact

Used with permission of Landscape Matrix Pty Ltd.

Significance for Visual Effects – Large Medium
Significance Matrix for effects on Landscape Character and Features- Large Local

Tree 988 – *Syncarpia glomulifera* Turpentine

The proposed excavations will not impact the (TPZ) Tree Protection Zone of the tree

The tree has a dbh of 900mm

Tree Protection Zone = 12 X DBH (900mm) = 10.8 Metres

Tree has a diameter at base height of 1080mm

Structural Root Zone SRZ Radius = (1080x70)0.42 x.64= 3.4 Metres

Incursion 0 Metres

Radius 10.8 Metres

The tree will not be affected by the proposed excavation for the development. The tree's TPZ will have an incursion of 0% (Segment Area (0m2) / Total Circle Area (366.44m2) Area x 100 which is acceptable as the largest inclusion allowed for is normally 10%, for the proposed development on the site.

The tree will not be affected by the proposed excavation for the development. The overland water flow patterns of the tree on the site will not change and as well as the soil environment of the tree.

Gradient of Impacts

No Impact of Significance

0% of root zone impacted – no impact of significance
0 to 10% of root zone impacted – low level of impact
10 to 15% of root zone impacted – low to moderate level of impact
15 to 20% of root zone impacted – moderate level of impact
20 to 25% of root zone impacted – moderate to high level of impact
25 to 35% of root zone impacted – high level of impact
>35% of root zone impact ted – significant level of impact

Used with permission of Landscape Matrix Pty Ltd.

Significance for Visual Effects – Large Medium
Significance Matrix for effects on Landscape Character and Features- Large Local

Tree 987– *Eucalyptus paniculata* Grey Ironbark

The proposed excavations will not impact the (TPZ) Tree Protection Zone of the tree

The tree has a dbh of 500mm

Tree Protection Zone = 12 X DBH (500mm) = 6 Metres

Tree has a diameter at base height of 680mm

Structural Root Zone SRZ Radius = (680x70)0.42 x.64= 2.4 Metres

Incursion 0 Metres

Radius 6 Metres

The tree will not be affected by the proposed excavation for the development. The tree's TPZ will have an incursion of 0% (Segment Area (0m2) / Total Circle Area (113.10m2) Area x 100 which is acceptable as the largest inclusion allowed for is normally 10%, for the proposed development on the site.

The tree will not be affected by the proposed excavation for the development. The overland water flow patterns of the tree on the site will not change and as well as the soil environment of the tree.

Gradient of Impacts

No Impact of Significance

0% of root zone impacted – no impact of significance
0 to 10% of root zone impacted – low level of impact
10 to 15% of root zone impacted – low to moderate level of impact
15 to 20% of root zone impacted – moderate level of impact
20 to 25% of root zone impacted – moderate to high level of impact
25 to 35% of root zone impacted – high level of impact
>35% of root zone impact ted – significant level of impact

Used with permission of Landscape Matrix Pty Ltd.

Significance for Visual Effects – Medium Medium
Significance Matrix for effects on Landscape Character and Features- Medium Local

Tree 986 – *Eucalyptus resinfera* Red Mahogany

The proposed excavations will not impact the (TPZ) Tree Protection Zone of the tree

The tree has a dbh of 500mm

Tree Protection Zone = 12 X DBH (500mm) = 6 Metres

Tree has a diameter at base height of 580mm

Structural Root Zone SRZ Radius = (580x70)0.42 x.64= 2.6 Metres

Incursion 0 Metres

Radius 6 Metres

The tree will not be affected by the proposed excavation for the development. The tree's TPZ will have an incursion of 0% (Segment Area (0m2) / Total Circle Area (113.10m2) Area x 100 which is acceptable as the largest inclusion allowed for is normally 10%, for the proposed development on the site.

The tree will not be affected by the proposed excavation for the development. The overland water flow patterns of the tree on the site will not change and as well as the soil environment of the tree.

Gradient of Impacts

No Impact of Significance

0% of root zone impacted – no impact of significance
0 to 10% of root zone impacted – low level of impact
10 to 15% of root zone impacted – low to moderate level of impact
15 to 20% of root zone impacted – moderate level of impact
20 to 25% of root zone impacted – moderate to high level of impact
25 to 35% of root zone impacted – high level of impact
>35% of root zone impact ted – significant level of impact

Used with permission of Landscape Matrix Pty Ltd.

Significance for Visual Effects – Medium Medium
Significance Matrix for effects on Landscape Character and Features- Medium Local

Tree 984 – *Eucalyptus paniculata* Grey Ironbark

The proposed excavations will not impact the (TPZ) Tree Protection Zone of the tree

The tree has a dbh of 300mm

Tree Protection Zone = 12 X DBH (300mm) = 3.6 Metres

Tree has a diameter at base height of 300mm

Structural Root Zone SRZ Radius = (870x70)0.42 x.64= 2 Metres

Incursion 0 Metres

Radius 3.6 Metres

The tree will not be affected by the proposed excavation for the development. The tree's TPZ will have an incursion of 0% (Segment Area (0m2) / Total Circle Area (254.47m2) Area x 100 which is acceptable as the largest inclusion allowed for is normally 10%, for the proposed development on the site.

The tree will not be affected by the proposed excavation for the development. The overland water flow patterns of the tree on the site will not change and as well as the soil environment of the tree.

Gradient of Impacts

No Impact of Significance

0% of root zone impacted – no impact of significance
0 to 10% of root zone impacted – low level of impact
10 to 15% of root zone impacted – low to moderate level of impact
15 to 20% of root zone impacted – moderate level of impact
20 to 25% of root zone impacted – moderate to high level of impact
25 to 35% of root zone impacted – high level of impact
>35% of root zone impact ted – significant level of impact

Used with permission of Landscape Matrix Pty Ltd.

Significance for Visual Effects – Medium Medium
Significance Matrix for effects on Landscape Character and Features- Medium Local

Tree 981 – *Eucalyptus paniculata* Grey Ironbark

The proposed excavations will not impact the (TPZ) Tree Protection Zone of the tree

The tree has a dbh of 200mm

Tree Protection Zone = 12 X DBH (200mm) = 2.4 Metres

Tree has a diameter at base height of 250mm

Structural Root Zone SRZ Radius = (250x70)0.42 x.64= 1.9 Metres

Incursion 0 Metres

Radius 2.4 Metres

The tree will not be affected by the proposed excavation for the development. The tree's TPZ will have an incursion of 0% (Segment Area (0m2) / Total Circle Area (18.10m2) Area x 100 which is acceptable as the largest inclusion allowed for is normally 10%, for the proposed development on the site.

The tree will not be affected by the proposed excavation for the development. The overland water flow patterns of the tree on the site will not change and as well as the soil environment of the tree.

Gradient of Impacts

No Impact of Significance

0% of root zone impacted – no impact of significance
0 to 10% of root zone impacted – low level of impact
10 to 15% of root zone impacted – low to moderate level of impact
15 to 20% of root zone impacted – moderate level of impact
20 to 25% of root zone impacted – moderate to high level of impact
25 to 35% of root zone impacted – high level of impact
>35% of root zone impact ted – significant level of impact

Used with permission of Landscape Matrix Pty Ltd.

Significance for Visual Effects – Medium Medium
Significance Matrix for effects on Landscape Character and Features- Medium Local

Tree 979– *Eucalyptus paniculata* Grey Ironbark

The proposed excavations will not impact the (TPZ) Tree Protection Zone of the tree

The tree has a dbh of 350mm

Tree Protection Zone = 12 X DBH (350mm) = 4.2 Metres

Tree has a diameter at base height of 480mm

Structural Root Zone SRZ Radius = (480x70)0.42 x.64= 2.4 Metres

Incursion 0 Metres

Radius 4.2 Metres

The tree will not be affected by the proposed excavation for the development. The tree's TPZ will have an incursion of 0% (Segment Area (0m2) / Total Circle Area (55.42m2) Area x 100 which is acceptable as the largest inclusion allowed for is normally 10%, for the proposed development on the site.

The tree will not be affected by the proposed excavation for the development. The overland water flow patterns of the tree on the site will not change and as well as the soil environment of the tree.

Gradient of Impacts

No Impact of Significance

0% of root zone impacted – no impact of significance
0 to 10% of root zone impacted – low level of impact
10 to 15% of root zone impacted – low to moderate level of impact
15 to 20% of root zone impacted – moderate level of impact
20 to 25% of root zone impacted – moderate to high level of impact
25 to 35% of root zone impacted – high level of impact
>35% of root zone impact ted – significant level of impact

Used with permission of Landscape Matrix Pty Ltd.

Significance for Visual Effects – Medium Medium
Significance Matrix for effects on Landscape Character and Features- Medium Local

Tree 980 – *Eucalyptus paniculata* Grey Ironbark

The proposed excavations will not impact the (TPZ) Tree Protection Zone of the tree

The tree has a dbh of 700mm

Tree Protection Zone = 12 X DBH (700mm) = 8.4 Metres

Tree has a diameter at base height of 890mm

Structural Root Zone SRZ Radius = (890x70)0.42 x.64= 3.2 Metres

Incursion 0 Metres

Radius 8.4 Metres

The tree will not be affected by the proposed excavation for the development. The tree's TPZ will have an incursion of 0% (Segment Area (0m2) / Total Circle Area (706.86m2) Area x 100 which is acceptable as the largest inclusion allowed for is normally 10%, for the proposed development on the site.

The tree will not be affected by the proposed excavation for the development. The overland water flow patterns of the tree on the site will not change and as well as the soil environment of the tree.

Gradient of Impacts

No Impact of Significance

0% of root zone impacted – no impact of significance
0 to 10% of root zone impacted – low level of impact
10 to 15% of root zone impacted – low to moderate level of impact
15 to 20% of root zone impacted – moderate level of impact
20 to 25% of root zone impacted – moderate to high level of impact
25 to 35% of root zone impacted – high level of impact
>35% of root zone impact ted – significant level of impact

Used with permission of Landscape Matrix Pty Ltd.

Significance for Visual Effects – Large Medium
Significance Matrix for effects on Landscape Character and Features- Large Local

Tree 967 – *Eucalyptus saligna* Sydney Blue Gum

The proposed excavations will not impact the (TPZ) Tree Protection Zone of the tree

The tree has a dbh of 1250mm

Tree Protection Zone = 12 X DBH (1250mm) = 15 Metres

Tree has a diameter at base height of 1380mm

Structural Root Zone SRZ Radius = (1380x70)0.42 x.64= 3.8 Metres

Incursion 0 Metres

Radius 15 Metres

The tree will not be affected by the proposed excavation for the development. The tree's TPZ will have an incursion of 0% (Segment Area (0m2) / Total Circle Area (706.85.47m2) Area x 100 which is acceptable as the largest inclusion allowed for is normally 10%, for the proposed development on the site.

The tree will not be affected by the proposed excavation for the development. The overland water flow patterns of the tree on the site will not change and as well as the soil environment of the tree.

Gradient of Impacts

No Impact of Significance

0% of root zone impacted – no impact of significance
0 to 10% of root zone impacted – low level of impact
10 to 15% of root zone impacted – low to moderate level of impact
15 to 20% of root zone impacted – moderate level of impact
20 to 25% of root zone impacted – moderate to high level of impact
25 to 35% of root zone impacted – high level of impact
>35% of root zone impact ted – significant level of impact

Used with permission of Landscape Matrix Pty Ltd.

Significance for Visual Effects – Large Medium
Significance Matrix for effects on Landscape Character and Features- Large Local

Tree 966 – *Eucalyptus paniculata* Grey Ironbark

The proposed excavations will not impact the (TPZ) Tree Protection Zone of the tree

The tree has a dbh of 550mm

Tree Protection Zone = 12 X DBH (550mm) = 6.6 Metres

Tree has a diameter at base height of 680mm

Structural Root Zone SRZ Radius = (680x70)0.42 x.64= 2.8 Metres

Incursion 0 Metres

Radius 6.6 Metres

The tree will not be affected by the proposed excavation for the development. The tree's TPZ will have an incursion of 0% (Segment Area (0m2) / Total Circle Area (138.35m2) Area x 100 which is acceptable as the largest inclusion allowed for is normally 10%, for the proposed development on the site.

The tree will not be affected by the proposed excavation for the development. The overland water flow patterns of the tree on the site will not change and as well as the soil environment of the tree.

Gradient of Impacts

No Impact of Significance

0% of root zone impacted – no impact of significance
0 to 10% of root zone impacted – low level of impact
10 to 15% of root zone impacted – low to moderate level of impact
15 to 20% of root zone impacted – moderate level of impact
20 to 25% of root zone impacted – moderate to high level of impact
25 to 35% of root zone impacted – high level of impact
>35% of root zone impact ted – significant level of impact

Used with permission of Landscape Matrix Pty Ltd.

Significance for Visual Effects – Medium Medium
Significance Matrix for effects on Landscape Character and Features- Medium Local

Tree 970 – *Eucalyptus paniculata* Grey Ironbark

The proposed excavations will not impact the (TPZ) Tree Protection Zone of the tree

The tree has a dbh of 200mm

Tree Protection Zone = 12 X DBH (200mm) = 2.4 Metres

Tree has a diameter at base height of 280mm

Structural Root Zone SRZ Radius = (280x70)0.42 x.64= 1.9 Metres

Incursion 0 Metres

Radius 2.4 Metres

The tree will not be affected by the proposed excavation for the development. The tree's TPZ will have an incursion of 0% (Segment Area (0m2) / Total Circle Area (18.10m2) Area x 100 which is acceptable as the largest inclusion allowed for is normally 10%, for the proposed development on the site.

The tree will not be affected by the proposed excavation for the development. The overland water flow patterns of the tree on the site will not change and as well as the soil environment of the tree.

Gradient of Impacts

No Impact of Significance

0% of root zone impacted – no impact of significance
0 to 10% of root zone impacted – low level of impact
10 to 15% of root zone impacted – low to moderate level of impact
15 to 20% of root zone impacted – moderate level of impact
20 to 25% of root zone impacted – moderate to high level of impact
25 to 35% of root zone impacted – high level of impact
>35% of root zone impact ted – significant level of impact

Used with permission of Landscape Matrix Pty Ltd.

Significance for Visual Effects – Medium Medium
Significance Matrix for effects on Landscape Character and Features- Medium Local

Tree 974 – *Eucalyptus resinfera* Red Mahogany

The proposed excavations will not impact the (TPZ) Tree Protection Zone of the tree

The tree has a dbh of 600mm

Tree Protection Zone = 12 X DBH (600mm) = 7.2 Metres

Tree has a diameter at base height of 680mm

Structural Root Zone SRZ Radius = (680x70)0.42 x.64= 2.8 Metres

Incursion 0 Metres

Radius 7.2 Metres

The tree will not be affected by the proposed excavation for the development. The tree's TPZ will have an incursion of 0% (Segment Area (0m2) / Total Circle Area (40.72m2) Area x 100 which is acceptable as the largest inclusion allowed for is normally 10%, for the proposed development on the site.

The tree will not be affected by the proposed excavation for the development. The overland water flow patterns of the tree on the site will not change and as well as the soil environment of the tree.

Gradient of Impacts

No Impact of Significance

0% of root zone impacted – no impact of significance
0 to 10% of root zone impacted – low level of impact
10 to 15% of root zone impacted – low to moderate level of impact
15 to 20% of root zone impacted – moderate level of impact
20 to 25% of root zone impacted – moderate to high level of impact
25 to 35% of root zone impacted – high level of impact
>35% of root zone impact ted – significant level of impact

Used with permission of Landscape Matrix Pty Ltd.

Significance for Visual Effects – Medium Medium
Significance Matrix for effects on Landscape Character and Features- Medium Local

Tree 975 – *Eucalyptus paniculata* Red Mahogany

The proposed excavations will not impact the (TPZ) Tree Protection Zone of the tree

The tree has a dbh of 300mm

Tree Protection Zone = 12 X DBH (300mm) = 3.6 Metres

Tree has a diameter at base height of 320mm

Structural Root Zone SRZ Radius = (320x70)0.42 x.64= 2.1 Metres

Incursion 0 Metres

Radius 3.6 Metres

The tree will not be affected by the proposed excavation for the development. The tree's TPZ will have an incursion of 0% (Segment Area (0m2) / Total Circle Area (40.72m2) Area x 100 which is acceptable as the largest inclusion allowed for is normally 10%, for the proposed development on the site.

The tree will not be affected by the proposed excavation for the development. The overland water flow patterns of the tree on the site will not change and as well as the soil environment of the tree.

Gradient of Impacts

No Impact of Significance

0% of root zone impacted – no impact of significance
0 to 10% of root zone impacted – low level of impact
10 to 15% of root zone impacted – low to moderate level of impact
15 to 20% of root zone impacted – moderate level of impact
20 to 25% of root zone impacted – moderate to high level of impact
25 to 35% of root zone impacted – high level of impact
>35% of root zone impact ted – significant level of impact

Used with permission of Landscape Matrix Pty Ltd.

Significance for Visual Effects – Medium Medium
Significance Matrix for effects on Landscape Character and Features- Medium Local

Tree 976 – *Eucalyptus paniculata* Grey Ironbark

The proposed excavations will not impact the (TPZ) Tree Protection Zone of the tree

The tree has a dbh of 150mm

Tree Protection Zone = 12 X DBH (150mm) = 2 Metres

Tree has a diameter at base height of 210mm

Structural Root Zone SRZ Radius = (210x70)0.42 x.64= 3.1 Metres

Incursion 0 Metres

Radius 2 Metres

The tree will not be affected by the proposed excavation for the development. The tree's TPZ will have an incursion of 0% (Segment Area (0m2) / Total Circle Area (12.75m2) Area x 100 which is acceptable as the largest inclusion allowed for is normally 10%, for the proposed development on the site.

The tree will not be affected by the proposed excavation for the development. The overland water flow patterns of the tree on the site will not change and as well as the soil environment of the tree.

Gradient of Impacts

No Impact of Significance

0% of root zone impacted – no impact of significance
0 to 10% of root zone impacted – low level of impact
10 to 15% of root zone impacted – low to moderate level of impact
15 to 20% of root zone impacted – moderate level of impact
20 to 25% of root zone impacted – moderate to high level of impact
25 to 35% of root zone impacted – high level of impact
>35% of root zone impact ted – significant level of impact

Used with permission of Landscape Matrix Pty Ltd.

Significance for Visual Effects – Medium Medium
Significance Matrix for effects on Landscape Character and Features- Medium Local

Tree 977 – *Syncarpia glomulifera* Turpentine

The proposed excavations will not impact the (TPZ) Tree Protection Zone of the tree

The tree has a dbh of 400mm

Tree Protection Zone = 12 X DBH (400mm) = 4.8 Metres

Tree has a diameter at base height of 450mm

Structural Root Zone SRZ Radius = (450x70)0.42 x.64= 2.4 Metres

Incursion 0 Metres

Radius 4.8 Metres

The tree will not be affected by the proposed excavation for the development. The tree's TPZ will have an incursion of 0% (Segment Area (0m2) / Total Circle Area (72.38m2) Area x 100 which is acceptable as the largest inclusion allowed for is normally 10%, for the proposed development on the site.

The tree will not be affected by the proposed excavation for the development. The overland water flow patterns of the tree on the site will not change and as well as the soil environment of the tree.

Gradient of Impacts

No Impact of Significance

0% of root zone impacted – no impact of significance
0 to 10% of root zone impacted – low level of impact
10 to 15% of root zone impacted – low to moderate level of impact
15 to 20% of root zone impacted – moderate level of impact
20 to 25% of root zone impacted – moderate to high level of impact
25 to 35% of root zone impacted – high level of impact
>35% of root zone impact ted – significant level of impact

Used with permission of Landscape Matrix Pty Ltd.

Significance for Visual Effects – Medium Medium
Significance Matrix for effects on Landscape Character and Features- Medium Local

Tree 982 – *Eucalyptus paniculata* Grey Ironbark

The proposed excavations will not impact the (TPZ) Tree Protection Zone of the tree

The tree has a dbh of 1000mm

Tree Protection Zone = 12 X DBH (1000mm) = 12 Metres

Tree has a diameter at base height of 1230mm

Structural Root Zone SRZ Radius = (1230x70)0.42 x.64= 3.6 Metres

Incursion 0 Metres

Radius 12 Metres

The tree will not be affected by the proposed excavation for the development. The tree's TPZ will have an incursion of 0% (Segment Area (0m2) / Total Circle Area (452.39m2) Area x 100 which is acceptable as the largest inclusion allowed for is normally 10%, for the proposed development on the site.

The tree will not be affected by the proposed excavation for the development. The overland water flow patterns of the tree on the site will not change and as well as the soil environment of the tree.

Gradient of Impacts

No Impact of Significance

0% of root zone impacted – no impact of significance
0 to 10% of root zone impacted – low level of impact
10 to 15% of root zone impacted – low to moderate level of impact
15 to 20% of root zone impacted – moderate level of impact
20 to 25% of root zone impacted – moderate to high level of impact
25 to 35% of root zone impacted – high level of impact
>35% of root zone impact ted – significant level of impact

Used with permission of Landscape Matrix Pty Ltd.

Significance for Visual Effects – Large Medium
Significance Matrix for effects on Landscape Character and Features- Large Local

Tree 996 – *Eucalyptus saligna* Sydney Blue Gum

The proposed excavations will not impact the (TPZ) Tree Protection Zone of the tree

The tree has a dbh of 650mm

Tree Protection Zone = 12 X DBH (650mm) = 9.8 Metres

Tree has a diameter at base height of 790mm

Structural Root Zone SRZ Radius = (790x70)0.42 x.64= 3 Metres

Incursion 0 Metres

Radius 9.8 Metres

The tree will not be affected by the proposed excavation for the development. The tree's TPZ will have an incursion of 0% (Segment Area (0m2) / Total Circle Area (301.72m2) Area x 100 which is acceptable as the largest inclusion allowed for is normally 10%, for the proposed development on the site.

The tree will not be affected by the proposed excavation for the development. The overland water flow patterns of the tree on the site will not change and as well as the soil environment of the tree.

Gradient of Impacts

No Impact of Significance

0% of root zone impacted – no impact of significance
0 to 10% of root zone impacted – low level of impact
10 to 15% of root zone impacted – low to moderate level of impact
15 to 20% of root zone impacted – moderate level of impact
20 to 25% of root zone impacted – moderate to high level of impact
25 to 35% of root zone impacted – high level of impact
>35% of root zone impact ted – significant level of impact

Used with permission of Landscape Matrix Pty Ltd.

Significance for Visual Effects – Medium Medium
Significance Matrix for effects on Landscape Character and Features- Medium Local

Tree 998 – *Eucalyptus saligna* Sydney Blue Gum

The proposed excavations will not impact the (TPZ) Tree Protection Zone of the tree

The tree has a dbh of 400mm

Tree Protection Zone = 12 X DBH (400mm) = 4.8 Metres

Tree has a diameter at base height of 520mm

Structural Root Zone SRZ Radius = (520x70)0.42 x.64= 2.5 Metres

Incursion 0 Metres

Radius 4.8 Metres

The tree will not be affected by the proposed excavation for the development. The tree's TPZ will have an incursion of 0% (Segment Area (0m2) / Total Circle Area (72.38m2) Area x 100 which is acceptable as the largest inclusion allowed for is normally 10%, for the proposed development on the site.

The tree will not be affected by the proposed excavation for the development. The overland water flow patterns of the tree on the site will not change and as well as the soil environment of the tree.

Gradient of Impacts

No Impact of Significance

0% of root zone impacted – no impact of significance
0 to 10% of root zone impacted – low level of impact
10 to 15% of root zone impacted – low to moderate level of impact
15 to 20% of root zone impacted – moderate level of impact
20 to 25% of root zone impacted – moderate to high level of impact
25 to 35% of root zone impacted – high level of impact
>35% of root zone impact ted – significant level of impact

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Significance for Visual Effects – Medium Medium
Significance Matrix for effects on Landscape Character and Features- Medium Local

Tree 999 – *Eucalyptus scoparia* Willow Gum

The proposed excavations will not impact the (TPZ) Tree Protection Zone of the tree

The tree has a dbh of 400mm

Tree Protection Zone = 12 X DBH (400mm) = 4.8 Metres

Tree has a diameter at base height of 490mm

Structural Root Zone SRZ Radius = (490x70)0.42 x.64= 2.3 Metres

Incursion 0 Metres

Radius 4.8 Metres

The tree will not be affected by the proposed excavation for the development. The tree's TPZ will have an incursion of 0% (Segment Area (0m2) / Total Circle Area (72.38m2) Area x 100 which is acceptable as the largest inclusion allowed for is normally 10%, for the proposed development on the site.

The tree will not be affected by the proposed excavation for the development. The overland water flow patterns of the tree on the site will not change and as well as the soil environment of the tree.

Gradient of Impacts

No Impact of Significance

0% of root zone impacted – no impact of significance
0 to 10% of root zone impacted – low level of impact
10 to 15% of root zone impacted – low to moderate level of impact
15 to 20% of root zone impacted – moderate level of impact
20 to 25% of root zone impacted – moderate to high level of impact
25 to 35% of root zone impacted – high level of impact
>35% of root zone impact ted – significant level of impact

Used with permission of Landscape Matrix Pty Ltd.

Significance for Visual Effects – Medium Medium
Significance Matrix for effects on Landscape Character and Features- Medium Local

Tree 1774 – *Eucalyptus pilularis* Black Butt

The proposed excavations will not impact the (TPZ) Tree Protection Zone of the tree

The tree has a dbh of 150mm

Tree Protection Zone = 12 X DBH (150mm) = 2 Metres

Tree has a diameter at base height of 200mm

Structural Root Zone SRZ Radius = (200x70)0.42 x.64= 1.7 Metres

Incursion 0 Metres

Radius 9 Metres

The tree will not be affected by the proposed excavation for the development. The tree's TPZ will have an incursion of 0% (Segment Area (0m2) / Total Circle Area (12.57m2) Area x 100 which is acceptable as the largest inclusion allowed for is normally 10%, for the proposed development on the site.

The tree will not be affected by the proposed excavation for the development. The overland water flow patterns of the tree on the site will not change and as well as the soil environment of the tree.

Gradient of Impacts

No Impact of Significance

0% of root zone impacted – no impact of significance
0 to 10% of root zone impacted – low level of impact
10 to 15% of root zone impacted – low to moderate level of impact
15 to 20% of root zone impacted – moderate level of impact
20 to 25% of root zone impacted – moderate to high level of impact
25 to 35% of root zone impacted – high level of impact
>35% of root zone impact ted – significant level of impact

Used with permission of Landscape Matrix Pty Ltd.

Significance for Visual Effects – Medium Medium
Significance Matrix for effects on Landscape Character and Features- Medium Local

3.2 DETERMINING THE TPZ

The radius of the TPZ is calculated for each tree by multiplying its DBH × 12.

$$TPZ = DBH \times 12$$

where

DBH = trunk diameter measured at 1.4 m above ground

Radius is measured from the centre of the stem at ground level.

A TPZ should not be less than 2 m nor greater than 15 m (except where crown protection is required). Clause 3.3 covers variations to the TPZ.

The TPZ of palms, other monocots, cycads and tree ferns should not be less than 1 m outside the crown projection.

3.3 VARIATIONS TO THE TPZ

3.3.1 General

It may be possible to encroach into or make variations to the standard TPZ. Encroachment includes excavation, compacted fill and machine trenching.

3.3.2 Minor encroachment

If the proposed encroachment is less than 10% of the area of the TPZ and is outside the SRZ (see Clause 3.3.5), detailed root investigations should not be required. The area lost to this encroachment should be compensated for elsewhere and contiguous with the TPZ. Variations must be made by the project arborist considering relevant factors listed in Clause 3.3.4. The figures in Appendix D demonstrate some examples of possible encroachment into the TPZ up to 10% of the area.

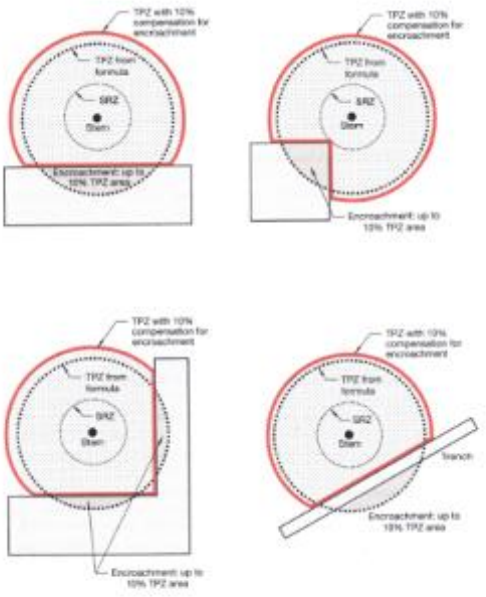
3.3.3 Major encroachment

If the proposed encroachment is greater than 10% of the TPZ or inside the SRZ (see Clause 3.3.5), the project arborist must demonstrate that the tree(s) would remain viable. The area lost to this encroachment should be compensated for elsewhere and contiguous with the TPZ. This may require root investigation by non-destructive methods and consideration of relevant factors listed in Clause 3.3.4.

ENCROACHMENT INTO TREE PROTECTION ZONE

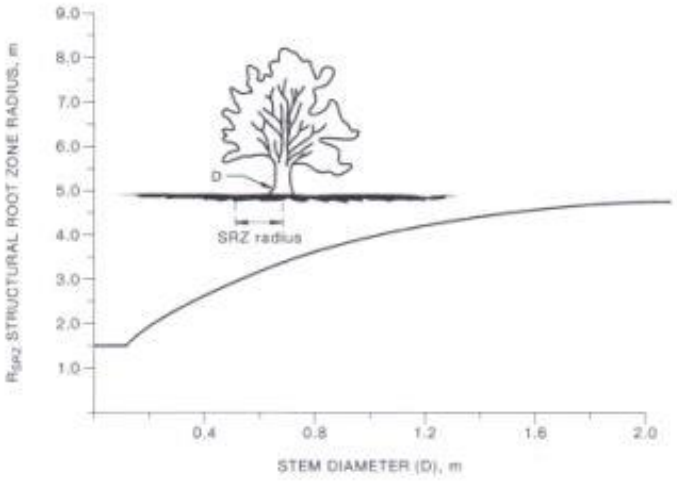
(Informative)

Encroachment into the tree protection zone (TPZ) is sometimes unavoidable. Figure D1 provides examples of TPZ encroachment by area, to assist in reducing the impact of such incursions.



NOTE: Less than 10% TPZ area and outside SRZ. Any loss of TPZ compensated for elsewhere.

FIGURE D1 EXAMPLES OF MINOR ENCROACHMENT INTO TPZ



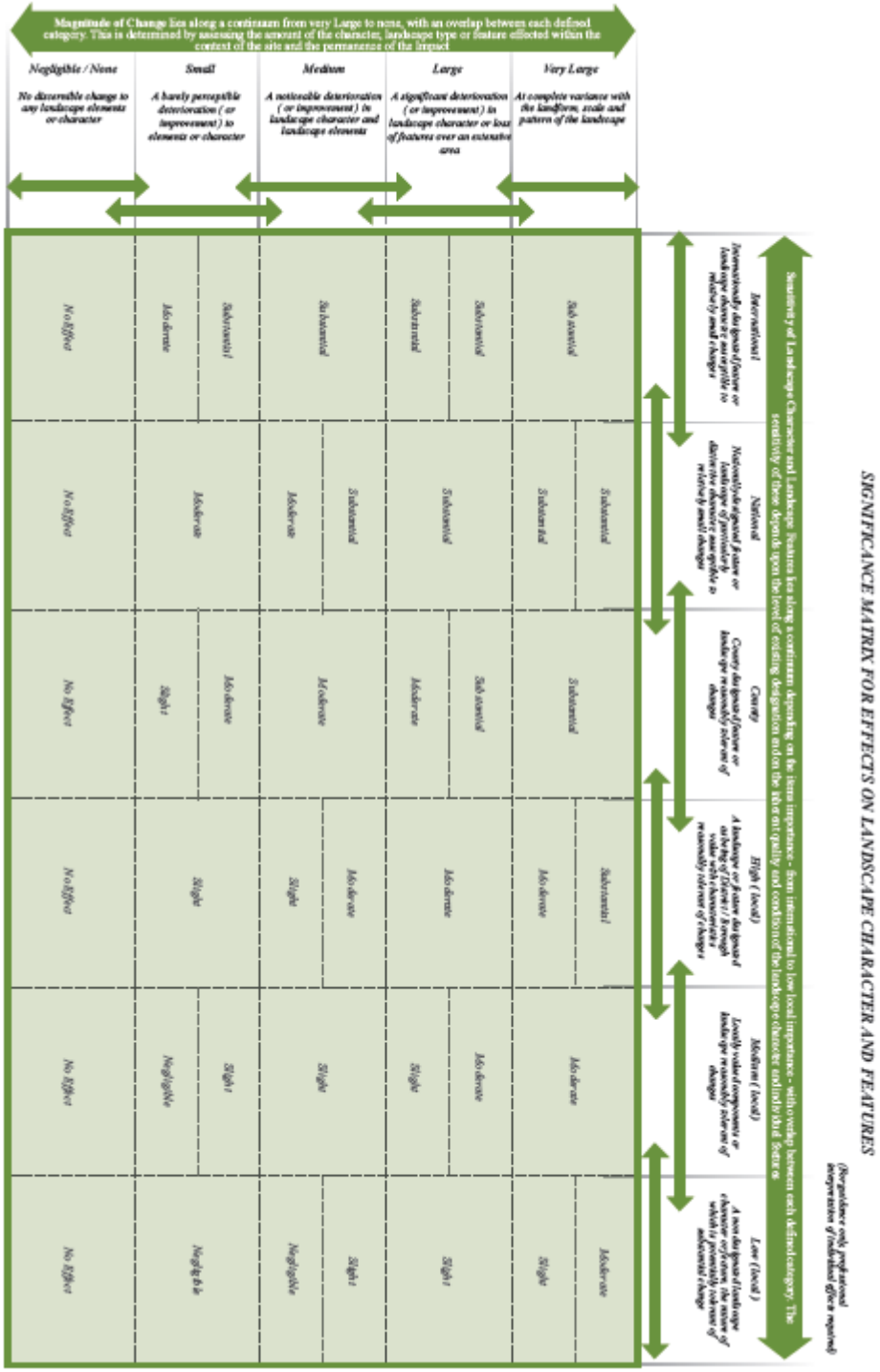
The curve can be expressed by the following formula:

$R_{SRZ} = (D \times 50)^{0.42} \times 0.64$

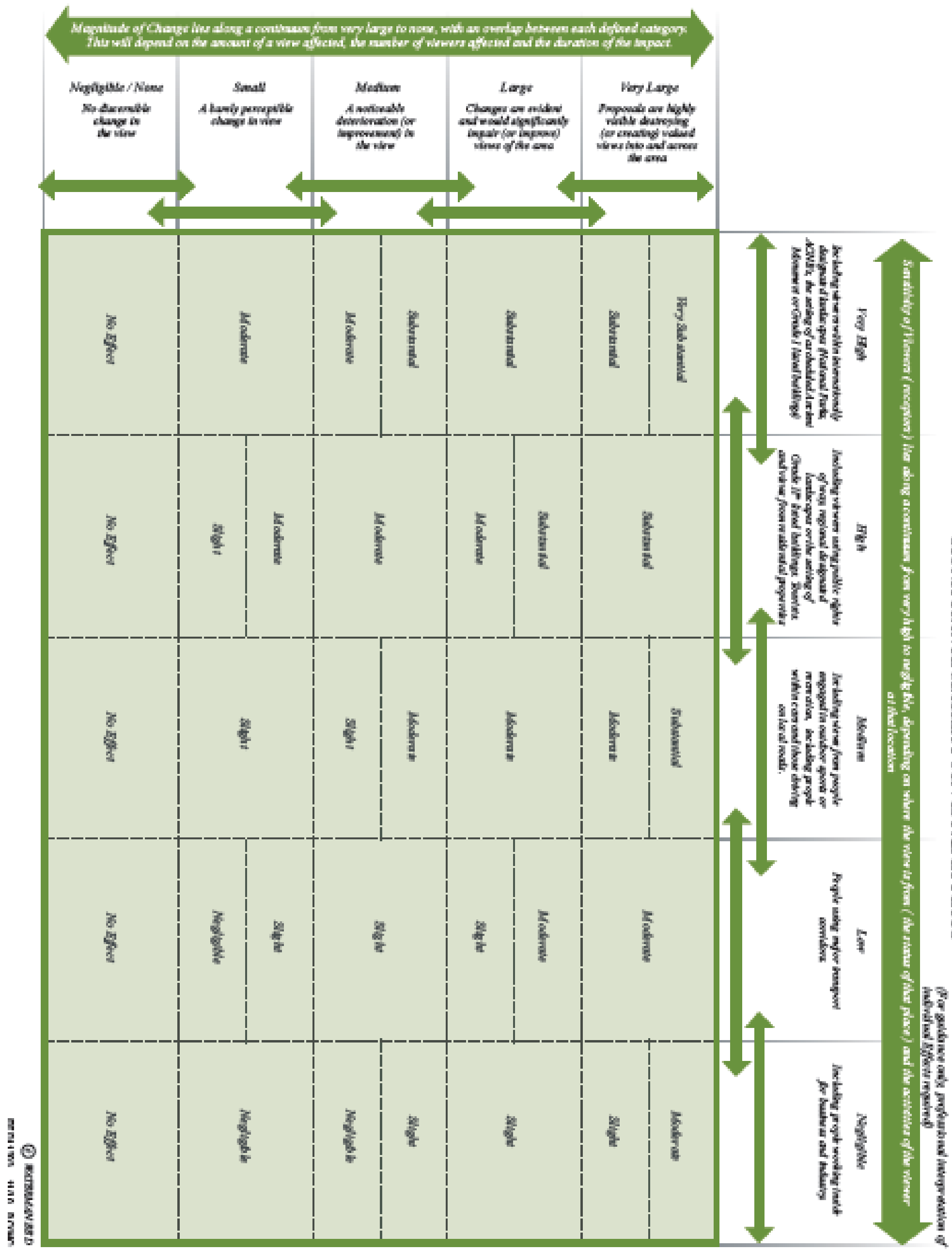
NOTES:

1 R_{SRZ} is the structural root zone radius.
2 D is the stem diameter measured immediately above root buttress.
3 The SRZ for trees less than 0.15 m diameter is 1.5 m.
4 The SRZ formula and graph do not apply to palms, other monocots, cycads and tree ferns.
5 This does not apply to trees with an asymmetrical root plate.

FIGURE 1 STRUCTURAL ROOT ZONE



SIGNIFICANCE MATRIX FOR EFFECTS ON LANDSCAPE CHARACTER AND FEATURES


SIGNIFICANCE MATRIX FOR VISUAL EFFECTS
(For guidance only, professional interpretation of individual Effects required)
Sensitivity of Viewers (receptors) lies along a continuum from very high to negligible, depending on where the view is from (the status of that place) and the activities of the viewer at that location
Very High
High
Medium
Low
People using major transport corridors.
Negligible
Including people working inside for business and industry.
Magnitude of Change lies along a continuum from very large to none, with an overlap between each defined category. This will depend on the amount of a view affected, the number of viewers affected and the duration of the impact.
Very Large
Large
Medium
Small
A barely perceptible change in view
Negligible / None
No discernible change in the view
Very Substantial
Substantial
Moderate
Slight
Negligible
No Effect

Appendix 7 - Arboricultural Management Plan (Tree Protection Plan) for Pymble Ladies College Truck Access.,

Contents

Pre-Construction Inspection

The pre construction inspection will be carried out prior to the commencement of any excavation or building works on the proposed development site.

Compliance with the following items will be required before authorization to commence construction will be consented. Works are to be carried out as per the Australian Standard for the Protection of Trees on Building Sites.AS 4970 -2009 which includes below.

Construction Procedure for Trees to be preserved

1. Before beginning work, the contractor is required to meet with the consultant at the site to review all work procedures, access routes, storage areas, and tree protection measures.

2. Fences have been erected to protect tree to be preserved. Fences define a specific protection zone for the tree. Fences are to remain until all site work has been completed. Fences may not be relocated or removed without the written permission of the consultant.

3. Construction trailers and traffic and storage areas must remain outside fenced areas at all times.

4. All underground utilities and drain or irrigation lines shall be routed outside the tree protection zone. If lines must traverse the protection area, they shall be tunneled or bored under the tree. The site arborist should be present during any such works.

5. No materials, equipment, spoil, or waste or washout water may be deposited, stored, or parked within the tree protection zone (fenced area).

6. Additional tree pruning required for clearance during construction must be performed by a qualified arborist and not by construction personnel.

7. Any herbicides placed under paving materials must be safe for use around trees and labeled for that use. Any pesticides used on site must be tree-safe and not easily transported by water.

Pruning Specifications for Trees Recommended for Preservation

1. The tree within the project area shall be pruned to:

    a. Clear the crown of diseased, crossing, weak, and dead wood

    b. Provide 5 metres of vertical clearance over streets and 3 metres over Sidewalks;

    c. Remove stubs, cutting outside the wound wood tissue that has Formed around the branch;

    d. Reduce end weight on heavy, horizontal branches by selectively removing small diameter branches, no greater than 50-100mm near the ends of the scaffolds.

2. Where temporary clearance is needed for access, branches shall be tied back to hold them out of the clearance zone. All pruning shall be performed by a qualified arborist with a minimum of 10 million Dollars public liability insurance. That all tree pruning works are carried out as per the Australian Standard AS 4373-2007 Pruning of amenity trees and as per the Code of Practice Amenity Tree Industry August 1998.Interior branches shall not be stripped out.

3. Pruning cuts larger than 100mm in diameter, except for dead wood, shall be avoided.

4. Pruning cuts that expose heartwood shall be avoided whenever possible.

5. No more than 20 percent of live foliage shall be removed within the tree to be preserved.

6. While in the tree, the arborist shall perform and aerial inspection to identify defects that require treatment. Any additional work needed shall be reported to the consultant. The branches that require pruning have been identified and photographed on pages 14 and 20 of site photographs for the respective trees

7. Brush shall be chipped and chips shall be spread underneath trees within the tree protection zone to a maximum depth of 200mm, leaving the trunk clear of mulch.

Construction Procedure for Trees during works

1. The site arborist is to be present during any excavation works adjacent any trees on the site. This is required to specify and supervise any horticultural works that should be carried out to any nominated tree for retention.

2. If injury should occur to any tree during construction, it should be evaluated as soon as possible by the site arborist so that appropriate treatments can be applied.

3. Any grading, construction, demolition, or other work that is expected to encounter tree roots must be monitored by the consulting arborist.
4. The tree shall be irrigated on a schedule to be determined by the consultant. Each irrigation shall wet the soil within the tree protection zone to a depth of 100mm.

5. Erosion control devices such as silt fencing, debris basins, and Water diversion structures shall be installed to prevent siltation and or erosion within the tree protection zone.

6. Protection of woody roots with a diameter greater than 25mm will be required. If roots that are greater than 25MM are observed than it is suggested that a pier and beam construction technique be designed and incorporated into the overall design of the proposed development

7. Before grading, pad preparation, or excavation for foundations, footings, walls, or trenching, they shall be 300mm outside the tree protection zone by cutting all roots cleanly to a depth of 800mm. Roots shall be cut by manually digging a trench and cutting exposed roots with a saw, vibrating knife, rock saw, and narrow trencher with sharp blades, or other approved root-pruning equipment.

8. Any roots damaged during grading or construction shall be exposed to sound tissue and cut cleanly with a saw.

9. Spoil from trenches, basements, or other excavations shall not be placed within the tree protection zone either temporarily or permanently.

10. No burn piles of debris pits shall be placed within the tree protection zone. No ashes, debris, or garbage maybe dumped or buried within the tree protection zone.

11. Maintain fire-safe areas around fenced areas. Also, no heat sources, flames, Ignition sources or smoking is allowed near mulch or trees.

These inspections will be carried out on an as needed requirement. It recommended that all excavations near trees be carried out together to reduce costs for the client and that the site arborist is present to determine any root pruning treatments that might be required to be carried out at the time of excavation.

Construction Phase Monitoring

Fortnightly inspections will be required to observe six major areas during the construction phase.

- **Maintain the tree protection zone.** Maintaining the integrity of the tree protection zone is the single most important factor in protecting trees from excessive damage. Space often is at a premium on construction sites and the open areas denied by the tree protection zone are attractive locations for all types of activities that can cause damage to trees, including storing materials, parking vehicles and dumping waste.

- **Assist with changes in the field**. Few projects proceed without changes in the field. This occurs for a variety of reasons. Plans and field situations may not match, and work must occur closer to the tree than planned. Alternatively, an item may have escaped notice or was not discovered until construction. The Consultant must participate in the decisions that could affect trees.

- **Monitor tree health and conditions and specifying appropriate treatments.** Sometimes, even with a comprehensive tree protection plan, trees are accidentally damaged. The consultant must be available to recommend mitigations and appropriate actions when damage has occurred. Similarly, changes in water status, pest populations, etc. must be identified early so treatments can be applied.
- **Communicate with the project superintendent and contractors.** In our experience, one of the most critical factors in the success of a tree preservation project is the commitment of the project superintendent who manages all on-site construction activity. The superintendent's interest and willingness to support tree preservation actions (for example, honouring the tree protection zone) is vital. The consultant must acknowledge the range of demands for time and money facing the superintendent in completing the project and establish an effective means of communication and cooperation at the site.

- **Help identify appropriate work procedures around trees.** The arborist should talk with the project superintendent and contractors to identify work Procedures that are effective for all parties and minimize impacts to trees. The Consultant can help identify locations for haul roads that avoid trees while providing adequate turn and back-up zones for equipment.

- **Facilitate completion of the project.** Once a project is approved and Construction begun, one of the consultant's responsibilities is to help complete the project in a timely manner. This is not done at the expense of adequate tree protection, but in a spirit of cooperation.

Post Construction Management Tree

Maintenance program:
Care of trees following construction

The management of preserved trees following construction must encompass the needs of both individual trees and the forest remnants they comprise. The following Tree Maintenance areas will be inspected for compliance on an annual basis following the completion of works for 2 years.

Caring for Individual Trees

The program of post construction care for individual trees focuses on the normal goals of any tree management effort such as maintenance of vigour and structural stability. For trees to remain assets to the community, they must remain in good condition with low potential for failure. We address these goals by treating the tree itself (pruning, pest management) and the environment around the tree (mulch, irrigation). Overall, we strive to avoid any factors that predispose the tree to attack by pests and loss of wood through decay.

The most common remedial actions recommended for trees impacted by construction include the treatments described below.

Irrigation

Trees that have suffered loss of roots may not be able to exploit as large a soil volume as they did before injury. Alternatively, changed patterns of drainage across a site may divert water into new drainage patterns, away from trees. In either case, trees may benefit from supplemental irrigation. The following are general guidelines.

- The amount of water applied must be appropriate to the needs of the individual species.
- Light, frequent irrigations should be avoided. Irrigation should wet the entire root zone and be allowed to dry before another application.
- Excess irrigation from new landscapes should be avoided. Runoff from plantings should be minimized and/or directed away from trees.
- Wetting the trunk should be avoided.

Another approach is to reduce water loss by misting the canopy. In this technique, fine sprays of water are applied throughout the canopy on regular, relatively continuous intervals. The mist appears to raise humidity and reduce air temperature within the canopy, thereby reducing water loss. Shrader (1996) considered this treatment instrumental in the survival of transplanted oaks in Florida.

Pruning Specification further discussion

Trees on construction sites should be inspected annually to determine pruning requirements. Pruning may be required for one of two reasons. First, crowns may need to have dead, dying, diseased, broken, and otherwise structurally weak branches removed.

This pruning may also involve reducing the size of the crown where dieback is extensive. Second, crowns may be thinned to reduce the amount of canopy exposed to wind and to balance weight among branches.

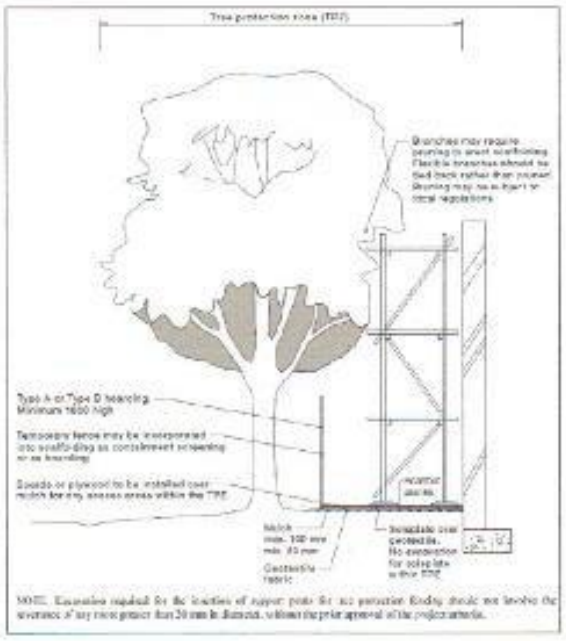
Arborists have long debated the value of pruning the crown as a way of compensating for loss of roots; however, there is no scientific evidence to support this practice. Watson (1991) notes" … no research has been published to demonstrate the effectiveness (of crown reduction pruning) on mature trees." Harris (1992) notes, "As with most things, moderation would appear to be wise in caring for root-damaged trees."

Our recommendation is that arborists not attempt to balance root loss by reducing the size of the crown. Rather, we recommend that the health and structure of the tree be monitored and appropriate pruning actions be applied.

Where scaffolding is required, it should be erected outside the TPZ. Where it is essential for scaffolding to be erected within the TPZ branch removal should be minimized. This can be achieved by designing scaffolding to avoid branches or tying back branches. Ground below the scaffolding should be protected by boarding (e.g., scaffolding board or plywood sheeting as shown. Where access is required, a board walk or other surface material

should be installed to minimise sheeting to prevent soil contamination. The boarding should be left in place until the scaffolding is removed.

"Notes:
1 For trunk and branch protection use boards and padding that will prevent damage to bark. Boards are to be strapped to trees, not nailed or screwed.
2 Rumble boards should be a suitable thickness to prevent soil compaction and root damage."
(Excerpt from AS4970:2009)



Mulch

Trees preserved on construction sites generally will benefit from having a 100- to -200 mm layer of organic mulch beneath the canopy. The mulch will reduce loss of moisture from the soil, protect against compaction, and moderate soil temperatures. It also has been demonstrated that the addition of mulch reduces soil compaction over time (see section on remedial soil treatment).

We normally specify that brush from pruning be chipped and spread under the crown. Mulch depth should be adjusted so that only 1 to 2 inches is placed against the trunk of the tree.

Fertilisation

Arborists are not in agreement about the value of supplemental fertilization to trees preserved on construction sites. A consistent benefit to such treatment has not been demonstrated by scientific research. Because trees growing in forests settings do not usually exhibit any symptoms of nutrient deficiency, we might surmise that mineral elements are not lacking in the soil and, therefore, supplementing those nutrients following root injury is not necessary. Although applications of supplemental fertilizer have resulted in increased growth of trees in forest stands, trees preserved on development sites are no longer strictly forest trees. Historical patterns of nutrient cycling are disrupted as soil, litter, and woody debris is removed; mycorrhizal associations are altered; and Patterns of water movement through the profile and across the site are changed. Moreover, we expect trees in landscape

settings to be healthier than those in woodland environments.

In addition, there is significant anecdotal evidence regarding the benefits of supplemental fertilization. We assume that the ability of trees on construction sites to absorb water and mineral nutrients has been reduced due to injury and root compaction. Providing supplemental fertilization, therefore, allows the trees to absorb necessary elements with a limited root system. Trees that were previously growing in urban landscapes or without maintenance may benefit from fertilization.

Pest Management

Tree death often follows a pattern of weakening by predisposing stresses, such as injury from construction, followed by attack from opportunistic pests and pathogens. For example, the two lined chestnut borer attacks oak trees that have been weakened by biotic or environmental stress (Dunn et al. 1990). Oak trees that have been mechanically wounded are predisposed to attack by *Armillaria* (Svihra 1991). Construction activity has been associated with decline of white pine (Weaver and Stipes 1988) and with increased occurrence of oak wilt (Miller et al. 1993).

Pest Management is an important part of a post-construction maintenance program. Developing pest management programs for preserved trees involves:

- Knowledge of the tree species and its pattern(s) of decline and death
- Treating the tree to enhance vigour and/or avoid predisposition (e.g., Supplemental irrigation, timing of pruning)
- Monitoring for the presence of pests
- Applying preventive control treatments

Because trees impacted by construction are more susceptible to pests, managers need to be vigilant about pest management programs. Particular attention must be paid to monitoring for pest and to application of control procedures. Thresholds for treatment may be more conservative on infested trees than for undisturbed trees. Under normal circumstances, the action threshold for control procedures might be defoliation of 30 percent of the crown. For trees impacted by development activity, a threshold of 15 to 20 percent defoliation would be more appropriate.

Removing fill soil

In situations where grades have been raised within the dripline, the fill soil should be removed to original grade. If the entire root area cannot be cleared of fill, a minimum 1.5- foot radius around the trunk should be returned to natural grade. In some cases, a small retaining wall may be necessary. Drainage must be provided to ensure that water does not collect at the base of the trunk. Removal of fill soil should occur by hand, especially within 3 metres of the trunk.

Remediation of Soils Damaged During Construction

The structure of soils on development sites is often altered during the construction process. Soils are compacted to provide a stable base for structures, as vehicles move across the site, and when utilities and other improvements are installed. Miller (1996) noted, however, that “compaction” is often used as a catch-all term for soil disturbances including kneading, churning, rutting, and displacement. By whatever means it is accomplished, compaction results in increased soil density and decreased porosity. It is and unfavorable environment for roots as well as soil micro flora.

Consultants are frequently asked to recommend treatments that will quickly reduce compaction and improve structure. Rolf (1992a), Day and Bassuk (1994), and Smiley (1996) reviewed possible amelioration treatments. Solutions such as tillage and sub- soiling are not appropriate on development sites where large trees are already present. In post construction situations, four treatment options are available.

- Holes and fractures can be created to increase air space. This is accomplished by injecting high-pressure water or air and physically auguring openings. In some cases, voids are filled with porous material such as sand or gravel, a process known as vertical mulching.

- Soil is removed from radically oriented trenches and replaced with porous soil material. Removal may be achieved either by backhoe and other mechanical methods or by hydro excavation (Gross 1995).

- Organic mulch can be placed around the tree beneath the canopy.

- The tree can be treated with growth regulators such as paclobutrazol (Watson 1996).

The experimental results from examining the effectiveness of the numerous possible remediation treatments are ambiguous. However, three treatments appear to provide clear benefits. First, mulching the soil beneath the canopy with organic mulch is beneficial. Smiley (1996) notes” … the most dramatic results I have ever seen in a soil compaction experiment came from using mulch by itself. ” Smiley (1996) also demonstrated improvements in trunk growth of Crepe Myrtle and Callery Pear trees in a compacted soil setting. Second, the soil removal and replacement technique has resulted in clear improvements in tree growth (Watson et al. 1996.Watson 1996, Smiley 1996). In Watson’s work, however, the soils involved were not described as compacted at the start of the project. Third, Watson (1996) demonstrated increased root development of declining white oak trees from application of paclobutrazol.

Other experiments using vertical mulching (drilling holes in the soil and filling them with mulch material) of all types, treatment with stimulants, aeration, and other methods have yielded either inconsistent or negative results for either soil characteristics or tree health. The exception to this has been the work of Rolf (1992b and 1994), which focused on remediation treatments in improving growing conditions of new plantings. It is clear that prevention and avoidance are the key elements in dealing with soil compaction and related degradations in structure on development sites. Consultants have limited ability to provide effective long-lasting treatments. As Rolf (1992a) noted, “There are no perfect methods for aeration around trees in limited spaces and where vegetation is already established.”

‘

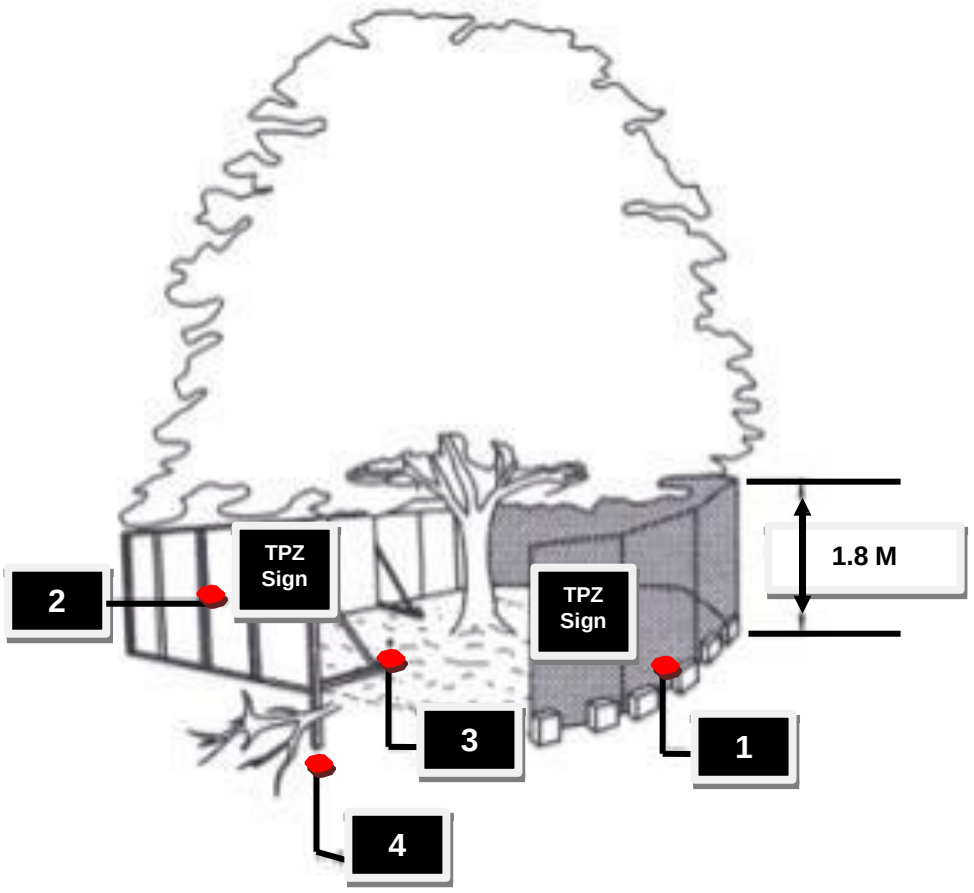
Design and Documentation Considerations

Impacts to tree	Construction Activity	Methods/Treatments to minimise damage.
Root Loss	Stripping site of organic surface soil before grading; clearing unwanted vegetation; demolishing existing structures	• Restrict stripping of topsoil around trees • Install fences to protect trees from injury • Any woody vegetation to be removed adjacent to trees to remain should be cut at ground level and not pulled out by equipment; otherwise, root injury to remaining trees may result. Arborist may be needed for adjacent tree removal if crowns are intertwined.
	Lowering grade, scarifying, preparing sub grade for fill and structures	• Before grading, root prune tree at edge of excavation to depth required. • Spoil beyond cut face can be removed by equipment sitting outside the dripline of the tree • Use retaining walls with discontinuous footings to increase the distance that natural grade is maintained from trunk.
	Preparing sub grade for pavement	• Use paving section requiring a minimum amount of excavation (e.g., reinforced concrete instead of asphalt). • To minimize thickness of pavement section, design, traffic patterns to avoid heavy loads adjacent to trees. • Increase strength of pavement to reduce reliance on sub grade for strength (e.g., use extra reinforcement in concrete, geotextile under base material).

Impacts to tree	Construction Activity	Methods/Treatments to minimise damage.
	Excavations for footings, walls, foundations	• Avoid continuous footings adjacent to trees • Use pier foundations with grade beam above grade instead of slab foundations • Orient piers to avoid major roots. • Excavate by hand, bridging roots where possible. • Where roots must be removed, cut cleanly with appropriate equipment (e.g., rock saw). Do not use equipment that pulls and shatters roots (e.g., Backhoe, trencher).
	Trenching for utilities, drains	• Where roots must be removed, cut cleanly with appropriate equipment (e.g., rock saw). Do not use equipment that pulls and shatters roots (e.g., Backhoe, trencher). * Avoid open trenching in root area * Tunnel under roots, if possible. * If not, within root area, dig trench by hand, bridging roots greater than 250mm diameter. Consolidate utilities into one trench.
Wounding crown of tree	Injury from equipment	• Fence trees to enclose low branches and protect trunk. • Clean up wounds as soon as possible • Prune to minimum height required prior to construction.

Impacts to tree	Construction Activity	Methods/Treatments to minimise damage.
	Creating clearance for building, traffic, construction equipment	• Consider minimum height requirements of construction equipment and emergency vehicles over roads. • All pruning should be performed by a Certified arborist and conform to ANSI pruning standards.
Unfavorable conditions for root growth; chronic stress from reduced root systems	Compacted surface soils	• Fence trees to keep traffic and storage out of root area • Provide a storage yard and traffic areas for construction activity for construction activity well away from trees. • Where traffic cannot be diverted, protect soil surface with thick mulch or steel plates.
	Spills, waste disposal (e.g., paint, oil, fuel)	• Clean up accidental spills immediately.
	Soil Sterilants (herbicides) applied under pavement	• Use herbicides safe for use around trees. Adhere to label requirements
	Impervious pavement over soil surface	• Minimize use of pavement within dripline
Inadequate soil moisture	Rechannelization of stream flow; redirecting runoff, lowering water table; lowering grade	• Consider system to allow low flow through normal stream alignments and provide bypass into storm drains for peak flow. • Provide supplemental irrigation in similar volumes and seasonal distribution as would normally occur.

Impacts to tree	Construction Activity	Methods/Treatments to minimise damage.
Excess Soil Moisture	Underground Flow backup; raising water table	• Fills placed across drainage courses must have culverts placed at the bottom of the low flow so that water is not backed up upstream. • Study the geotechnical report for ground water characteristics to see that walls and fills will not intercept underground flow.
	Lack of Surface drainage away from tree	• Where surface grades are to be modified, make sure that water will flow away from the trunk (i.e., that the trunk is not the lowest point). If tree is in low point, design drain system with lest impact to roots.
	Irrigation of exotic landscape	• Match irrigation requirements of tree and understory landscape to avoid over irrigation.



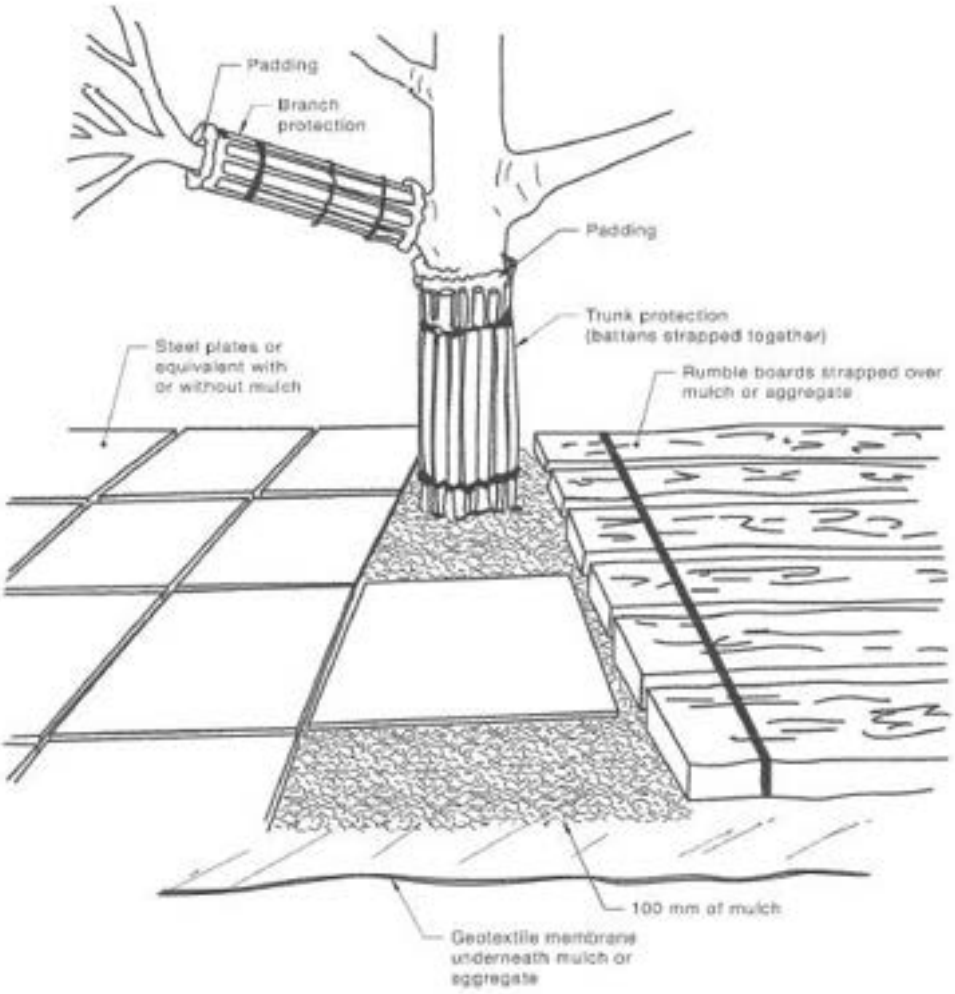
Legend

1. Chain wire mesh panels with shade cloth (if required) attached, held in place with concrete feet.

2. Alternative plywood or wooden paling fence panels. This fencing material also prevents building materials or soil entering the TPZ.

3. Mulch installation across surface of TPZ (at the discretion of the project arborist). No excavation construction activity, grade changes, surface treatment or storage of materials of any kind is permitted within the TPZ.

4. Bracing is permissible within the TPZ. Installation of supports should avoid damaging roots.

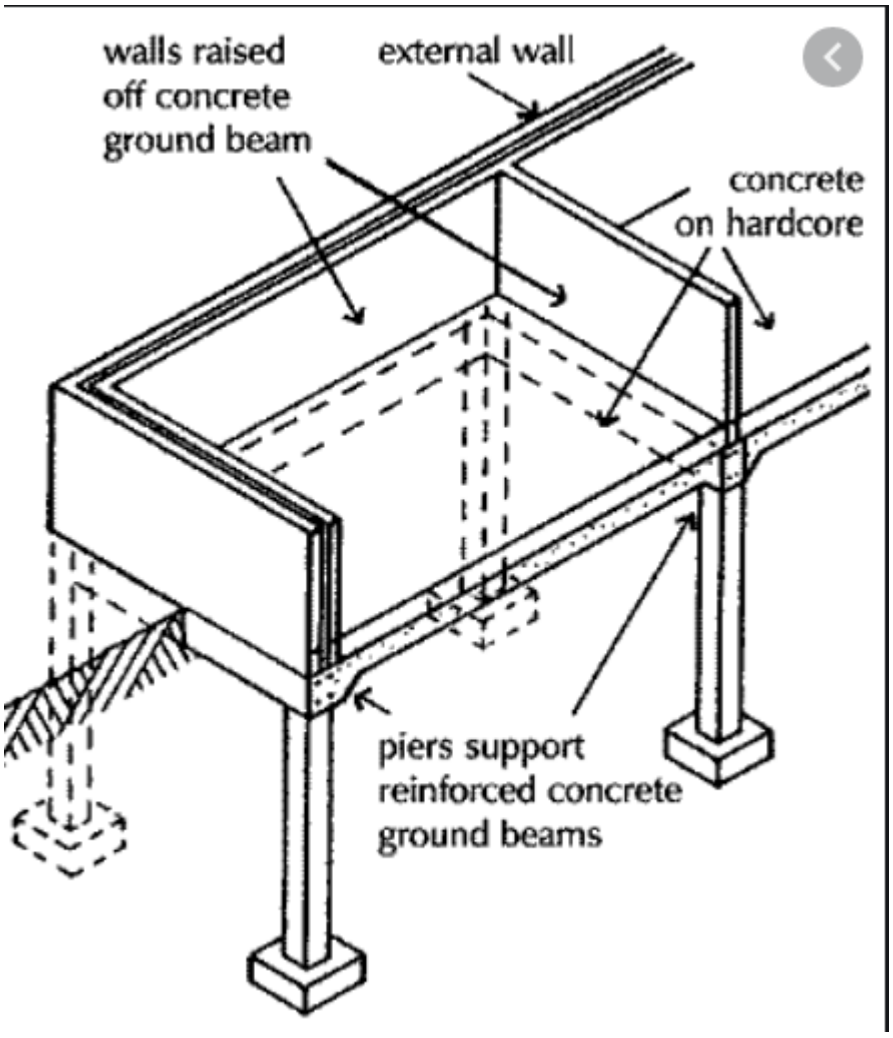


NOTES:

1 For trunk and branch protection use boards and padding that will prevent damage to bark. Boards are to be strapped to trees, not nailed or screwed.

2 Rumble boards should be of a suitable thickness to prevent soil compaction and root damage.

Isolated Pier and Beam Construction,



Tree Specific Management Detail and Specifications

Tree 1035 (*Eucalyptus microcorys* Tallowood) is a tree in poor condition Appendix 1 (In Tree Impact Report) gives a description of the tree as per AS-4970-2009 Section 2. Appendix 2 (Tree Impact Report) shows a photograph of the tree; Appendix 4 (tree Impact Report) indicates the location of the tree on a survey plan of the site.

The tree will not be severely affected by the proposed development works (See Appendix 1 Tree Impact Report). The hydrological and soil environments of the tree will not be heavily impacted. The TPZ of the tree will have an acceptable incursion of 0% from the proposed development works. The tree will require removal as part of the proposed development as its in poor condition from being severely pollarded during its development.

Do not fell the tree with a single cut unless the tree will fall in an area not included in the Tree and Plant Protection Area. No tree to be removed within 15m of the Tree and Plant Protection Area shall be pushed over or up-rooted using a piece of grading equipment

Protect adjacent paving, soil, trees, shrubs, ground cover plantings and understory plants to remain from damage during all tree removal operations, and from construction operations. Protection shall include the root system, trunk, limbs, and crown from breakage or scarring, and the soil from compaction.

Remove stumps and immediate root plate from existing trees to be removed. Grind trunk bases and large buttress roots to a depth of the largest buttress root or at least 200mm below the top most roots whichever is less and over the area of three times the diameter of the trunk (DBH).

For trees where the stump will fall under new paved areas, grind roots to a total depth of 450mm below the existing grade. If the sides of the stump hole still have greater than approximately 20% wood visible, continue grinding operation deeper and or wider until the resulting hole has less than 20% wood.

Remove all wood chips produced by the grinding operation and back fill in 200mm layers with controlled fill of a quality acceptable to the site engineer for fill material under structures, compacted to 95% of the maximum dry density standard proctor. Project Arborist shall approve each hole at the end of the grinding operation.

In areas where the tree location is to be a planting bed or lawn, remove all woodchips and backfill stump holes with planting soil as defined in Specification Section Planting Soil, in maximum of 300mm layers and compact to 80 - 85% of the maximum dry density standard proctor.

Using a commercial, high-powered vacuum truck if required, remove the soil from the excavation produced by the Air Knife excavation. The vacuum truck should generally operate simultaneously with the hose operator, such that the soil produced is picked up from the excavation hole, and the exposed roots can be observed and not damaged by the ongoing operation. Do not drive the vacuum truck into the Tree and Plant Protection Area unless the area is protected from compaction as approved in advance by the Owner's Representative.

Remove all excavated soil and excavated Wood Chips, and contaminated soil at the end of the excavation.

Schedule the work so that foundations or utility work is completed immediately after the excavation. Do not let the roots dry out. Mist the roots several times during the day. If the excavated area must remain open overnight, mist the roots and cover the excavation with black plastic.

Dispose of all soil in a manner that meets local laws and regulations.

Restore soil within the trench as soon as the work is completed. Utilize soil of similar texture to the removed soil and lightly compact with hand tools. Leave soil mounded over the trench to a height of approximately 10% of the trench depth to account for settlement.

Restore any Geogrids, Filter Fabric, Wood Chips or Mulch and or matting that was previously required for the area

Tree Specific Management Detail and Specifications

Tree Specific Management Detail and Specifications

Tree 1775 (*Callistemon salignus* White Bottlebrush) is a tree in fair condition Appendix 1 (In the Tree Impact Report) gives a description of the tree as per AS-4970-2009 Section 2. Appendix 2 (In the Tree Impact Report) shows a photograph of the tree; Appendix 4 (In the Tree Management Plan) indicates the location of the tree on a survey plan of the site. The tree was planted within 2 metres of neighboring infrastructure. The tree should be protected and managed as per the tree management plan in appendix 6

The tree's root zone will not be affected by the proposed development works (See Appendix 1). The hydrological and soil environments of the tree will be impacted. The TPZ of the tree will have an acceptable incursion of 10% from the proposed development works Compliance with the following items will be required before authorisation to commence construction will be consented.

Before beginning work, the contractor is required to meet with the consultant at the site to review all work procedures, access routes, storage areas, and tree protection measures have been installed. Fences have been erected to protect tree to be preserved. Fences define a specific protection zone for the tree. Fences are to remain until all site work has been completed. Fences may not be relocated or removed without the written permission of the consultant.

Construction trailers and traffic and storage areas must remain outside fenced areas at all times. All underground utilities and drain or irrigation lines shall be routed outside the tree protection zone. If lines must traverse the protection area, they shall be tunneled or bored under the tree. The site arborist should be present during any such works.

No materials, equipment, spoil, or waste or washout water may be deposited, stored, or parked within the tree protection zone (fenced area). Additional tree pruning required for clearance during construction must be performed by a qualified arborist and not by construction personnel. Any herbicides placed under paving materials must be safe for use around trees and labeled for that use. Any pesticides used on site must be tree-safe and not easily transported by water.

The tree shall be pruned to, Clear the crown of diseased, crossing, weak, and dead wood, provide 5 metres of vertical clearance over streets and 3 metres over pathways; Remove stubs, cutting outside the wound wood tissue that has Formed around the branch; Reduce end weight on heavy, horizontal branches by selectively removing small diameter branches, no greater than 50-100mm near the ends of the scaffolds.

Where temporary clearance is needed for access, branches shall be tied back to hold them out of the clearance zone. All pruning shall be performed by a qualified arborist with a minimum of 10 million Dollars public liability insurance. That all tree pruning works are carried out as per the Australian Standard AS 4373-2007 Pruning of amenity trees and as per the Code of Practice Amenity Tree Industry August 1998.Interior branches shall not be stripped out.

Pruning cuts larger than 100mm in diameter, except for dead wood, shall be avoided. Pruning cuts that expose heartwood shall be avoided whenever possible. No more than 20 percent of live foliage shall be removed within the tree to be preserved. While in the tree, the arborist shall perform and aerial inspection to identify defects that require treatment. Any additional work needed shall be reported to the consultant. Brush shall be chipped and chips shall be spread underneath trees within the tree protection zone to a maximum depth of 200mm, leaving the trunk clear of mulch.

The site arborist is to be present during any excavation works adjacent any trees on the site. This is required to specify and supervise any horticultural works that should be carried out to any nominated tree for retention. If injury should occur to any tree during construction, it should be evaluated as soon as possible by the site arborist so that appropriate treatments can be applied. Any grading, construction, demolition, or other work that is expected to encounter tree roots must be monitored by the consulting arborist. The tree shall be irrigated on a schedule to be determined by the consultant. Each irrigation shall wet the soil within the tree protection zone to a depth of 100mm.

Erosion control devices such as silt fencing, debris basins, and Water diversion structures shall be installed to prevent siltation and or erosion within the tree protection zone. Before grading, pad preparation, or excavation for foundations, footings, walls, or trenching, they shall be 300mm outside the tree protection zone by cutting all roots cleanly to a depth of 800mm. Roots shall be cut by manually digging a trench and cutting exposed roots with a saw, vibrating knife, rock saw, and narrow trencher with sharp blades, or other approved root-pruning equipment.

Any roots damaged during grading or construction shall be exposed to sound tissue and cut cleanly with a saw. Spoil from trenches, basements, or other excavations shall not be placed within the tree protection zone either temporarily or permanently. No burn piles of debris pits shall be placed within the tree protection zone. No ashes, debris, or garbage maybe dumped or buried within the tree protection zone. Maintain fire-safe areas around fenced areas. Also, no heat sources, flames, Ignition sources or smoking is allowed near mulch or trees. These inspections will be carried out on an as needed requirement. It recommended that all excavations near trees be carried out together to reduce costs for the client.

The Contractor shall not engage in any construction activity within the Tree and Plant Protection Area without the approval of the Owner's Representative including: operating, moving or storing equipment; storing supplies or materials; locating temporary facilities including trailers or portable toilets and shall not permit employees to traverse the area to access adjacent areas of the project or use the area for lunch or any other work breaks. Permitted activity, if any, within the Tree and Plant Protection Area maybe indicated on the drawings along with any required remedial activity as listed below.

In the event that construction activity is unavoidable within the Tree and Plant Protection Area, notify the Owner’s Representative and submit a detailed written plan of action for approval. The plan shall include: a statement detailing the reason for the activity including why other areas are not suited; a description of the proposed activity; the time period for the activity, and a list of remedial actions that will reduce the impact on the Tree and Plant

Protection Area from the activity. Remedial actions shall include but shall not be limited to the following

In general, demolition and excavation within the drip line of trees and shrubs shall proceed with extreme care either by the use of hand tools, directional boring and or Air Knife excavation were indicated or with other low impact equipment that will not cause damage to the tree, roots or soil.

When encountered, exposed roots, 25mm and larger in diameter shall be worked around in a manner that does not break the outer layer of the root surface (bark). These roots shall be covered in Wood Chips and shall be maintained above permanent wilt point at all times. Roots one inch and larger in diameter shall not be cut without the approval of the owner's representative. Excavation shall be tunneled under these roots without cutting them. In the areas where roots are encountered, work shall be performed and scheduled to close excavations as quickly as possible over exposed roots.

Tree branches that interfere with the construction may be tied back or pruned to clear only to the point necessary to complete the work. Other branches shall only be removed when specifically indicated by the Owner's Representative. Tying back or trimming of all branches and the cutting of roots shall be in accordance with accepted arboricultural practices and be performed under supervision of the arborist Please see attached detail of branches to be pruned below

Matting: Install temporary matting over the Wood Chips or Mulch to the extent indicated. Do not permit foot traffic, scaffolding or the storage of materials within the Tree and Plant Protection Area to occur off of the temporary matting.

Trunk Protection: Protect the trunk of each tree to remain by covering it with a ring of 2.4m long 50mm x 150mm planks loosely banded onto the tree with 3 steel bands. Staple the bands to the planks as necessary to hold them securely in place. Trunk protection must be kept in place no longer than 12 months. If construction requires work near a particular tree to continue longer than 12 months, the steel bands shall be inspected every six months and loosened if they are found to have become tight.

Air Excavation Tool: If excavation for footings or utilities is required within the Tree and Plant Protection Area, air excavation tool techniques shall be used where practical or as designed on the drawings.

Remove the Wood Chips from an area approximately 18 inches beyond the limits of the hole or trench to be excavated. Cover the Wood Chips for a distance of not less than 15 feet around the limit of the excavation area with Filter Fabric or plastic sheeting to protect the Wood Chips from silt. Mound the Wood Chips so that the plastic slopes towards the excavation.

Using a sprinkler or soaker hose, apply water slowly to the area of the excavation for a period of at least 4 hours, approximately 12 hours prior to the work so that the ground water level is at or near field capacity at the beginning of the work. For excavations that go beyond the damp soil, re-wet the soil as necessary to keep soil moisture near field capacity.

Using an air excavation tool specifically designed and manufactured for the intended purpose, and at pressures recommended by the manufacturer of the equipment, fracture the existing soil to the shape and the depths required. Work at rates and using techniques that do not harm tree roots. Air pressure shall be a maximum of 90-100 psi.

Using a commercial, high-powered vacuum truck if required, remove the soil from the excavation produced by the Air Knife excavation. The vacuum truck should generally operate simultaneously with the hose operator, such that the soil produced is picked up from the excavation hole, and the exposed roots can be observed and not damaged by the ongoing operation. Do not drive the vacuum truck into the Tree and Plant Protection Area unless the area is protected from compaction as approved in advance by the Owner's Representative.

Remove all excavated soil and excavated Wood Chips, and contaminated soil at the end of the excavation.

Schedule the work so that foundations or utility work is completed immediately after the excavation. Do not let the roots dry out. Mist the roots several times during the day. If the excavated area must remain open overnight, mist the roots and cover the excavation with black plastic.

Dispose of all soil in a manner that meets local laws and regulations.

Restore soil within the trench as soon as the work is completed. Utilize soil of similar texture to the removed soil and lightly compact with hand tools. Leave soil mounded over the trench to a height of approximately 10% of the trench depth to account for settlement.

Restore any Geogrids, Filter Fabric, Wood Chips or Mulch and or matting that was previously required for the area

Tree Specific Management Detail and Specifications

Tree 1018 (*Eucalyptus paniculata* Grey Ironbark) is a tree in poor condition Appendix 1 (In Tree Impact Report) gives a description of the tree as per AS-4970-2009 Section 2. Appendix 2 (Tree Impact Report) shows a photograph of the tree; Appendix 4 (tree Impact Report) indicates the location of the tree on a survey plan of the site.

The tree will not be severely affected by the proposed development works (See Appendix 1 Tree Impact Report). The hydrological and soil environments of the tree will not be heavily impacted. The TPZ of the tree will have an acceptable incursion of 0% from the proposed development works. The tree will require removal as part of the proposed development as its in poor condition from being severely pollarded during its development.

Do not fell the tree with a single cut unless the tree will fall in an area not included in the Tree and Plant Protection Area. No tree to be removed within 15m of the Tree and Plant Protection Area shall be pushed over or up-rooted using a piece of grading equipment

Protect adjacent paving, soil, trees, shrubs, ground cover plantings and understory plants to remain from damage during all tree removal operations, and from construction operations. Protection shall include the root system, trunk, limbs, and crown from breakage or scarring, and the soil from compaction.

Remove stumps and immediate root plate from existing trees to be removed. Grind trunk bases and large buttress roots to a depth of the largest buttress root or at least 200mm below the top most roots whichever is less and over the area of three times the diameter of the trunk (DBH).

For trees where the stump will fall under new paved areas, grind roots to a total depth of 450mm below the existing grade. If the sides of the stump hole still have greater than approximately 20% wood visible, continue grinding operation deeper and or wider until the resulting hole has less than 20% wood.

Remove all wood chips produced by the grinding operation and back fill in 200mm layers with controlled fill of a quality acceptable to the site engineer for fill material under structures, compacted to 95% of the maximum dry density standard proctor. Project Arborist shall approve each hole at the end of the grinding operation.

In areas where the tree location is to be a planting bed or lawn, remove all woodchips and backfill stump holes with planting soil as defined in Specification Section Planting Soil, in maximum of 300mm layers and compact to 80 - 85% of the maximum dry density standard proctor.

Using a commercial, high-powered vacuum truck if required, remove the soil from the excavation produced by the Air Knife excavation. The vacuum truck should generally operate simultaneously with the hose operator, such that the soil produced is picked up from the excavation hole, and the exposed roots can be observed and not damaged by the ongoing operation. Do not drive the vacuum truck into the Tree and Plant Protection Area unless the area is protected from compaction as approved in advance by the Owner's Representative.

Remove all excavated soil and excavated Wood Chips, and contaminated soil at the end of the excavation.

Schedule the work so that foundations or utility work is completed immediately after the excavation. Do not let the roots dry out. Mist the roots several times during the day. If the excavated area must remain open overnight, mist the roots and cover the excavation with black plastic.

Dispose of all soil in a manner that meets local laws and regulations.

Restore soil within the trench as soon as the work is completed. Utilize soil of similar texture to the removed soil and lightly compact with hand tools. Leave soil mounded over the trench to a height of approximately 10% of the trench depth to account for settlement.

Restore any Geogrids, Filter Fabric, Wood Chips or Mulch and or matting that was previously required for the area

Tree Specific Management Detail and Specifications

Tree 1017 (*Eucalyptus microcorys* Tallowood*)*is a tree in fair condition. Appendix 1 (In the Tree Impact Report) gives a description of the tree as per AS-4970-2009 Section 2. Appendix 2 (In the Tree Impact Report) shows a photograph of the tree; Appendix 4 (In the Tree Management Plan) indicates the location of the tree on a survey plan of the site. The tree was planted within 2 metres of neighboring infrastructure. The tree should be protected and managed as per the tree management plan in appendix 6.

The tree's root zone will not be affected by the proposed development works (See Appendix 1). The hydrological and soil environments of the tree will be impacted. The TPZ of the tree will have an acceptable incursion of 10% from the proposed development works Compliance with the following items will be required before authorisation to commence construction will be consented.

Before beginning work, the contractor is required to meet with the consultant at the site to review all work procedures, access routes, storage areas, and tree protection measures have been installed. Fences have been erected to protect tree to be preserved. Fences define a specific protection zone for the tree. Fences are to remain until all site work has been completed. Fences may not be relocated or removed without the written permission of the consultant.

Construction trailers and traffic and storage areas must remain outside fenced areas at all times. All underground utilities and drain or irrigation lines shall be routed outside the tree protection zone. If lines must traverse the protection area, they shall be tunneled or bored under the tree. The site arborist should be present during any such works.

No materials, equipment, spoil, or waste or washout water may be deposited, stored, or parked within the tree protection zone (fenced area). Additional tree pruning required for clearance during construction must be performed by a qualified arborist and not by construction personnel. Any herbicides placed under paving materials must be safe for use around trees and labeled for that use. Any pesticides used on site must be tree-safe and not easily transported by water.

The tree shall be pruned to, Clear the crown of diseased, crossing, weak, and dead wood, provide 5 metres of vertical clearance over streets and 3 metres over p a t h w a y s ; Remove stubs, cutting outside the wound wood tissue that has Formed around the branch; Reduce end weight on heavy, horizontal branches by selectively removing small diameter branches, no greater than 50-100mm near the ends of the scaffolds.

Where temporary clearance is needed for access, branches shall be tied back to hold them out of the clearance zone. All pruning shall be performed by a qualified arborist with a minimum of 10 million Dollars public liability insurance. That all tree pruning works are carried out as per the Australian Standard AS 4373-2007 Pruning of amenity trees and as per the Code of Practice Amenity Tree Industry August 1998.Interior branches shall not be stripped out.

Pruning cuts larger than 100mm in diameter, except for dead wood, shall be avoided.

Pruning cuts that expose heartwood shall be avoided whenever possible. No more than 20 percent of live foliage shall be removed within the tree to be preserved. While in the tree, the arborist shall perform and aerial inspection to identify defects that require treatment. Any additional work needed shall be reported to the consultant. Brush shall be chipped and chips shall be spread underneath trees within the tree protection zone to a maximum depth of 200mm, leaving the trunk clear of mulch.

The site arborist is to be present during any excavation works adjacent any trees on the site. This is required to specify and supervise any horticultural works that should be carried out to any nominated tree for retention. If injury should occur to any tree during construction, it should be evaluated as soon as possible by the site arborist so that appropriate treatments can be applied. Any grading, construction, demolition, or other work that is expected to encounter tree roots must be monitored by the consulting arborist. The tree shall be irrigated on a schedule to be determined by the consultant. Each irrigation shall wet the soil within the tree protection zone to a depth of 100mm.

Erosion control devices such as silt fencing, debris basins, and Water diversion structures shall be installed to prevent siltation and or erosion within the tree protection zone. Before grading, pad preparation, or excavation for foundations, footings, walls, or trenching, they shall be 300mm outside the tree protection zone by cutting all roots cleanly to a depth of 800mm. Roots shall be cut by manually digging a trench and cutting exposed roots with a saw, vibrating knife, rock saw, and narrow trencher with sharp blades, or other approved root-pruning equipment.

Any roots damaged during grading or construction shall be exposed to sound tissue and cut cleanly with a saw. Spoil from trenches, basements, or other excavations shall not be placed within the tree protection zone either temporarily or permanently. No burn piles of debris pits shall be placed within the tree protection zone. No ashes, debris, or garbage maybe dumped or buried within the tree protection zone. Maintain fire-safe areas around fenced areas. Also, no heat sources, flames, Ignition sources or smoking is allowed near mulch or trees. These inspections will be carried out on an as needed requirement. It recommended that all excavations near trees be carried out together to reduce costs for the client.

The Contractor shall not engage in any construction activity within the Tree and Plant Protection Area without the approval of the Owner's Representative including: operating, moving or storing equipment; storing supplies or materials; locating temporary facilities including trailers or portable toilets and shall not permit employees to traverse the area to access adjacent areas of the project or use the area for lunch or any other work breaks. Permitted activity, if any, within the Tree and Plant Protection Area maybe indicated on the drawings along with any required remedial activity as listed below.

In the event that construction activity is unavoidable within the Tree and Plant Protection Area, notify the Owner’s Representative and submit a detailed written plan of action for approval. The plan shall include: a statement detailing the reason for the activity including why other areas are not suited; a description of the proposed activity; the time period for the activity, and a list of remedial actions that will reduce the impact on the Tree and Plant Protection Area from the activity. Remedial actions shall include but shall not be limited to the following

In general, demolition and excavation within the drip line of trees and shrubs shall proceed with extreme care either by the use of hand tools, directional boring and or Air Knife excavation were indicated or with other low impact equipment that will not cause damage to the tree, roots or soil.

When encountered, exposed roots, 25mm and larger in diameter shall be worked around in a manner that does not break the outer layer of the root surface (bark). These roots shall be covered in Wood Chips and shall be maintained above permanent wilt point at all times. Roots one inch and larger in diameter shall not be cut without the approval of the owner's representative. Excavation shall be tunneled under these roots without cutting them. In the areas where roots are encountered, work shall be performed and scheduled to close excavations as quickly as possible over exposed roots.

Tree branches that interfere with the construction may be tied back or pruned to clear only to the point necessary to complete the work. Other branches shall only be removed when specifically indicated by the Owner's Representative. Tying back or trimming of all branches and the cutting of roots shall be in accordance with accepted arboricultural practices and be performed under supervision of the arborist Please see attached detail of branches to be pruned below

Matting: Install temporary matting over the Wood Chips or Mulch to the extent indicated. Do not permit foot traffic, scaffolding or the storage of materials within the Tree and Plant Protection Area to occur off of the temporary matting.

Trunk Protection: Protect the trunk of each tree to remain by covering it with a ring of 2.4m long 50mm x 150mm planks loosely banded onto the tree with 3 steel bands. Staple the bands to the planks as necessary to hold them securely in place. Trunk protection must be kept in place no longer than 12 months. If construction requires work near a particular tree to continue longer than 12 months, the steel bands shall be inspected every six months and loosened if they are found to have become tight.

Air Excavation Tool: If excavation for footings or utilities is required within the Tree and Plant Protection Area, air excavation tool techniques shall be used where practical or as designed on the drawings.

Remove the Wood Chips from an area approximately 18 inches beyond the limits of the hole or trench to be excavated. Cover the Wood Chips for a distance of not less than 15 feet around the limit of the excavation area with Filter Fabric or plastic sheeting to protect the Wood Chips from silt. Mound the Wood Chips so that the plastic slopes towards the excavation.

Using a sprinkler or soaker hose, apply water slowly to the area of the excavation for a period of at least 4 hours, approximately 12 hours prior to the work so that the ground water level is at or near field capacity at the beginning of the work. For excavations that go beyond the damp soil, re-wet the soil as necessary to keep soil moisture near field capacity.

Using an air excavation tool specifically designed and manufactured for the intended purpose, and at pressures recommended by the manufacturer of the equipment, fracture the existing soil to the shape and the depths required. Work at rates and using techniques that

do not harm tree roots. Air pressure shall be a maximum of 90-100 psi.

Using a commercial, high-powered vacuum truck if required, remove the soil from the excavation produced by the Air Knife excavation. The vacuum truck should generally operate simultaneously with the hose operator, such that the soil produced is picked up from the excavation hole, and the exposed roots can be observed and not damaged by the ongoing operation. Do not drive the vacuum truck into the Tree and Plant Protection Area unless the area is protected from compaction as approved in advance by the Owner's Representative.

Remove all excavated soil and excavated Wood Chips, and contaminated soil at the end of the excavation.

Schedule the work so that foundations or utility work is completed immediately after the excavation. Do not let the roots dry out. Mist the roots several times during the day. If the excavated area must remain open overnight, mist the roots and cover the excavation with black plastic.

Dispose of all soil in a manner that meets local laws and regulations.

Restore soil within the trench as soon as the work is completed. Utilize soil of similar texture to the removed soil and lightly compact with hand tools. Leave soil mounded over the trench to a height of approximately 10% of the trench depth to account for settlement.

Restore any Geogrids, Filter Fabric, Wood Chips or Mulch and or matting that was previously required for the area

Tree Specific Management Detail and Specifications

Tree 1002 (*Eucalyptus paniculata* Grey Ironbark) is a tree in fair condition Appendix 1 (In the Tree Impact Report) gives a description of the tree as per AS-4970-2009 Section 2. Appendix 2 (In the Tree Impact Report) shows a photograph of the tree; Appendix 4 (In the Tree Management Plan) indicates the location of the tree on a survey plan of the site. The tree was planted within 2 metres of neighboring infrastructure. The tree should be protected and managed as per the tree management plan in appendix 6

The tree's root zone will not be affected by the proposed development works (See Appendix 1). The hydrological and soil environments of the tree will be impacted. The TPZ of the tree will have an acceptable incursion of 10% from the proposed development works Compliance with the following items will be required before authorisation to commence construction will be consented.

Before beginning work, the contractor is required to meet with the consultant at the site to review all work procedures, access routes, storage areas, and tree protection measures have been installed. Fences have been erected to protect tree to be preserved. Fences define a specific protection zone for the tree. Fences are to remain until all site work has been completed. Fences may not be relocated or removed without the written permission of the consultant.

Construction trailers and traffic and storage areas must remain outside fenced areas at all times. All underground utilities and drain or irrigation lines shall be routed outside the tree protection zone. If lines must traverse the protection area, they shall be tunneled or bored under the tree. The site arborist should be present during any such works.

No materials, equipment, spoil, or waste or washout water may be deposited, stored, or parked within the tree protection zone (fenced area). Additional tree pruning required for clearance during construction must be performed by a qualified arborist and not by construction personnel. Any herbicides placed under paving materials must be safe for use around trees and labeled for that use. Any pesticides used on site must be tree-safe and not easily transported by water.

The tree shall be pruned to, Clear the crown of diseased, crossing, weak, and dead wood, provide 5 metres of vertical clearance over streets and 3 metres over p a t h w a y s ; Remove stubs, cutting outside the wound wood tissue that has Formed around the branch; Reduce end weight on heavy, horizontal branches by selectively removing small diameter branches, no greater than 50-100mm near the ends of the scaffolds.

Where temporary clearance is needed for access, branches shall be tied back to hold them out of the clearance zone. All pruning shall be performed by a qualified arborist with a minimum of 10 million Dollars public liability insurance. That all tree pruning works are carried out as per the Australian Standard AS 4373-2007 Pruning of amenity trees and as per the Code of Practice Amenity Tree Industry August 1998.Interior branches shall not be stripped out.

Pruning cuts larger than 100mm in diameter, except for dead wood, shall be avoided.

Pruning cuts that expose heartwood shall be avoided whenever possible. No more than 20 percent of live foliage shall be removed within the tree to be preserved. While in the tree, the arborist shall perform and aerial inspection to identify defects that require treatment. Any additional work needed shall be reported to the consultant. Brush shall be chipped and chips shall be spread underneath trees within the tree protection zone to a maximum depth of 200mm, leaving the trunk clear of mulch.

The site arborist is to be present during any excavation works adjacent any trees on the site. This is required to specify and supervise any horticultural works that should be carried out to any nominated tree for retention. If injury should occur to any tree during construction, it should be evaluated as soon as possible by the site arborist so that appropriate treatments can be applied. Any grading, construction, demolition, or other work that is expected to encounter tree roots must be monitored by the consulting arborist. The tree shall be irrigated on a schedule to be determined by the consultant. Each irrigation shall wet the soil within the tree protection zone to a depth of 100mm.

Erosion control devices such as silt fencing, debris basins, and Water diversion structures shall be installed to prevent siltation and or erosion within the tree protection zone. Before grading, pad preparation, or excavation for foundations, footings, walls, or trenching, they shall be 300mm outside the tree protection zone by cutting all roots cleanly to a depth of 800mm. Roots shall be cut by manually digging a trench and cutting exposed roots with a saw, vibrating knife, rock saw, and narrow trencher with sharp blades, or other approved root-pruning equipment.

Any roots damaged during grading or construction shall be exposed to sound tissue and cut cleanly with a saw. Spoil from trenches, basements, or other excavations shall not be placed within the tree protection zone either temporarily or permanently. No burn piles of debris pits shall be placed within the tree protection zone. No ashes, debris, or garbage maybe dumped or buried within the tree protection zone. Maintain fire-safe areas around fenced areas. Also, no heat sources, flames, Ignition sources or smoking is allowed near mulch or trees. These inspections will be carried out on an as needed requirement. It recommended that all excavations near trees be carried out together to reduce costs for the client.

The Contractor shall not engage in any construction activity within the Tree and Plant Protection Area without the approval of the Owner's Representative including: operating, moving or storing equipment; storing supplies or materials; locating temporary facilities including trailers or portable toilets and shall not permit employees to traverse the area to access adjacent areas of the project or use the area for lunch or any other work breaks. Permitted activity, if any, within the Tree and Plant Protection Area maybe indicated on the drawings along with any required remedial activity as listed below.

In the event that construction activity is unavoidable within the Tree and Plant Protection Area, notify the Owner’s Representative and submit a detailed written plan of action for approval. The plan shall include: a statement detailing the reason for the activity including why other areas are not suited; a description of the proposed activity; the time period for the activity, and a list of remedial actions that will reduce the impact on the Tree and Plant Protection Area from the activity. Remedial actions shall include but shall not be limited to the following

In general, demolition and excavation within the drip line of trees and shrubs shall proceed with extreme care either by the use of hand tools, directional boring and or Air Knife excavation were indicated or with other low impact equipment that will not cause damage to the tree, roots or soil.

When encountered, exposed roots, 25mm and larger in diameter shall be worked around in a manner that does not break the outer layer of the root surface (bark). These roots shall be covered in Wood Chips and shall be maintained above permanent wilt point at all times. Roots one inch and larger in diameter shall not be cut without the approval of the owner's representative. Excavation shall be tunneled under these roots without cutting them. In the areas where roots are encountered, work shall be performed and scheduled to close excavations as quickly as possible over exposed roots.

Tree branches that interfere with the construction may be tied back or pruned to clear only to the point necessary to complete the work. Other branches shall only be removed when specifically indicated by the Owner's Representative. Tying back or trimming of all branches and the cutting of roots shall be in accordance with accepted arboricultural practices and be performed under supervision of the arborist Please see attached detail of branches to be pruned below

Matting: Install temporary matting over the Wood Chips or Mulch to the extent indicated. Do not permit foot traffic, scaffolding or the storage of materials within the Tree and Plant Protection Area to occur off of the temporary matting.

Trunk Protection: Protect the trunk of each tree to remain by covering it with a ring of 2.4m long 50mm x 150mm planks loosely banded onto the tree with 3 steel bands. Staple the bands to the planks as necessary to hold them securely in place. Trunk protection must be kept in place no longer than 12 months. If construction requires work near a particular tree to continue longer than 12 months, the steel bands shall be inspected every six months and loosened if they are found to have become tight.

Air Excavation Tool: If excavation for footings or utilities is required within the Tree and Plant Protection Area, air excavation tool techniques shall be used where practical or as designed on the drawings.

Remove the Wood Chips from an area approximately 18 inches beyond the limits of the hole or trench to be excavated. Cover the Wood Chips for a distance of not less than 15 feet around the limit of the excavation area with Filter Fabric or plastic sheeting to protect the Wood Chips from silt. Mound the Wood Chips so that the plastic slopes towards the excavation.

Using a sprinkler or soaker hose, apply water slowly to the area of the excavation for a period of at least 4 hours, approximately 12 hours prior to the work so that the ground water level is at or near field capacity at the beginning of the work. For excavations that go beyond the damp soil, re-wet the soil as necessary to keep soil moisture near field capacity.

Using an air excavation tool specifically designed and manufactured for the intended purpose, and at pressures recommended by the manufacturer of the equipment, fracture the existing soil to the shape and the depths required. Work at rates and using techniques that

do not harm tree roots. Air pressure shall be a maximum of 90-100 psi.

Using a commercial, high-powered vacuum truck if required, remove the soil from the excavation produced by the Air Knife excavation. The vacuum truck should generally operate simultaneously with the hose operator, such that the soil produced is picked up from the excavation hole, and the exposed roots can be observed and not damaged by the ongoing operation. Do not drive the vacuum truck into the Tree and Plant Protection Area unless the area is protected from compaction as approved in advance by the Owner's Representative.

Remove all excavated soil and excavated Wood Chips, and contaminated soil at the end of the excavation.

Schedule the work so that foundations or utility work is completed immediately after the excavation. Do not let the roots dry out. Mist the roots several times during the day. If the excavated area must remain open overnight, mist the roots and cover the excavation with black plastic.

Dispose of all soil in a manner that meets local laws and regulations.

Restore soil within the trench as soon as the work is completed. Utilize soil of similar texture to the removed soil and lightly compact with hand tools. Leave soil mounded over the trench to a height of approximately 10% of the trench depth to account for settlement.

Restore any Geogrids, Filter Fabric, Wood Chips or Mulch and or matting that was previously required for the area

Tree Specific Management Detail and Specifications

Tree 988 (*Syncarpia glomulifera* Turpentine) is a tree in fair condition Appendix 1 (In the Tree Impact Report) gives a description of the tree as per AS-4970-2009 Section 2. Appendix 2 (In the Tree Impact Report) shows a photograph of the tree; Appendix 4 (In the Tree Management Plan) indicates the location of the tree on a survey plan of the site. The tree was planted within 2 metres of neighboring infrastructure. The tree should be protected and managed as per the tree management plan in appendix 6

The tree's root zone will not be affected by the proposed development works (See Appendix 1). The hydrological and soil environments of the tree will be impacted. The TPZ of the tree will have an acceptable incursion of 10% from the proposed development works Compliance with the following items will be required before authorisation to commence construction will be consented.

Before beginning work, the contractor is required to meet with the consultant at the site to review all work procedures, access routes, storage areas, and tree protection measures have been installed. Fences have been erected to protect tree to be preserved. Fences define a specific protection zone for the tree. Fences are to remain until all site work has been completed. Fences may not be relocated or removed without the written permission of the consultant.

Construction trailers and traffic and storage areas must remain outside fenced areas at all times. All underground utilities and drain or irrigation lines shall be routed outside the tree protection zone. If lines must traverse the protection area, they shall be tunneled or bored under the tree. The site arborist should be present during any such works.

No materials, equipment, spoil, or waste or washout water may be deposited, stored, or parked within the tree protection zone (fenced area). Additional tree pruning required for clearance during construction must be performed by a qualified arborist and not by construction personnel. Any herbicides placed under paving materials must be safe for use around trees and labeled for that use. Any pesticides used on site must be tree-safe and not easily transported by water.

The tree shall be pruned to, Clear the crown of diseased, crossing, weak, and dead wood, provide 5 metres of vertical clearance over streets and 3 metres over p a t h w a y s ; Remove stubs, cutting outside the wound wood tissue that has Formed around the branch; Reduce end weight on heavy, horizontal branches by selectively removing small diameter branches, no greater than 50-100mm near the ends of the scaffolds.

Where temporary clearance is needed for access, branches shall be tied back to hold them out of the clearance zone. All pruning shall be performed by a qualified arborist with a minimum of 10 million Dollars public liability insurance. That all tree pruning works are carried out as per the Australian Standard AS 4373-2007 Pruning of amenity trees and as per the Code of Practice Amenity Tree Industry August 1998.Interior branches shall not be stripped out.

Pruning cuts larger than 100mm in diameter, except for dead wood, shall be avoided.

Pruning cuts that expose heartwood shall be avoided whenever possible. No more than 20 percent of live foliage shall be removed within the tree to be preserved. While in the tree, the arborist shall perform and aerial inspection to identify defects that require treatment. Any additional work needed shall be reported to the consultant. Brush shall be chipped and chips shall be spread underneath trees within the tree protection zone to a maximum depth of 200mm, leaving the trunk clear of mulch.

The site arborist is to be present during any excavation works adjacent any trees on the site. This is required to specify and supervise any horticultural works that should be carried out to any nominated tree for retention. If injury should occur to any tree during construction, it should be evaluated as soon as possible by the site arborist so that appropriate treatments can be applied. Any grading, construction, demolition, or other work that is expected to encounter tree roots must be monitored by the consulting arborist. The tree shall be irrigated on a schedule to be determined by the consultant. Each irrigation shall wet the soil within the tree protection zone to a depth of 100mm.

Erosion control devices such as silt fencing, debris basins, and Water diversion structures shall be installed to prevent siltation and or erosion within the tree protection zone. Before grading, pad preparation, or excavation for foundations, footings, walls, or trenching, they shall be 300mm outside the tree protection zone by cutting all roots cleanly to a depth of 800mm. Roots shall be cut by manually digging a trench and cutting exposed roots with a saw, vibrating knife, rock saw, and narrow trencher with sharp blades, or other approved root-pruning equipment.

Any roots damaged during grading or construction shall be exposed to sound tissue and cut cleanly with a saw. Spoil from trenches, basements, or other excavations shall not be placed within the tree protection zone either temporarily or permanently. No burn piles of debris pits shall be placed within the tree protection zone. No ashes, debris, or garbage maybe dumped or buried within the tree protection zone. Maintain fire-safe areas around fenced areas. Also, no heat sources, flames, Ignition sources or smoking is allowed near mulch or trees. These inspections will be carried out on an as needed requirement. It recommended that all excavations near trees be carried out together to reduce costs for the client.

The Contractor shall not engage in any construction activity within the Tree and Plant Protection Area without the approval of the Owner's Representative including: operating, moving or storing equipment; storing supplies or materials; locating temporary facilities including trailers or portable toilets and shall not permit employees to traverse the area to access adjacent areas of the project or use the area for lunch or any other work breaks. Permitted activity, if any, within the Tree and Plant Protection Area maybe indicated on the drawings along with any required remedial activity as listed below.

In the event that construction activity is unavoidable within the Tree and Plant Protection Area, notify the Owner’s Representative and submit a detailed written plan of action for approval. The plan shall include: a statement detailing the reason for the activity including why other areas are not suited; a description of the proposed activity; the time period for the activity, and a list of remedial actions that will reduce the impact on the Tree and Plant Protection Area from the activity. Remedial actions shall include but shall not be limited to the following

In general, demolition and excavation within the drip line of trees and shrubs shall proceed with extreme care either by the use of hand tools, directional boring and or Air Knife excavation were indicated or with other low impact equipment that will not cause damage to the tree, roots or soil.

When encountered, exposed roots, 25mm and larger in diameter shall be worked around in a manner that does not break the outer layer of the root surface (bark). These roots shall be covered in Wood Chips and shall be maintained above permanent wilt point at all times. Roots one inch and larger in diameter shall not be cut without the approval of the owner's representative. Excavation shall be tunneled under these roots without cutting them. In the areas where roots are encountered, work shall be performed and scheduled to close excavations as quickly as possible over exposed roots.

Tree branches that interfere with the construction may be tied back or pruned to clear only to the point necessary to complete the work. Other branches shall only be removed when specifically indicated by the Owner's Representative. Tying back or trimming of all branches and the cutting of roots shall be in accordance with accepted arboricultural practices and be performed under supervision of the arborist Please see attached detail of branches to be pruned below

Matting: Install temporary matting over the Wood Chips or Mulch to the extent indicated. Do not permit foot traffic, scaffolding or the storage of materials within the Tree and Plant Protection Area to occur off of the temporary matting.

Trunk Protection: Protect the trunk of each tree to remain by covering it with a ring of 2.4m long 50mm x 150mm planks loosely banded onto the tree with 3 steel bands. Staple the bands to the planks as necessary to hold them securely in place. Trunk protection must be kept in place no longer than 12 months. If construction requires work near a particular tree to continue longer than 12 months, the steel bands shall be inspected every six months and loosened if they are found to have become tight.

Air Excavation Tool: If excavation for footings or utilities is required within the Tree and Plant Protection Area, air excavation tool techniques shall be used where practical or as designed on the drawings.

Remove the Wood Chips from an area approximately 18 inches beyond the limits of the hole or trench to be excavated. Cover the Wood Chips for a distance of not less than 15 feet around the limit of the excavation area with Filter Fabric or plastic sheeting to protect the Wood Chips from silt. Mound the Wood Chips so that the plastic slopes towards the excavation.

Using a sprinkler or soaker hose, apply water slowly to the area of the excavation for a period of at least 4 hours, approximately 12 hours prior to the work so that the ground water level is at or near field capacity at the beginning of the work. For excavations that go beyond the damp soil, re-wet the soil as necessary to keep soil moisture near field capacity.

Using an air excavation tool specifically designed and manufactured for the intended purpose, and at pressures recommended by the manufacturer of the equipment, fracture the existing soil to the shape and the depths required. Work at rates and using techniques that

do not harm tree roots. Air pressure shall be a maximum of 90-100 psi.

Using a commercial, high-powered vacuum truck if required, remove the soil from the excavation produced by the Air Knife excavation. The vacuum truck should generally operate simultaneously with the hose operator, such that the soil produced is picked up from the excavation hole, and the exposed roots can be observed and not damaged by the ongoing operation. Do not drive the vacuum truck into the Tree and Plant Protection Area unless the area is protected from compaction as approved in advance by the Owner's Representative.

Remove all excavated soil and excavated Wood Chips, and contaminated soil at the end of the excavation.

Schedule the work so that foundations or utility work is completed immediately after the excavation. Do not let the roots dry out. Mist the roots several times during the day. If the excavated area must remain open overnight, mist the roots and cover the excavation with black plastic.

Dispose of all soil in a manner that meets local laws and regulations.

Restore soil within the trench as soon as the work is completed. Utilize soil of similar texture to the removed soil and lightly compact with hand tools. Leave soil mounded over the trench to a height of approximately 10% of the trench depth to account for settlement.

Restore any Geogrids, Filter Fabric, Wood Chips or Mulch and or matting that was previously required for the area

Tree Specific Management Detail and Specifications

Tree 987 (*Eucalyptus paniculata* Grey Ironbark) is a tree in fair condition Appendix 1 (In the Tree Impact Report) gives a description of the tree as per AS-4970-2009 Section 2. Appendix 2 (In the Tree Impact Report) shows a photograph of the tree; Appendix 4 (In the Tree Management Plan) indicates the location of the tree on a survey plan of the site. The tree was planted within 2 metres of neighboring infrastructure. The tree should be protected and managed as per the tree management plan in appendix 6

The tree's root zone will not be affected by the proposed development works (See Appendix 1). The hydrological and soil environments of the tree will be impacted. The TPZ of the tree will have an acceptable incursion of 10% from the proposed development works Compliance with the following items will be required before authorisation to commence construction will be consented.

Before beginning work, the contractor is required to meet with the consultant at the site to review all work procedures, access routes, storage areas, and tree protection measures have been installed. Fences have been erected to protect tree to be preserved. Fences define a specific protection zone for the tree. Fences are to remain until all site work has been completed. Fences may not be relocated or removed without the written permission of the consultant.

Construction trailers and traffic and storage areas must remain outside fenced areas at all times. All underground utilities and drain or irrigation lines shall be routed outside the tree protection zone. If lines must traverse the protection area, they shall be tunneled or bored under the tree. The site arborist should be present during any such works.

No materials, equipment, spoil, or waste or washout water may be deposited, stored, or parked within the tree protection zone (fenced area). Additional tree pruning required for clearance during construction must be performed by a qualified arborist and not by construction personnel. Any herbicides placed under paving materials must be safe for use around trees and labeled for that use. Any pesticides used on site must be tree-safe and not easily transported by water.

The tree shall be pruned to, Clear the crown of diseased, crossing, weak, and dead wood, provide 5 metres of vertical clearance over streets and 3 metres over p a t h w a y s ; Remove stubs, cutting outside the wound wood tissue that has Formed around the branch; Reduce end weight on heavy, horizontal branches by selectively removing small diameter branches, no greater than 50-100mm near the ends of the scaffolds.

Where temporary clearance is needed for access, branches shall be tied back to hold them out of the clearance zone. All pruning shall be performed by a qualified arborist with a minimum of 10 million Dollars public liability insurance. That all tree pruning works are carried out as per the Australian Standard AS 4373-2007 Pruning of amenity trees and as per the Code of Practice Amenity Tree Industry August 1998.Interior branches shall not be stripped out.

Pruning cuts larger than 100mm in diameter, except for dead wood, shall be avoided.

Pruning cuts that expose heartwood shall be avoided whenever possible. No more than 20 percent of live foliage shall be removed within the tree to be preserved. While in the tree, the arborist shall perform and aerial inspection to identify defects that require treatment. Any additional work needed shall be reported to the consultant. Brush shall be chipped and chips shall be spread underneath trees within the tree protection zone to a maximum depth of 200mm, leaving the trunk clear of mulch.

The site arborist is to be present during any excavation works adjacent any trees on the site. This is required to specify and supervise any horticultural works that should be carried out to any nominated tree for retention. If injury should occur to any tree during construction, it should be evaluated as soon as possible by the site arborist so that appropriate treatments can be applied. Any grading, construction, demolition, or other work that is expected to encounter tree roots must be monitored by the consulting arborist. The tree shall be irrigated on a schedule to be determined by the consultant. Each irrigation shall wet the soil within the tree protection zone to a depth of 100mm.

Erosion control devices such as silt fencing, debris basins, and Water diversion structures shall be installed to prevent siltation and or erosion within the tree protection zone. Before grading, pad preparation, or excavation for foundations, footings, walls, or trenching, they shall be 300mm outside the tree protection zone by cutting all roots cleanly to a depth of 800mm. Roots shall be cut by manually digging a trench and cutting exposed roots with a saw, vibrating knife, rock saw, and narrow trencher with sharp blades, or other approved root-pruning equipment.

Any roots damaged during grading or construction shall be exposed to sound tissue and cut cleanly with a saw. Spoil from trenches, basements, or other excavations shall not be placed within the tree protection zone either temporarily or permanently. No burn piles of debris pits shall be placed within the tree protection zone. No ashes, debris, or garbage maybe dumped or buried within the tree protection zone. Maintain fire-safe areas around fenced areas. Also, no heat sources, flames, Ignition sources or smoking is allowed near mulch or trees. These inspections will be carried out on an as needed requirement. It recommended that all excavations near trees be carried out together to reduce costs for the client.

The Contractor shall not engage in any construction activity within the Tree and Plant Protection Area without the approval of the Owner's Representative including: operating, moving or storing equipment; storing supplies or materials; locating temporary facilities including trailers or portable toilets and shall not permit employees to traverse the area to access adjacent areas of the project or use the area for lunch or any other work breaks. Permitted activity, if any, within the Tree and Plant Protection Area maybe indicated on the drawings along with any required remedial activity as listed below.

In the event that construction activity is unavoidable within the Tree and Plant Protection Area, notify the Owner’s Representative and submit a detailed written plan of action for approval. The plan shall include: a statement detailing the reason for the activity including why other areas are not suited; a description of the proposed activity; the time period for the activity, and a list of remedial actions that will reduce the impact on the Tree and Plant Protection Area from the activity. Remedial actions shall include but shall not be limited to the following

In general, demolition and excavation within the drip line of trees and shrubs shall proceed with extreme care either by the use of hand tools, directional boring and or Air Knife excavation were indicated or with other low impact equipment that will not cause damage to the tree, roots or soil.

When encountered, exposed roots, 25mm and larger in diameter shall be worked around in a manner that does not break the outer layer of the root surface (bark). These roots shall be covered in Wood Chips and shall be maintained above permanent wilt point at all times. Roots one inch and larger in diameter shall not be cut without the approval of the owner's representative. Excavation shall be tunneled under these roots without cutting them. In the areas where roots are encountered, work shall be performed and scheduled to close excavations as quickly as possible over exposed roots.

Tree branches that interfere with the construction may be tied back or pruned to clear only to the point necessary to complete the work. Other branches shall only be removed when specifically indicated by the Owner's Representative. Tying back or trimming of all branches and the cutting of roots shall be in accordance with accepted arboricultural practices and be performed under supervision of the arborist Please see attached detail of branches to be pruned below

Matting: Install temporary matting over the Wood Chips or Mulch to the extent indicated. Do not permit foot traffic, scaffolding or the storage of materials within the Tree and Plant Protection Area to occur off of the temporary matting.

Trunk Protection: Protect the trunk of each tree to remain by covering it with a ring of 2.4m long 50mm x 150mm planks loosely banded onto the tree with 3 steel bands. Staple the bands to the planks as necessary to hold them securely in place. Trunk protection must be kept in place no longer than 12 months. If construction requires work near a particular tree to continue longer than 12 months, the steel bands shall be inspected every six months and loosened if they are found to have become tight.

Air Excavation Tool: If excavation for footings or utilities is required within the Tree and Plant Protection Area, air excavation tool techniques shall be used where practical or as designed on the drawings.

Remove the Wood Chips from an area approximately 18 inches beyond the limits of the hole or trench to be excavated. Cover the Wood Chips for a distance of not less than 15 feet around the limit of the excavation area with Filter Fabric or plastic sheeting to protect the Wood Chips from silt. Mound the Wood Chips so that the plastic slopes towards the excavation.

Using a sprinkler or soaker hose, apply water slowly to the area of the excavation for a period of at least 4 hours, approximately 12 hours prior to the work so that the ground water level is at or near field capacity at the beginning of the work. For excavations that go beyond the damp soil, re-wet the soil as necessary to keep soil moisture near field capacity.

Using an air excavation tool specifically designed and manufactured for the intended purpose, and at pressures recommended by the manufacturer of the equipment, fracture the existing soil to the shape and the depths required. Work at rates and using techniques that

do not harm tree roots. Air pressure shall be a maximum of 90-100 psi.

Using a commercial, high-powered vacuum truck if required, remove the soil from the excavation produced by the Air Knife excavation. The vacuum truck should generally operate simultaneously with the hose operator, such that the soil produced is picked up from the excavation hole, and the exposed roots can be observed and not damaged by the ongoing operation. Do not drive the vacuum truck into the Tree and Plant Protection Area unless the area is protected from compaction as approved in advance by the Owner's Representative.

Remove all excavated soil and excavated Wood Chips, and contaminated soil at the end of the excavation.

Schedule the work so that foundations or utility work is completed immediately after the excavation. Do not let the roots dry out. Mist the roots several times during the day. If the excavated area must remain open overnight, mist the roots and cover the excavation with black plastic.

Dispose of all soil in a manner that meets local laws and regulations.

Restore soil within the trench as soon as the work is completed. Utilize soil of similar texture to the removed soil and lightly compact with hand tools. Leave soil mounded over the trench to a height of approximately 10% of the trench depth to account for settlement.

Restore any Geogrids, Filter Fabric, Wood Chips or Mulch and or matting that was previously required for the area

Tree Specific Management Detail and Specifications

Tree 986 (*Eucalyptus resinfera* Red Mahogany) is a tree in fair condition Appendix 1 (In the Tree Impact Report) gives a description of the tree as per AS-4970-2009 Section 2. Appendix 2 (In the Tree Impact Report) shows a photograph of the tree; Appendix 4 (In the Tree Management Plan) indicates the location of the tree on a survey plan of the site. The tree was planted within 2 metres of neighboring infrastructure. The tree should be protected and managed as per the tree management plan in appendix 6

The tree's root zone will not be affected by the proposed development works (See Appendix 1). The hydrological and soil environments of the tree will be impacted. The TPZ of the tree will have an acceptable incursion of 10% from the proposed development works Compliance with the following items will be required before authorisation to commence construction will be consented.

Before beginning work, the contractor is required to meet with the consultant at the site to review all work procedures, access routes, storage areas, and tree protection measures have been installed. Fences have been erected to protect tree to be preserved. Fences define a specific protection zone for the tree. Fences are to remain until all site work has been completed. Fences may not be relocated or removed without the written permission of the consultant.

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No materials, equipment, spoil, or waste or washout water may be deposited, stored, or parked within the tree protection zone (fenced area). Additional tree pruning required for clearance during construction must be performed by a qualified arborist and not by construction personnel. Any herbicides placed under paving materials must be safe for use around trees and labeled for that use. Any pesticides used on site must be tree-safe and not easily transported by water.

The tree shall be pruned to, Clear the crown of diseased, crossing, weak, and dead wood, provide 5 metres of vertical clearance over streets and 3 metres over p a t h w a y s ; Remove stubs, cutting outside the wound wood tissue that has Formed around the branch; Reduce end weight on heavy, horizontal branches by selectively removing small diameter branches, no greater than 50-100mm near the ends of the scaffolds.

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Pruning cuts larger than 100mm in diameter, except for dead wood, shall be avoided.

Pruning cuts that expose heartwood shall be avoided whenever possible. No more than 20 percent of live foliage shall be removed within the tree to be preserved. While in the tree, the arborist shall perform and aerial inspection to identify defects that require treatment. Any additional work needed shall be reported to the consultant. Brush shall be chipped and chips shall be spread underneath trees within the tree protection zone to a maximum depth of 200mm, leaving the trunk clear of mulch.

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Trunk Protection: Protect the trunk of each tree to remain by covering it with a ring of 2.4m long 50mm x 150mm planks loosely banded onto the tree with 3 steel bands. Staple the bands to the planks as necessary to hold them securely in place. Trunk protection must be kept in place no longer than 12 months. If construction requires work near a particular tree to continue longer than 12 months, the steel bands shall be inspected every six months and loosened if they are found to have become tight.

Air Excavation Tool: If excavation for footings or utilities is required within the Tree and Plant Protection Area, air excavation tool techniques shall be used where practical or as designed on the drawings.

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Using a sprinkler or soaker hose, apply water slowly to the area of the excavation for a period of at least 4 hours, approximately 12 hours prior to the work so that the ground water level is at or near field capacity at the beginning of the work. For excavations that go beyond the damp soil, re-wet the soil as necessary to keep soil moisture near field capacity.

Using an air excavation tool specifically designed and manufactured for the intended purpose, and at pressures recommended by the manufacturer of the equipment, fracture the existing soil to the shape and the depths required. Work at rates and using techniques that

do not harm tree roots. Air pressure shall be a maximum of 90-100 psi.

Using a commercial, high-powered vacuum truck if required, remove the soil from the excavation produced by the Air Knife excavation. The vacuum truck should generally operate simultaneously with the hose operator, such that the soil produced is picked up from the excavation hole, and the exposed roots can be observed and not damaged by the ongoing operation. Do not drive the vacuum truck into the Tree and Plant Protection Area unless the area is protected from compaction as approved in advance by the Owner's Representative.

Remove all excavated soil and excavated Wood Chips, and contaminated soil at the end of the excavation.

Schedule the work so that foundations or utility work is completed immediately after the excavation. Do not let the roots dry out. Mist the roots several times during the day. If the excavated area must remain open overnight, mist the roots and cover the excavation with black plastic.

Dispose of all soil in a manner that meets local laws and regulations.

Restore soil within the trench as soon as the work is completed. Utilize soil of similar texture to the removed soil and lightly compact with hand tools. Leave soil mounded over the trench to a height of approximately 10% of the trench depth to account for settlement.

Restore any Geogrids, Filter Fabric, Wood Chips or Mulch and or matting that was previously required for the area

Tree Specific Management Detail and Specifications

Tree 984 (*Eucalyptus paniculata* Grey Ironbark) is a tree in fair condition Appendix 1 (In the Tree Impact Report) gives a description of the tree as per AS-4970-2009 Section 2. Appendix 2 (In the Tree Impact Report) shows a photograph of the tree; Appendix 4 (In the Tree Management Plan) indicates the location of the tree on a survey plan of the site. The tree was planted within 2 metres of neighboring infrastructure. The tree should be protected and managed as per the tree management plan in appendix 6

The tree's root zone will not be affected by the proposed development works (See Appendix 1). The hydrological and soil environments of the tree will be impacted. The TPZ of the tree will have an acceptable incursion of 10% from the proposed development works Compliance with the following items will be required before authorisation to commence construction will be consented.

Before beginning work, the contractor is required to meet with the consultant at the site to review all work procedures, access routes, storage areas, and tree protection measures have been installed. Fences have been erected to protect tree to be preserved. Fences define a specific protection zone for the tree. Fences are to remain until all site work has been completed. Fences may not be relocated or removed without the written permission of the consultant.

Construction trailers and traffic and storage areas must remain outside fenced areas at all times. All underground utilities and drain or irrigation lines shall be routed outside the tree protection zone. If lines must traverse the protection area, they shall be tunneled or bored under the tree. The site arborist should be present during any such works.

No materials, equipment, spoil, or waste or washout water may be deposited, stored, or parked within the tree protection zone (fenced area). Additional tree pruning required for clearance during construction must be performed by a qualified arborist and not by construction personnel. Any herbicides placed under paving materials must be safe for use around trees and labeled for that use. Any pesticides used on site must be tree-safe and not easily transported by water.

The tree shall be pruned to, Clear the crown of diseased, crossing, weak, and dead wood, provide 5 metres of vertical clearance over streets and 3 metres over p a t h w a y s ; Remove stubs, cutting outside the wound wood tissue that has Formed around the branch; Reduce end weight on heavy, horizontal branches by selectively removing small diameter branches, no greater than 50-100mm near the ends of the scaffolds.

Where temporary clearance is needed for access, branches shall be tied back to hold them out of the clearance zone. All pruning shall be performed by a qualified arborist with a minimum of 10 million Dollars public liability insurance. That all tree pruning works are carried out as per the Australian Standard AS 4373-2007 Pruning of amenity trees and as per the Code of Practice Amenity Tree Industry August 1998.Interior branches shall not be stripped out.

Pruning cuts larger than 100mm in diameter, except for dead wood, shall be avoided.

Pruning cuts that expose heartwood shall be avoided whenever possible. No more than 20 percent of live foliage shall be removed within the tree to be preserved. While in the tree, the arborist shall perform and aerial inspection to identify defects that require treatment. Any additional work needed shall be reported to the consultant. Brush shall be chipped and chips shall be spread underneath trees within the tree protection zone to a maximum depth of 200mm, leaving the trunk clear of mulch.

The site arborist is to be present during any excavation works adjacent any trees on the site. This is required to specify and supervise any horticultural works that should be carried out to any nominated tree for retention. If injury should occur to any tree during construction, it should be evaluated as soon as possible by the site arborist so that appropriate treatments can be applied. Any grading, construction, demolition, or other work that is expected to encounter tree roots must be monitored by the consulting arborist. The tree shall be irrigated on a schedule to be determined by the consultant. Each irrigation shall wet the soil within the tree protection zone to a depth of 100mm.

Erosion control devices such as silt fencing, debris basins, and Water diversion structures shall be installed to prevent siltation and or erosion within the tree protection zone. Before grading, pad preparation, or excavation for foundations, footings, walls, or trenching, they shall be 300mm outside the tree protection zone by cutting all roots cleanly to a depth of 800mm. Roots shall be cut by manually digging a trench and cutting exposed roots with a saw, vibrating knife, rock saw, and narrow trencher with sharp blades, or other approved root-pruning equipment.

Any roots damaged during grading or construction shall be exposed to sound tissue and cut cleanly with a saw. Spoil from trenches, basements, or other excavations shall not be placed within the tree protection zone either temporarily or permanently. No burn piles of debris pits shall be placed within the tree protection zone. No ashes, debris, or garbage maybe dumped or buried within the tree protection zone. Maintain fire-safe areas around fenced areas. Also, no heat sources, flames, Ignition sources or smoking is allowed near mulch or trees. These inspections will be carried out on an as needed requirement. It recommended that all excavations near trees be carried out together to reduce costs for the client.

The Contractor shall not engage in any construction activity within the Tree and Plant Protection Area without the approval of the Owner's Representative including: operating, moving or storing equipment; storing supplies or materials; locating temporary facilities including trailers or portable toilets and shall not permit employees to traverse the area to access adjacent areas of the project or use the area for lunch or any other work breaks. Permitted activity, if any, within the Tree and Plant Protection Area maybe indicated on the drawings along with any required remedial activity as listed below.

In the event that construction activity is unavoidable within the Tree and Plant Protection Area, notify the Owner’s Representative and submit a detailed written plan of action for approval. The plan shall include: a statement detailing the reason for the activity including why other areas are not suited; a description of the proposed activity; the time period for the activity, and a list of remedial actions that will reduce the impact on the Tree and Plant Protection Area from the activity. Remedial actions shall include but shall not be limited to the following

In general, demolition and excavation within the drip line of trees and shrubs shall proceed with extreme care either by the use of hand tools, directional boring and or Air Knife excavation were indicated or with other low impact equipment that will not cause damage to the tree, roots or soil.

When encountered, exposed roots, 25mm and larger in diameter shall be worked around in a manner that does not break the outer layer of the root surface (bark). These roots shall be covered in Wood Chips and shall be maintained above permanent wilt point at all times. Roots one inch and larger in diameter shall not be cut without the approval of the owner's representative. Excavation shall be tunneled under these roots without cutting them. In the areas where roots are encountered, work shall be performed and scheduled to close excavations as quickly as possible over exposed roots.

Tree branches that interfere with the construction may be tied back or pruned to clear only to the point necessary to complete the work. Other branches shall only be removed when specifically indicated by the Owner's Representative. Tying back or trimming of all branches and the cutting of roots shall be in accordance with accepted arboricultural practices and be performed under supervision of the arborist Please see attached detail of branches to be pruned below

Matting: Install temporary matting over the Wood Chips or Mulch to the extent indicated. Do not permit foot traffic, scaffolding or the storage of materials within the Tree and Plant Protection Area to occur off of the temporary matting.

Trunk Protection: Protect the trunk of each tree to remain by covering it with a ring of 2.4m long 50mm x 150mm planks loosely banded onto the tree with 3 steel bands. Staple the bands to the planks as necessary to hold them securely in place. Trunk protection must be kept in place no longer than 12 months. If construction requires work near a particular tree to continue longer than 12 months, the steel bands shall be inspected every six months and loosened if they are found to have become tight.

Air Excavation Tool: If excavation for footings or utilities is required within the Tree and Plant Protection Area, air excavation tool techniques shall be used where practical or as designed on the drawings.

Remove the Wood Chips from an area approximately 18 inches beyond the limits of the hole or trench to be excavated. Cover the Wood Chips for a distance of not less than 15 feet around the limit of the excavation area with Filter Fabric or plastic sheeting to protect the Wood Chips from silt. Mound the Wood Chips so that the plastic slopes towards the excavation.

Using a sprinkler or soaker hose, apply water slowly to the area of the excavation for a period of at least 4 hours, approximately 12 hours prior to the work so that the ground water level is at or near field capacity at the beginning of the work. For excavations that go beyond the damp soil, re-wet the soil as necessary to keep soil moisture near field capacity.

Using an air excavation tool specifically designed and manufactured for the intended purpose, and at pressures recommended by the manufacturer of the equipment, fracture the existing soil to the shape and the depths required. Work at rates and using techniques that

do not harm tree roots. Air pressure shall be a maximum of 90-100 psi.

Using a commercial, high-powered vacuum truck if required, remove the soil from the excavation produced by the Air Knife excavation. The vacuum truck should generally operate simultaneously with the hose operator, such that the soil produced is picked up from the excavation hole, and the exposed roots can be observed and not damaged by the ongoing operation. Do not drive the vacuum truck into the Tree and Plant Protection Area unless the area is protected from compaction as approved in advance by the Owner's Representative.

Remove all excavated soil and excavated Wood Chips, and contaminated soil at the end of the excavation.

Schedule the work so that foundations or utility work is completed immediately after the excavation. Do not let the roots dry out. Mist the roots several times during the day. If the excavated area must remain open overnight, mist the roots and cover the excavation with black plastic.

Dispose of all soil in a manner that meets local laws and regulations.

Restore soil within the trench as soon as the work is completed. Utilize soil of similar texture to the removed soil and lightly compact with hand tools. Leave soil mounded over the trench to a height of approximately 10% of the trench depth to account for settlement.

Restore any Geogrids, Filter Fabric, Wood Chips or Mulch and or matting that was previously required for the area

Tree Specific Management Detail and Specifications

Tree 981 (*Eucalyptus paniculata* Grey Ironbark) is a tree in fair condition Appendix 1 (In the Tree Impact Report) gives a description of the tree as per AS-4970-2009 Section 2. Appendix 2 (In the Tree Impact Report) shows a photograph of the tree; Appendix 4 (In the Tree Management Plan) indicates the location of the tree on a survey plan of the site. The tree was planted within 2 metres of neighboring infrastructure. The tree should be protected and managed as per the tree management plan in appendix 6

The tree's root zone will not be affected by the proposed development works (See Appendix 1). The hydrological and soil environments of the tree will be impacted. The TPZ of the tree will have an acceptable incursion of 10% from the proposed development works Compliance with the following items will be required before authorisation to commence construction will be consented.

Before beginning work, the contractor is required to meet with the consultant at the site to review all work procedures, access routes, storage areas, and tree protection measures have been installed. Fences have been erected to protect tree to be preserved. Fences define a specific protection zone for the tree. Fences are to remain until all site work has been completed. Fences may not be relocated or removed without the written permission of the consultant.

Construction trailers and traffic and storage areas must remain outside fenced areas at all times. All underground utilities and drain or irrigation lines shall be routed outside the tree protection zone. If lines must traverse the protection area, they shall be tunneled or bored under the tree. The site arborist should be present during any such works.

No materials, equipment, spoil, or waste or washout water may be deposited, stored, or parked within the tree protection zone (fenced area). Additional tree pruning required for clearance during construction must be performed by a qualified arborist and not by construction personnel. Any herbicides placed under paving materials must be safe for use around trees and labeled for that use. Any pesticides used on site must be tree-safe and not easily transported by water.

The tree shall be pruned to, Clear the crown of diseased, crossing, weak, and dead wood, provide 5 metres of vertical clearance over streets and 3 metres over p a t h w a y s ; Remove stubs, cutting outside the wound wood tissue that has Formed around the branch; Reduce end weight on heavy, horizontal branches by selectively removing small diameter branches, no greater than 50-100mm near the ends of the scaffolds.

Where temporary clearance is needed for access, branches shall be tied back to hold them out of the clearance zone. All pruning shall be performed by a qualified arborist with a minimum of 10 million Dollars public liability insurance. That all tree pruning works are carried out as per the Australian Standard AS 4373-2007 Pruning of amenity trees and as per the Code of Practice Amenity Tree Industry August 1998.Interior branches shall not be stripped out.

Pruning cuts larger than 100mm in diameter, except for dead wood, shall be avoided.

Pruning cuts that expose heartwood shall be avoided whenever possible. No more than 20 percent of live foliage shall be removed within the tree to be preserved. While in the tree, the arborist shall perform and aerial inspection to identify defects that require treatment. Any additional work needed shall be reported to the consultant. Brush shall be chipped and chips shall be spread underneath trees within the tree protection zone to a maximum depth of 200mm, leaving the trunk clear of mulch.

The site arborist is to be present during any excavation works adjacent any trees on the site. This is required to specify and supervise any horticultural works that should be carried out to any nominated tree for retention. If injury should occur to any tree during construction, it should be evaluated as soon as possible by the site arborist so that appropriate treatments can be applied. Any grading, construction, demolition, or other work that is expected to encounter tree roots must be monitored by the consulting arborist. The tree shall be irrigated on a schedule to be determined by the consultant. Each irrigation shall wet the soil within the tree protection zone to a depth of 100mm.

Erosion control devices such as silt fencing, debris basins, and Water diversion structures shall be installed to prevent siltation and or erosion within the tree protection zone. Before grading, pad preparation, or excavation for foundations, footings, walls, or trenching, they shall be 300mm outside the tree protection zone by cutting all roots cleanly to a depth of 800mm. Roots shall be cut by manually digging a trench and cutting exposed roots with a saw, vibrating knife, rock saw, and narrow trencher with sharp blades, or other approved root-pruning equipment.

Any roots damaged during grading or construction shall be exposed to sound tissue and cut cleanly with a saw. Spoil from trenches, basements, or other excavations shall not be placed within the tree protection zone either temporarily or permanently. No burn piles of debris pits shall be placed within the tree protection zone. No ashes, debris, or garbage maybe dumped or buried within the tree protection zone. Maintain fire-safe areas around fenced areas. Also, no heat sources, flames, Ignition sources or smoking is allowed near mulch or trees. These inspections will be carried out on an as needed requirement. It recommended that all excavations near trees be carried out together to reduce costs for the client.

The Contractor shall not engage in any construction activity within the Tree and Plant Protection Area without the approval of the Owner's Representative including: operating, moving or storing equipment; storing supplies or materials; locating temporary facilities including trailers or portable toilets and shall not permit employees to traverse the area to access adjacent areas of the project or use the area for lunch or any other work breaks. Permitted activity, if any, within the Tree and Plant Protection Area maybe indicated on the drawings along with any required remedial activity as listed below.

In the event that construction activity is unavoidable within the Tree and Plant Protection Area, notify the Owner’s Representative and submit a detailed written plan of action for approval. The plan shall include: a statement detailing the reason for the activity including why other areas are not suited; a description of the proposed activity; the time period for the activity, and a list of remedial actions that will reduce the impact on the Tree and Plant Protection Area from the activity. Remedial actions shall include but shall not be limited to the following

In general, demolition and excavation within the drip line of trees and shrubs shall proceed with extreme care either by the use of hand tools, directional boring and or Air Knife excavation were indicated or with other low impact equipment that will not cause damage to the tree, roots or soil.

When encountered, exposed roots, 25mm and larger in diameter shall be worked around in a manner that does not break the outer layer of the root surface (bark). These roots shall be covered in Wood Chips and shall be maintained above permanent wilt point at all times. Roots one inch and larger in diameter shall not be cut without the approval of the owner's representative. Excavation shall be tunneled under these roots without cutting them. In the areas where roots are encountered, work shall be performed and scheduled to close excavations as quickly as possible over exposed roots.

Tree branches that interfere with the construction may be tied back or pruned to clear only to the point necessary to complete the work. Other branches shall only be removed when specifically indicated by the Owner's Representative. Tying back or trimming of all branches and the cutting of roots shall be in accordance with accepted arboricultural practices and be performed under supervision of the arborist Please see attached detail of branches to be pruned below

Matting: Install temporary matting over the Wood Chips or Mulch to the extent indicated. Do not permit foot traffic, scaffolding or the storage of materials within the Tree and Plant Protection Area to occur off of the temporary matting.

Trunk Protection: Protect the trunk of each tree to remain by covering it with a ring of 2.4m long 50mm x 150mm planks loosely banded onto the tree with 3 steel bands. Staple the bands to the planks as necessary to hold them securely in place. Trunk protection must be kept in place no longer than 12 months. If construction requires work near a particular tree to continue longer than 12 months, the steel bands shall be inspected every six months and loosened if they are found to have become tight.

Air Excavation Tool: If excavation for footings or utilities is required within the Tree and Plant Protection Area, air excavation tool techniques shall be used where practical or as designed on the drawings.

Remove the Wood Chips from an area approximately 18 inches beyond the limits of the hole or trench to be excavated. Cover the Wood Chips for a distance of not less than 15 feet around the limit of the excavation area with Filter Fabric or plastic sheeting to protect the Wood Chips from silt. Mound the Wood Chips so that the plastic slopes towards the excavation.

Using a sprinkler or soaker hose, apply water slowly to the area of the excavation for a period of at least 4 hours, approximately 12 hours prior to the work so that the ground water level is at or near field capacity at the beginning of the work. For excavations that go beyond the damp soil, re-wet the soil as necessary to keep soil moisture near field capacity.

Using an air excavation tool specifically designed and manufactured for the intended purpose, and at pressures recommended by the manufacturer of the equipment, fracture the existing soil to the shape and the depths required. Work at rates and using techniques that

do not harm tree roots. Air pressure shall be a maximum of 90-100 psi.

Using a commercial, high-powered vacuum truck if required, remove the soil from the excavation produced by the Air Knife excavation. The vacuum truck should generally operate simultaneously with the hose operator, such that the soil produced is picked up from the excavation hole, and the exposed roots can be observed and not damaged by the ongoing operation. Do not drive the vacuum truck into the Tree and Plant Protection Area unless the area is protected from compaction as approved in advance by the Owner's Representative.

Remove all excavated soil and excavated Wood Chips, and contaminated soil at the end of the excavation.

Schedule the work so that foundations or utility work is completed immediately after the excavation. Do not let the roots dry out. Mist the roots several times during the day. If the excavated area must remain open overnight, mist the roots and cover the excavation with black plastic.

Dispose of all soil in a manner that meets local laws and regulations.

Restore soil within the trench as soon as the work is completed. Utilize soil of similar texture to the removed soil and lightly compact with hand tools. Leave soil mounded over the trench to a height of approximately 10% of the trench depth to account for settlement.

Restore any Geogrids, Filter Fabric, Wood Chips or Mulch and or matting that was previously required for the area

Tree Specific Management Detail and Specifications

Tree 979 (*Eucalyptus paniculata* Grey Ironbark) is a tree in fair condition Appendix 1 (In the Tree Impact Report) gives a description of the tree as per AS-4970-2009 Section 2. Appendix 2 (In the Tree Impact Report) shows a photograph of the tree; Appendix 4 (In the Tree Management Plan) indicates the location of the tree on a survey plan of the site. The tree was planted within 2 metres of neighboring infrastructure. The tree should be protected and managed as per the tree management plan in appendix 6

The tree's root zone will not be affected by the proposed development works (See Appendix 1). The hydrological and soil environments of the tree will be impacted. The TPZ of the tree will have an acceptable incursion of 10% from the proposed development works Compliance with the following items will be required before authorisation to commence construction will be consented.

Before beginning work, the contractor is required to meet with the consultant at the site to review all work procedures, access routes, storage areas, and tree protection measures have been installed. Fences have been erected to protect tree to be preserved. Fences define a specific protection zone for the tree. Fences are to remain until all site work has been completed. Fences may not be relocated or removed without the written permission of the consultant.

Construction trailers and traffic and storage areas must remain outside fenced areas at all times. All underground utilities and drain or irrigation lines shall be routed outside the tree protection zone. If lines must traverse the protection area, they shall be tunneled or bored under the tree. The site arborist should be present during any such works.

No materials, equipment, spoil, or waste or washout water may be deposited, stored, or parked within the tree protection zone (fenced area). Additional tree pruning required for clearance during construction must be performed by a qualified arborist and not by construction personnel. Any herbicides placed under paving materials must be safe for use around trees and labeled for that use. Any pesticides used on site must be tree-safe and not easily transported by water.

The tree shall be pruned to, Clear the crown of diseased, crossing, weak, and dead wood, provide 5 metres of vertical clearance over streets and 3 metres over p a t h w a y s ; Remove stubs, cutting outside the wound wood tissue that has Formed around the branch; Reduce end weight on heavy, horizontal branches by selectively removing small diameter branches, no greater than 50-100mm near the ends of the scaffolds.

Where temporary clearance is needed for access, branches shall be tied back to hold them out of the clearance zone. All pruning shall be performed by a qualified arborist with a minimum of 10 million Dollars public liability insurance. That all tree pruning works are carried out as per the Australian Standard AS 4373-2007 Pruning of amenity trees and as per the Code of Practice Amenity Tree Industry August 1998.Interior branches shall not be stripped out.

Pruning cuts larger than 100mm in diameter, except for dead wood, shall be avoided.

Pruning cuts that expose heartwood shall be avoided whenever possible. No more than 20 percent of live foliage shall be removed within the tree to be preserved. While in the tree, the arborist shall perform and aerial inspection to identify defects that require treatment. Any additional work needed shall be reported to the consultant. Brush shall be chipped and chips shall be spread underneath trees within the tree protection zone to a maximum depth of 200mm, leaving the trunk clear of mulch.

The site arborist is to be present during any excavation works adjacent any trees on the site. This is required to specify and supervise any horticultural works that should be carried out to any nominated tree for retention. If injury should occur to any tree during construction, it should be evaluated as soon as possible by the site arborist so that appropriate treatments can be applied. Any grading, construction, demolition, or other work that is expected to encounter tree roots must be monitored by the consulting arborist. The tree shall be irrigated on a schedule to be determined by the consultant. Each irrigation shall wet the soil within the tree protection zone to a depth of 100mm.

Erosion control devices such as silt fencing, debris basins, and Water diversion structures shall be installed to prevent siltation and or erosion within the tree protection zone. Before grading, pad preparation, or excavation for foundations, footings, walls, or trenching, they shall be 300mm outside the tree protection zone by cutting all roots cleanly to a depth of 800mm. Roots shall be cut by manually digging a trench and cutting exposed roots with a saw, vibrating knife, rock saw, and narrow trencher with sharp blades, or other approved root-pruning equipment.

Any roots damaged during grading or construction shall be exposed to sound tissue and cut cleanly with a saw. Spoil from trenches, basements, or other excavations shall not be placed within the tree protection zone either temporarily or permanently. No burn piles of debris pits shall be placed within the tree protection zone. No ashes, debris, or garbage maybe dumped or buried within the tree protection zone. Maintain fire-safe areas around fenced areas. Also, no heat sources, flames, Ignition sources or smoking is allowed near mulch or trees. These inspections will be carried out on an as needed requirement. It recommended that all excavations near trees be carried out together to reduce costs for the client.

The Contractor shall not engage in any construction activity within the Tree and Plant Protection Area without the approval of the Owner's Representative including: operating, moving or storing equipment; storing supplies or materials; locating temporary facilities including trailers or portable toilets and shall not permit employees to traverse the area to access adjacent areas of the project or use the area for lunch or any other work breaks. Permitted activity, if any, within the Tree and Plant Protection Area maybe indicated on the drawings along with any required remedial activity as listed below.

In the event that construction activity is unavoidable within the Tree and Plant Protection Area, notify the Owner’s Representative and submit a detailed written plan of action for approval. The plan shall include: a statement detailing the reason for the activity including why other areas are not suited; a description of the proposed activity; the time period for the activity, and a list of remedial actions that will reduce the impact on the Tree and Plant Protection Area from the activity. Remedial actions shall include but shall not be limited to the following

In general, demolition and excavation within the drip line of trees and shrubs shall proceed with extreme care either by the use of hand tools, directional boring and or Air Knife excavation were indicated or with other low impact equipment that will not cause damage to the tree, roots or soil.

When encountered, exposed roots, 25mm and larger in diameter shall be worked around in a manner that does not break the outer layer of the root surface (bark). These roots shall be covered in Wood Chips and shall be maintained above permanent wilt point at all times. Roots one inch and larger in diameter shall not be cut without the approval of the owner's representative. Excavation shall be tunneled under these roots without cutting them. In the areas where roots are encountered, work shall be performed and scheduled to close excavations as quickly as possible over exposed roots.

Tree branches that interfere with the construction may be tied back or pruned to clear only to the point necessary to complete the work. Other branches shall only be removed when specifically indicated by the Owner's Representative. Tying back or trimming of all branches and the cutting of roots shall be in accordance with accepted arboricultural practices and be performed under supervision of the arborist Please see attached detail of branches to be pruned below

Matting: Install temporary matting over the Wood Chips or Mulch to the extent indicated. Do not permit foot traffic, scaffolding or the storage of materials within the Tree and Plant Protection Area to occur off of the temporary matting.

Trunk Protection: Protect the trunk of each tree to remain by covering it with a ring of 2.4m long 50mm x 150mm planks loosely banded onto the tree with 3 steel bands. Staple the bands to the planks as necessary to hold them securely in place. Trunk protection must be kept in place no longer than 12 months. If construction requires work near a particular tree to continue longer than 12 months, the steel bands shall be inspected every six months and loosened if they are found to have become tight.

Air Excavation Tool: If excavation for footings or utilities is required within the Tree and Plant Protection Area, air excavation tool techniques shall be used where practical or as designed on the drawings.

Remove the Wood Chips from an area approximately 18 inches beyond the limits of the hole or trench to be excavated. Cover the Wood Chips for a distance of not less than 15 feet around the limit of the excavation area with Filter Fabric or plastic sheeting to protect the Wood Chips from silt. Mound the Wood Chips so that the plastic slopes towards the excavation.

Using a sprinkler or soaker hose, apply water slowly to the area of the excavation for a period of at least 4 hours, approximately 12 hours prior to the work so that the ground water level is at or near field capacity at the beginning of the work. For excavations that go beyond the damp soil, re-wet the soil as necessary to keep soil moisture near field capacity.

Using an air excavation tool specifically designed and manufactured for the intended purpose, and at pressures recommended by the manufacturer of the equipment, fracture the existing soil to the shape and the depths required. Work at rates and using techniques that

do not harm tree roots. Air pressure shall be a maximum of 90-100 psi.

Using a commercial, high-powered vacuum truck if required, remove the soil from the excavation produced by the Air Knife excavation. The vacuum truck should generally operate simultaneously with the hose operator, such that the soil produced is picked up from the excavation hole, and the exposed roots can be observed and not damaged by the ongoing operation. Do not drive the vacuum truck into the Tree and Plant Protection Area unless the area is protected from compaction as approved in advance by the Owner's Representative.

Remove all excavated soil and excavated Wood Chips, and contaminated soil at the end of the excavation.

Schedule the work so that foundations or utility work is completed immediately after the excavation. Do not let the roots dry out. Mist the roots several times during the day. If the excavated area must remain open overnight, mist the roots and cover the excavation with black plastic.

Dispose of all soil in a manner that meets local laws and regulations.

Restore soil within the trench as soon as the work is completed. Utilize soil of similar texture to the removed soil and lightly compact with hand tools. Leave soil mounded over the trench to a height of approximately 10% of the trench depth to account for settlement.

Restore any Geogrids, Filter Fabric, Wood Chips or Mulch and or matting that was previously required for the area

Tree Specific Management Detail and Specifications

Tree 980 (*Eucalyptus paniculata* Grey Ironbark) is a tree in fair condition Appendix 1 (In the Tree Impact Report) gives a description of the tree as per AS-4970-2009 Section 2. Appendix 2 (In the Tree Impact Report) shows a photograph of the tree; Appendix 4 (In the Tree Management Plan) indicates the location of the tree on a survey plan of the site. The tree was planted within 2 metres of neighboring infrastructure. The tree should be protected and managed as per the tree management plan in appendix 6

The tree's root zone will not be affected by the proposed development works (See Appendix 1). The hydrological and soil environments of the tree will be impacted. The TPZ of the tree will have an acceptable incursion of 10% from the proposed development works Compliance with the following items will be required before authorisation to commence construction will be consented.

Before beginning work, the contractor is required to meet with the consultant at the site to review all work procedures, access routes, storage areas, and tree protection measures have been installed. Fences have been erected to protect tree to be preserved. Fences define a specific protection zone for the tree. Fences are to remain until all site work has been completed. Fences may not be relocated or removed without the written permission of the consultant.

Construction trailers and traffic and storage areas must remain outside fenced areas at all times. All underground utilities and drain or irrigation lines shall be routed outside the tree protection zone. If lines must traverse the protection area, they shall be tunneled or bored under the tree. The site arborist should be present during any such works.

No materials, equipment, spoil, or waste or washout water may be deposited, stored, or parked within the tree protection zone (fenced area). Additional tree pruning required for clearance during construction must be performed by a qualified arborist and not by construction personnel. Any herbicides placed under paving materials must be safe for use around trees and labeled for that use. Any pesticides used on site must be tree-safe and not easily transported by water.

The tree shall be pruned to, Clear the crown of diseased, crossing, weak, and dead wood, provide 5 metres of vertical clearance over streets and 3 metres over p a t h w a y s ; Remove stubs, cutting outside the wound wood tissue that has Formed around the branch; Reduce end weight on heavy, horizontal branches by selectively removing small diameter branches, no greater than 50-100mm near the ends of the scaffolds.

Where temporary clearance is needed for access, branches shall be tied back to hold them out of the clearance zone. All pruning shall be performed by a qualified arborist with a minimum of 10 million Dollars public liability insurance. That all tree pruning works are carried out as per the Australian Standard AS 4373-2007 Pruning of amenity trees and as per the Code of Practice Amenity Tree Industry August 1998.Interior branches shall not be stripped out.

Pruning cuts larger than 100mm in diameter, except for dead wood, shall be avoided.

Pruning cuts that expose heartwood shall be avoided whenever possible. No more than 20 percent of live foliage shall be removed within the tree to be preserved. While in the tree, the arborist shall perform and aerial inspection to identify defects that require treatment. Any additional work needed shall be reported to the consultant. Brush shall be chipped and chips shall be spread underneath trees within the tree protection zone to a maximum depth of 200mm, leaving the trunk clear of mulch.

The site arborist is to be present during any excavation works adjacent any trees on the site. This is required to specify and supervise any horticultural works that should be carried out to any nominated tree for retention. If injury should occur to any tree during construction, it should be evaluated as soon as possible by the site arborist so that appropriate treatments can be applied. Any grading, construction, demolition, or other work that is expected to encounter tree roots must be monitored by the consulting arborist. The tree shall be irrigated on a schedule to be determined by the consultant. Each irrigation shall wet the soil within the tree protection zone to a depth of 100mm.

Erosion control devices such as silt fencing, debris basins, and Water diversion structures shall be installed to prevent siltation and or erosion within the tree protection zone. Before grading, pad preparation, or excavation for foundations, footings, walls, or trenching, they shall be 300mm outside the tree protection zone by cutting all roots cleanly to a depth of 800mm. Roots shall be cut by manually digging a trench and cutting exposed roots with a saw, vibrating knife, rock saw, and narrow trencher with sharp blades, or other approved root-pruning equipment.

Any roots damaged during grading or construction shall be exposed to sound tissue and cut cleanly with a saw. Spoil from trenches, basements, or other excavations shall not be placed within the tree protection zone either temporarily or permanently. No burn piles of debris pits shall be placed within the tree protection zone. No ashes, debris, or garbage maybe dumped or buried within the tree protection zone. Maintain fire-safe areas around fenced areas. Also, no heat sources, flames, Ignition sources or smoking is allowed near mulch or trees. These inspections will be carried out on an as needed requirement. It recommended that all excavations near trees be carried out together to reduce costs for the client.

The Contractor shall not engage in any construction activity within the Tree and Plant Protection Area without the approval of the Owner's Representative including: operating, moving or storing equipment; storing supplies or materials; locating temporary facilities including trailers or portable toilets and shall not permit employees to traverse the area to access adjacent areas of the project or use the area for lunch or any other work breaks. Permitted activity, if any, within the Tree and Plant Protection Area maybe indicated on the drawings along with any required remedial activity as listed below.

In the event that construction activity is unavoidable within the Tree and Plant Protection Area, notify the Owner’s Representative and submit a detailed written plan of action for approval. The plan shall include: a statement detailing the reason for the activity including why other areas are not suited; a description of the proposed activity; the time period for the activity, and a list of remedial actions that will reduce the impact on the Tree and Plant Protection Area from the activity. Remedial actions shall include but shall not be limited to the following

In general, demolition and excavation within the drip line of trees and shrubs shall proceed with extreme care either by the use of hand tools, directional boring and or Air Knife excavation were indicated or with other low impact equipment that will not cause damage to the tree, roots or soil.

When encountered, exposed roots, 25mm and larger in diameter shall be worked around in a manner that does not break the outer layer of the root surface (bark). These roots shall be covered in Wood Chips and shall be maintained above permanent wilt point at all times. Roots one inch and larger in diameter shall not be cut without the approval of the owner's representative. Excavation shall be tunneled under these roots without cutting them. In the areas where roots are encountered, work shall be performed and scheduled to close excavations as quickly as possible over exposed roots.

Tree branches that interfere with the construction may be tied back or pruned to clear only to the point necessary to complete the work. Other branches shall only be removed when specifically indicated by the Owner's Representative. Tying back or trimming of all branches and the cutting of roots shall be in accordance with accepted arboricultural practices and be performed under supervision of the arborist Please see attached detail of branches to be pruned below

Matting: Install temporary matting over the Wood Chips or Mulch to the extent indicated. Do not permit foot traffic, scaffolding or the storage of materials within the Tree and Plant Protection Area to occur off of the temporary matting.

Trunk Protection: Protect the trunk of each tree to remain by covering it with a ring of 2.4m long 50mm x 150mm planks loosely banded onto the tree with 3 steel bands. Staple the bands to the planks as necessary to hold them securely in place. Trunk protection must be kept in place no longer than 12 months. If construction requires work near a particular tree to continue longer than 12 months, the steel bands shall be inspected every six months and loosened if they are found to have become tight.

Air Excavation Tool: If excavation for footings or utilities is required within the Tree and Plant Protection Area, air excavation tool techniques shall be used where practical or as designed on the drawings.

Remove the Wood Chips from an area approximately 18 inches beyond the limits of the hole or trench to be excavated. Cover the Wood Chips for a distance of not less than 15 feet around the limit of the excavation area with Filter Fabric or plastic sheeting to protect the Wood Chips from silt. Mound the Wood Chips so that the plastic slopes towards the excavation.

Using a sprinkler or soaker hose, apply water slowly to the area of the excavation for a period of at least 4 hours, approximately 12 hours prior to the work so that the ground water level is at or near field capacity at the beginning of the work. For excavations that go beyond the damp soil, re-wet the soil as necessary to keep soil moisture near field capacity.

Using an air excavation tool specifically designed and manufactured for the intended purpose, and at pressures recommended by the manufacturer of the equipment, fracture the existing soil to the shape and the depths required. Work at rates and using techniques that

do not harm tree roots. Air pressure shall be a maximum of 90-100 psi.

Using a commercial, high-powered vacuum truck if required, remove the soil from the excavation produced by the Air Knife excavation. The vacuum truck should generally operate simultaneously with the hose operator, such that the soil produced is picked up from the excavation hole, and the exposed roots can be observed and not damaged by the ongoing operation. Do not drive the vacuum truck into the Tree and Plant Protection Area unless the area is protected from compaction as approved in advance by the Owner's Representative.

Remove all excavated soil and excavated Wood Chips, and contaminated soil at the end of the excavation.

Schedule the work so that foundations or utility work is completed immediately after the excavation. Do not let the roots dry out. Mist the roots several times during the day. If the excavated area must remain open overnight, mist the roots and cover the excavation with black plastic.

Dispose of all soil in a manner that meets local laws and regulations.

Restore soil within the trench as soon as the work is completed. Utilize soil of similar texture to the removed soil and lightly compact with hand tools. Leave soil mounded over the trench to a height of approximately 10% of the trench depth to account for settlement.

Restore any Geogrids, Filter Fabric, Wood Chips or Mulch and or matting that was previously required for the area

Tree Specific Management Detail and Specifications

Tree 967 (*Eucalyptus saligna* Sydney Blue Gum) is a tree in fair condition Appendix 1 (In the Tree Impact Report) gives a description of the tree as per AS-4970-2009 Section 2. Appendix 2 (In the Tree Impact Report) shows a photograph of the tree; Appendix 4 (In the Tree Management Plan) indicates the location of the tree on a survey plan of the site. The tree was planted within 2 metres of neighboring infrastructure. The tree should be protected and managed as per the tree management plan in appendix 6

The tree's root zone will not be affected by the proposed development works (See Appendix 1). The hydrological and soil environments of the tree will be impacted. The TPZ of the tree will have an acceptable incursion of 10% from the proposed development works Compliance with the following items will be required before authorisation to commence construction will be consented.

Before beginning work, the contractor is required to meet with the consultant at the site to review all work procedures, access routes, storage areas, and tree protection measures have been installed. Fences have been erected to protect tree to be preserved. Fences define a specific protection zone for the tree. Fences are to remain until all site work has been completed. Fences may not be relocated or removed without the written permission of the consultant.

Construction trailers and traffic and storage areas must remain outside fenced areas at all times. All underground utilities and drain or irrigation lines shall be routed outside the tree protection zone. If lines must traverse the protection area, they shall be tunneled or bored under the tree. The site arborist should be present during any such works.

No materials, equipment, spoil, or waste or washout water may be deposited, stored, or parked within the tree protection zone (fenced area). Additional tree pruning required for clearance during construction must be performed by a qualified arborist and not by construction personnel. Any herbicides placed under paving materials must be safe for use around trees and labeled for that use. Any pesticides used on site must be tree-safe and not easily transported by water.

The tree shall be pruned to, Clear the crown of diseased, crossing, weak, and dead wood, provide 5 metres of vertical clearance over streets and 3 metres over p a t h w a y s ; Remove stubs, cutting outside the wound wood tissue that has Formed around the branch; Reduce end weight on heavy, horizontal branches by selectively removing small diameter branches, no greater than 50-100mm near the ends of the scaffolds.

Where temporary clearance is needed for access, branches shall be tied back to hold them out of the clearance zone. All pruning shall be performed by a qualified arborist with a minimum of 10 million Dollars public liability insurance. That all tree pruning works are carried out as per the Australian Standard AS 4373-2007 Pruning of amenity trees and as per the Code of Practice Amenity Tree Industry August 1998.Interior branches shall not be stripped out.

Pruning cuts larger than 100mm in diameter, except for dead wood, shall be avoided.

Pruning cuts that expose heartwood shall be avoided whenever possible. No more than 20 percent of live foliage shall be removed within the tree to be preserved. While in the tree, the arborist shall perform and aerial inspection to identify defects that require treatment. Any additional work needed shall be reported to the consultant. Brush shall be chipped and chips shall be spread underneath trees within the tree protection zone to a maximum depth of 200mm, leaving the trunk clear of mulch.

The site arborist is to be present during any excavation works adjacent any trees on the site. This is required to specify and supervise any horticultural works that should be carried out to any nominated tree for retention. If injury should occur to any tree during construction, it should be evaluated as soon as possible by the site arborist so that appropriate treatments can be applied. Any grading, construction, demolition, or other work that is expected to encounter tree roots must be monitored by the consulting arborist. The tree shall be irrigated on a schedule to be determined by the consultant. Each irrigation shall wet the soil within the tree protection zone to a depth of 100mm.

Erosion control devices such as silt fencing, debris basins, and Water diversion structures shall be installed to prevent siltation and or erosion within the tree protection zone. Before grading, pad preparation, or excavation for foundations, footings, walls, or trenching, they shall be 300mm outside the tree protection zone by cutting all roots cleanly to a depth of 800mm. Roots shall be cut by manually digging a trench and cutting exposed roots with a saw, vibrating knife, rock saw, and narrow trencher with sharp blades, or other approved root-pruning equipment.

Any roots damaged during grading or construction shall be exposed to sound tissue and cut cleanly with a saw. Spoil from trenches, basements, or other excavations shall not be placed within the tree protection zone either temporarily or permanently. No burn piles of debris pits shall be placed within the tree protection zone. No ashes, debris, or garbage maybe dumped or buried within the tree protection zone. Maintain fire-safe areas around fenced areas. Also, no heat sources, flames, Ignition sources or smoking is allowed near mulch or trees. These inspections will be carried out on an as needed requirement. It recommended that all excavations near trees be carried out together to reduce costs for the client.

The Contractor shall not engage in any construction activity within the Tree and Plant Protection Area without the approval of the Owner's Representative including: operating, moving or storing equipment; storing supplies or materials; locating temporary facilities including trailers or portable toilets and shall not permit employees to traverse the area to access adjacent areas of the project or use the area for lunch or any other work breaks. Permitted activity, if any, within the Tree and Plant Protection Area maybe indicated on the drawings along with any required remedial activity as listed below.

In the event that construction activity is unavoidable within the Tree and Plant Protection Area, notify the Owner’s Representative and submit a detailed written plan of action for approval. The plan shall include: a statement detailing the reason for the activity including why other areas are not suited; a description of the proposed activity; the time period for the activity, and a list of remedial actions that will reduce the impact on the Tree and Plant Protection Area from the activity. Remedial actions shall include but shall not be limited to the following

In general, demolition and excavation within the drip line of trees and shrubs shall proceed with extreme care either by the use of hand tools, directional boring and or Air Knife excavation were indicated or with other low impact equipment that will not cause damage to the tree, roots or soil.

When encountered, exposed roots, 25mm and larger in diameter shall be worked around in a manner that does not break the outer layer of the root surface (bark). These roots shall be covered in Wood Chips and shall be maintained above permanent wilt point at all times. Roots one inch and larger in diameter shall not be cut without the approval of the owner's representative. Excavation shall be tunneled under these roots without cutting them. In the areas where roots are encountered, work shall be performed and scheduled to close excavations as quickly as possible over exposed roots.

Tree branches that interfere with the construction may be tied back or pruned to clear only to the point necessary to complete the work. Other branches shall only be removed when specifically indicated by the Owner's Representative. Tying back or trimming of all branches and the cutting of roots shall be in accordance with accepted arboricultural practices and be performed under supervision of the arborist Please see attached detail of branches to be pruned below

Matting: Install temporary matting over the Wood Chips or Mulch to the extent indicated. Do not permit foot traffic, scaffolding or the storage of materials within the Tree and Plant Protection Area to occur off of the temporary matting.

Trunk Protection: Protect the trunk of each tree to remain by covering it with a ring of 2.4m long 50mm x 150mm planks loosely banded onto the tree with 3 steel bands. Staple the bands to the planks as necessary to hold them securely in place. Trunk protection must be kept in place no longer than 12 months. If construction requires work near a particular tree to continue longer than 12 months, the steel bands shall be inspected every six months and loosened if they are found to have become tight.

Air Excavation Tool: If excavation for footings or utilities is required within the Tree and Plant Protection Area, air excavation tool techniques shall be used where practical or as designed on the drawings.

Remove the Wood Chips from an area approximately 18 inches beyond the limits of the hole or trench to be excavated. Cover the Wood Chips for a distance of not less than 15 feet around the limit of the excavation area with Filter Fabric or plastic sheeting to protect the Wood Chips from silt. Mound the Wood Chips so that the plastic slopes towards the excavation.

Using a sprinkler or soaker hose, apply water slowly to the area of the excavation for a period of at least 4 hours, approximately 12 hours prior to the work so that the ground water level is at or near field capacity at the beginning of the work. For excavations that go beyond the damp soil, re-wet the soil as necessary to keep soil moisture near field capacity.

Using an air excavation tool specifically designed and manufactured for the intended purpose, and at pressures recommended by the manufacturer of the equipment, fracture the existing soil to the shape and the depths required. Work at rates and using techniques that

do not harm tree roots. Air pressure shall be a maximum of 90-100 psi.

Using a commercial, high-powered vacuum truck if required, remove the soil from the excavation produced by the Air Knife excavation. The vacuum truck should generally operate simultaneously with the hose operator, such that the soil produced is picked up from the excavation hole, and the exposed roots can be observed and not damaged by the ongoing operation. Do not drive the vacuum truck into the Tree and Plant Protection Area unless the area is protected from compaction as approved in advance by the Owner's Representative.

Remove all excavated soil and excavated Wood Chips, and contaminated soil at the end of the excavation.

Schedule the work so that foundations or utility work is completed immediately after the excavation. Do not let the roots dry out. Mist the roots several times during the day. If the excavated area must remain open overnight, mist the roots and cover the excavation with black plastic.

Dispose of all soil in a manner that meets local laws and regulations.

Restore soil within the trench as soon as the work is completed. Utilize soil of similar texture to the removed soil and lightly compact with hand tools. Leave soil mounded over the trench to a height of approximately 10% of the trench depth to account for settlement.

Restore any Geogrids, Filter Fabric, Wood Chips or Mulch and or matting that was previously required for the area

Tree Specific Management Detail and Specifications

Tree 966 (*Eucalyptus paniculata* Grey Ironbark) is a tree in fair condition Appendix 1 (In the Tree Impact Report) gives a description of the tree as per AS-4970-2009 Section 2. Appendix 2 (In the Tree Impact Report) shows a photograph of the tree; Appendix 4 (In the Tree Management Plan) indicates the location of the tree on a survey plan of the site. The tree was planted within 2 metres of neighboring infrastructure. The tree should be protected and managed as per the tree management plan in appendix 6

The tree's root zone will not be affected by the proposed development works (See Appendix 1). The hydrological and soil environments of the tree will be impacted. The TPZ of the tree will have an acceptable incursion of 10% from the proposed development works Compliance with the following items will be required before authorisation to commence construction will be consented.

Before beginning work, the contractor is required to meet with the consultant at the site to review all work procedures, access routes, storage areas, and tree protection measures have been installed. Fences have been erected to protect tree to be preserved. Fences define a specific protection zone for the tree. Fences are to remain until all site work has been completed. Fences may not be relocated or removed without the written permission of the consultant.

Construction trailers and traffic and storage areas must remain outside fenced areas at all times. All underground utilities and drain or irrigation lines shall be routed outside the tree protection zone. If lines must traverse the protection area, they shall be tunneled or bored under the tree. The site arborist should be present during any such works.

No materials, equipment, spoil, or waste or washout water may be deposited, stored, or parked within the tree protection zone (fenced area). Additional tree pruning required for clearance during construction must be performed by a qualified arborist and not by construction personnel. Any herbicides placed under paving materials must be safe for use around trees and labeled for that use. Any pesticides used on site must be tree-safe and not easily transported by water.

The tree shall be pruned to, Clear the crown of diseased, crossing, weak, and dead wood, provide 5 metres of vertical clearance over streets and 3 metres over p a t h w a y s ; Remove stubs, cutting outside the wound wood tissue that has Formed around the branch; Reduce end weight on heavy, horizontal branches by selectively removing small diameter branches, no greater than 50-100mm near the ends of the scaffolds.

Where temporary clearance is needed for access, branches shall be tied back to hold them out of the clearance zone. All pruning shall be performed by a qualified arborist with a minimum of 10 million Dollars public liability insurance. That all tree pruning works are carried out as per the Australian Standard AS 4373-2007 Pruning of amenity trees and as per the Code of Practice Amenity Tree Industry August 1998.Interior branches shall not be stripped out.

Pruning cuts larger than 100mm in diameter, except for dead wood, shall be avoided.

Pruning cuts that expose heartwood shall be avoided whenever possible. No more than 20 percent of live foliage shall be removed within the tree to be preserved. While in the tree, the arborist shall perform and aerial inspection to identify defects that require treatment. Any additional work needed shall be reported to the consultant. Brush shall be chipped and chips shall be spread underneath trees within the tree protection zone to a maximum depth of 200mm, leaving the trunk clear of mulch.

The site arborist is to be present during any excavation works adjacent any trees on the site. This is required to specify and supervise any horticultural works that should be carried out to any nominated tree for retention. If injury should occur to any tree during construction, it should be evaluated as soon as possible by the site arborist so that appropriate treatments can be applied. Any grading, construction, demolition, or other work that is expected to encounter tree roots must be monitored by the consulting arborist. The tree shall be irrigated on a schedule to be determined by the consultant. Each irrigation shall wet the soil within the tree protection zone to a depth of 100mm.

Erosion control devices such as silt fencing, debris basins, and Water diversion structures shall be installed to prevent siltation and or erosion within the tree protection zone. Before grading, pad preparation, or excavation for foundations, footings, walls, or trenching, they shall be 300mm outside the tree protection zone by cutting all roots cleanly to a depth of 800mm. Roots shall be cut by manually digging a trench and cutting exposed roots with a saw, vibrating knife, rock saw, and narrow trencher with sharp blades, or other approved root-pruning equipment.

Any roots damaged during grading or construction shall be exposed to sound tissue and cut cleanly with a saw. Spoil from trenches, basements, or other excavations shall not be placed within the tree protection zone either temporarily or permanently. No burn piles of debris pits shall be placed within the tree protection zone. No ashes, debris, or garbage maybe dumped or buried within the tree protection zone. Maintain fire-safe areas around fenced areas. Also, no heat sources, flames, Ignition sources or smoking is allowed near mulch or trees. These inspections will be carried out on an as needed requirement. It recommended that all excavations near trees be carried out together to reduce costs for the client.

The Contractor shall not engage in any construction activity within the Tree and Plant Protection Area without the approval of the Owner's Representative including: operating, moving or storing equipment; storing supplies or materials; locating temporary facilities including trailers or portable toilets and shall not permit employees to traverse the area to access adjacent areas of the project or use the area for lunch or any other work breaks. Permitted activity, if any, within the Tree and Plant Protection Area maybe indicated on the drawings along with any required remedial activity as listed below.

In the event that construction activity is unavoidable within the Tree and Plant Protection Area, notify the Owner’s Representative and submit a detailed written plan of action for approval. The plan shall include: a statement detailing the reason for the activity including why other areas are not suited; a description of the proposed activity; the time period for the activity, and a list of remedial actions that will reduce the impact on the Tree and Plant Protection Area from the activity. Remedial actions shall include but shall not be limited to the following

In general, demolition and excavation within the drip line of trees and shrubs shall proceed with extreme care either by the use of hand tools, directional boring and or Air Knife excavation were indicated or with other low impact equipment that will not cause damage to the tree, roots or soil.

When encountered, exposed roots, 25mm and larger in diameter shall be worked around in a manner that does not break the outer layer of the root surface (bark). These roots shall be covered in Wood Chips and shall be maintained above permanent wilt point at all times. Roots one inch and larger in diameter shall not be cut without the approval of the owner's representative. Excavation shall be tunneled under these roots without cutting them. In the areas where roots are encountered, work shall be performed and scheduled to close excavations as quickly as possible over exposed roots.

Tree branches that interfere with the construction may be tied back or pruned to clear only to the point necessary to complete the work. Other branches shall only be removed when specifically indicated by the Owner's Representative. Tying back or trimming of all branches and the cutting of roots shall be in accordance with accepted arboricultural practices and be performed under supervision of the arborist Please see attached detail of branches to be pruned below

Matting: Install temporary matting over the Wood Chips or Mulch to the extent indicated. Do not permit foot traffic, scaffolding or the storage of materials within the Tree and Plant Protection Area to occur off of the temporary matting.

Trunk Protection: Protect the trunk of each tree to remain by covering it with a ring of 2.4m long 50mm x 150mm planks loosely banded onto the tree with 3 steel bands. Staple the bands to the planks as necessary to hold them securely in place. Trunk protection must be kept in place no longer than 12 months. If construction requires work near a particular tree to continue longer than 12 months, the steel bands shall be inspected every six months and loosened if they are found to have become tight.

Air Excavation Tool: If excavation for footings or utilities is required within the Tree and Plant Protection Area, air excavation tool techniques shall be used where practical or as designed on the drawings.

Remove the Wood Chips from an area approximately 18 inches beyond the limits of the hole or trench to be excavated. Cover the Wood Chips for a distance of not less than 15 feet around the limit of the excavation area with Filter Fabric or plastic sheeting to protect the Wood Chips from silt. Mound the Wood Chips so that the plastic slopes towards the excavation.

Using a sprinkler or soaker hose, apply water slowly to the area of the excavation for a period of at least 4 hours, approximately 12 hours prior to the work so that the ground water level is at or near field capacity at the beginning of the work. For excavations that go beyond the damp soil, re-wet the soil as necessary to keep soil moisture near field capacity.

Using an air excavation tool specifically designed and manufactured for the intended purpose, and at pressures recommended by the manufacturer of the equipment, fracture the existing soil to the shape and the depths required. Work at rates and using techniques that

do not harm tree roots. Air pressure shall be a maximum of 90-100 psi.

Using a commercial, high-powered vacuum truck if required, remove the soil from the excavation produced by the Air Knife excavation. The vacuum truck should generally operate simultaneously with the hose operator, such that the soil produced is picked up from the excavation hole, and the exposed roots can be observed and not damaged by the ongoing operation. Do not drive the vacuum truck into the Tree and Plant Protection Area unless the area is protected from compaction as approved in advance by the Owner's Representative.

Remove all excavated soil and excavated Wood Chips, and contaminated soil at the end of the excavation.

Schedule the work so that foundations or utility work is completed immediately after the excavation. Do not let the roots dry out. Mist the roots several times during the day. If the excavated area must remain open overnight, mist the roots and cover the excavation with black plastic.

Dispose of all soil in a manner that meets local laws and regulations.

Restore soil within the trench as soon as the work is completed. Utilize soil of similar texture to the removed soil and lightly compact with hand tools. Leave soil mounded over the trench to a height of approximately 10% of the trench depth to account for settlement.

Restore any Geogrids, Filter Fabric, Wood Chips or Mulch and or matting that was previously required for the area

Tree Specific Management Detail and Specifications

Tree 970 (*Eucalyptus paniculata* Grey Ironbark) is a tree in fair condition Appendix 1 (In the Tree Impact Report) gives a description of the tree as per AS-4970-2009 Section 2. Appendix 2 (In the Tree Impact Report) shows a photograph of the tree; Appendix 4 (In the Tree Management Plan) indicates the location of the tree on a survey plan of the site. The tree was planted within 2 metres of neighboring infrastructure. The tree should be protected and managed as per the tree management plan in appendix 6

The tree's root zone will not be affected by the proposed development works (See Appendix 1). The hydrological and soil environments of the tree will be impacted. The TPZ of the tree will have an acceptable incursion of 10% from the proposed development works Compliance with the following items will be required before authorisation to commence construction will be consented.

Before beginning work, the contractor is required to meet with the consultant at the site to review all work procedures, access routes, storage areas, and tree protection measures have been installed. Fences have been erected to protect tree to be preserved. Fences define a specific protection zone for the tree. Fences are to remain until all site work has been completed. Fences may not be relocated or removed without the written permission of the consultant.

Construction trailers and traffic and storage areas must remain outside fenced areas at all times. All underground utilities and drain or irrigation lines shall be routed outside the tree protection zone. If lines must traverse the protection area, they shall be tunneled or bored under the tree. The site arborist should be present during any such works.

No materials, equipment, spoil, or waste or washout water may be deposited, stored, or parked within the tree protection zone (fenced area). Additional tree pruning required for clearance during construction must be performed by a qualified arborist and not by construction personnel. Any herbicides placed under paving materials must be safe for use around trees and labeled for that use. Any pesticides used on site must be tree-safe and not easily transported by water.

The tree shall be pruned to, Clear the crown of diseased, crossing, weak, and dead wood, provide 5 metres of vertical clearance over streets and 3 metres over p a t h w a y s ; Remove stubs, cutting outside the wound wood tissue that has Formed around the branch; Reduce end weight on heavy, horizontal branches by selectively removing small diameter branches, no greater than 50-100mm near the ends of the scaffolds.

Where temporary clearance is needed for access, branches shall be tied back to hold them out of the clearance zone. All pruning shall be performed by a qualified arborist with a minimum of 10 million Dollars public liability insurance. That all tree pruning works are carried out as per the Australian Standard AS 4373-2007 Pruning of amenity trees and as per the Code of Practice Amenity Tree Industry August 1998.Interior branches shall not be stripped out.

Pruning cuts larger than 100mm in diameter, except for dead wood, shall be avoided.

Pruning cuts that expose heartwood shall be avoided whenever possible. No more than 20 percent of live foliage shall be removed within the tree to be preserved. While in the tree, the arborist shall perform and aerial inspection to identify defects that require treatment. Any additional work needed shall be reported to the consultant. Brush shall be chipped and chips shall be spread underneath trees within the tree protection zone to a maximum depth of 200mm, leaving the trunk clear of mulch.

The site arborist is to be present during any excavation works adjacent any trees on the site. This is required to specify and supervise any horticultural works that should be carried out to any nominated tree for retention. If injury should occur to any tree during construction, it should be evaluated as soon as possible by the site arborist so that appropriate treatments can be applied. Any grading, construction, demolition, or other work that is expected to encounter tree roots must be monitored by the consulting arborist. The tree shall be irrigated on a schedule to be determined by the consultant. Each irrigation shall wet the soil within the tree protection zone to a depth of 100mm.

Erosion control devices such as silt fencing, debris basins, and Water diversion structures shall be installed to prevent siltation and or erosion within the tree protection zone. Before grading, pad preparation, or excavation for foundations, footings, walls, or trenching, they shall be 300mm outside the tree protection zone by cutting all roots cleanly to a depth of 800mm. Roots shall be cut by manually digging a trench and cutting exposed roots with a saw, vibrating knife, rock saw, and narrow trencher with sharp blades, or other approved root-pruning equipment.

Any roots damaged during grading or construction shall be exposed to sound tissue and cut cleanly with a saw. Spoil from trenches, basements, or other excavations shall not be placed within the tree protection zone either temporarily or permanently. No burn piles of debris pits shall be placed within the tree protection zone. No ashes, debris, or garbage maybe dumped or buried within the tree protection zone. Maintain fire-safe areas around fenced areas. Also, no heat sources, flames, Ignition sources or smoking is allowed near mulch or trees. These inspections will be carried out on an as needed requirement. It recommended that all excavations near trees be carried out together to reduce costs for the client.

The Contractor shall not engage in any construction activity within the Tree and Plant Protection Area without the approval of the Owner's Representative including: operating, moving or storing equipment; storing supplies or materials; locating temporary facilities including trailers or portable toilets and shall not permit employees to traverse the area to access adjacent areas of the project or use the area for lunch or any other work breaks. Permitted activity, if any, within the Tree and Plant Protection Area maybe indicated on the drawings along with any required remedial activity as listed below.

In the event that construction activity is unavoidable within the Tree and Plant Protection Area, notify the Owner’s Representative and submit a detailed written plan of action for approval. The plan shall include: a statement detailing the reason for the activity including why other areas are not suited; a description of the proposed activity; the time period for the activity, and a list of remedial actions that will reduce the impact on the Tree and Plant Protection Area from the activity. Remedial actions shall include but shall not be limited to the following

In general, demolition and excavation within the drip line of trees and shrubs shall proceed with extreme care either by the use of hand tools, directional boring and or Air Knife excavation were indicated or with other low impact equipment that will not cause damage to the tree, roots or soil.

When encountered, exposed roots, 25mm and larger in diameter shall be worked around in a manner that does not break the outer layer of the root surface (bark). These roots shall be covered in Wood Chips and shall be maintained above permanent wilt point at all times. Roots one inch and larger in diameter shall not be cut without the approval of the owner's representative. Excavation shall be tunneled under these roots without cutting them. In the areas where roots are encountered, work shall be performed and scheduled to close excavations as quickly as possible over exposed roots.

Tree branches that interfere with the construction may be tied back or pruned to clear only to the point necessary to complete the work. Other branches shall only be removed when specifically indicated by the Owner's Representative. Tying back or trimming of all branches and the cutting of roots shall be in accordance with accepted arboricultural practices and be performed under supervision of the arborist Please see attached detail of branches to be pruned below

Matting: Install temporary matting over the Wood Chips or Mulch to the extent indicated. Do not permit foot traffic, scaffolding or the storage of materials within the Tree and Plant Protection Area to occur off of the temporary matting.

Trunk Protection: Protect the trunk of each tree to remain by covering it with a ring of 2.4m long 50mm x 150mm planks loosely banded onto the tree with 3 steel bands. Staple the bands to the planks as necessary to hold them securely in place. Trunk protection must be kept in place no longer than 12 months. If construction requires work near a particular tree to continue longer than 12 months, the steel bands shall be inspected every six months and loosened if they are found to have become tight.

Air Excavation Tool: If excavation for footings or utilities is required within the Tree and Plant Protection Area, air excavation tool techniques shall be used where practical or as designed on the drawings.

Remove the Wood Chips from an area approximately 18 inches beyond the limits of the hole or trench to be excavated. Cover the Wood Chips for a distance of not less than 15 feet around the limit of the excavation area with Filter Fabric or plastic sheeting to protect the Wood Chips from silt. Mound the Wood Chips so that the plastic slopes towards the excavation.

Using a sprinkler or soaker hose, apply water slowly to the area of the excavation for a period of at least 4 hours, approximately 12 hours prior to the work so that the ground water level is at or near field capacity at the beginning of the work. For excavations that go beyond the damp soil, re-wet the soil as necessary to keep soil moisture near field capacity.

Using an air excavation tool specifically designed and manufactured for the intended purpose, and at pressures recommended by the manufacturer of the equipment, fracture the existing soil to the shape and the depths required. Work at rates and using techniques that

do not harm tree roots. Air pressure shall be a maximum of 90-100 psi.

Using a commercial, high-powered vacuum truck if required, remove the soil from the excavation produced by the Air Knife excavation. The vacuum truck should generally operate simultaneously with the hose operator, such that the soil produced is picked up from the excavation hole, and the exposed roots can be observed and not damaged by the ongoing operation. Do not drive the vacuum truck into the Tree and Plant Protection Area unless the area is protected from compaction as approved in advance by the Owner's Representative.

Remove all excavated soil and excavated Wood Chips, and contaminated soil at the end of the excavation.

Schedule the work so that foundations or utility work is completed immediately after the excavation. Do not let the roots dry out. Mist the roots several times during the day. If the excavated area must remain open overnight, mist the roots and cover the excavation with black plastic.

Dispose of all soil in a manner that meets local laws and regulations.

Restore soil within the trench as soon as the work is completed. Utilize soil of similar texture to the removed soil and lightly compact with hand tools. Leave soil mounded over the trench to a height of approximately 10% of the trench depth to account for settlement.

Restore any Geogrids, Filter Fabric, Wood Chips or Mulch and or matting that was previously required for the area

Tree Specific Management Detail and Specifications

Tree 974 (*Eucalyptus resinfera* Red Mahogany) is a tree in fair condition Appendix 1 (In the Tree Impact Report) gives a description of the tree as per AS-4970-2009 Section 2. Appendix 2 (In the Tree Impact Report) shows a photograph of the tree; Appendix 4 (In the Tree Management Plan) indicates the location of the tree on a survey plan of the site. The tree was planted within 2 metres of neighboring infrastructure. The tree should be protected and managed as per the tree management plan in appendix 6

The tree's root zone will not be affected by the proposed development works (See Appendix 1). The hydrological and soil environments of the tree will be impacted. The TPZ of the tree will have an acceptable incursion of 10% from the proposed development works Compliance with the following items will be required before authorisation to commence construction will be consented.

Before beginning work, the contractor is required to meet with the consultant at the site to review all work procedures, access routes, storage areas, and tree protection measures have been installed. Fences have been erected to protect tree to be preserved. Fences define a specific protection zone for the tree. Fences are to remain until all site work has been completed. Fences may not be relocated or removed without the written permission of the consultant.

Construction trailers and traffic and storage areas must remain outside fenced areas at all times. All underground utilities and drain or irrigation lines shall be routed outside the tree protection zone. If lines must traverse the protection area, they shall be tunneled or bored under the tree. The site arborist should be present during any such works.

No materials, equipment, spoil, or waste or washout water may be deposited, stored, or parked within the tree protection zone (fenced area). Additional tree pruning required for clearance during construction must be performed by a qualified arborist and not by construction personnel. Any herbicides placed under paving materials must be safe for use around trees and labeled for that use. Any pesticides used on site must be tree-safe and not easily transported by water.

The tree shall be pruned to, Clear the crown of diseased, crossing, weak, and dead wood, provide 5 metres of vertical clearance over streets and 3 metres over p a t h w a y s ; Remove stubs, cutting outside the wound wood tissue that has Formed around the branch; Reduce end weight on heavy, horizontal branches by selectively removing small diameter branches, no greater than 50-100mm near the ends of the scaffolds.

Where temporary clearance is needed for access, branches shall be tied back to hold them out of the clearance zone. All pruning shall be performed by a qualified arborist with a minimum of 10 million Dollars public liability insurance. That all tree pruning works are carried out as per the Australian Standard AS 4373-2007 Pruning of amenity trees and as per the Code of Practice Amenity Tree Industry August 1998.Interior branches shall not be stripped out.

Pruning cuts larger than 100mm in diameter, except for dead wood, shall be avoided. Pruning cuts that expose heartwood shall be avoided whenever possible. No more than 20 percent of live foliage shall be removed within the tree to be preserved. While in the tree, the arborist shall perform and aerial inspection to identify defects that require treatment. Any additional work needed shall be reported to the consultant. Brush shall be chipped and chips shall be spread underneath trees within the tree protection zone to a maximum depth of 200mm, leaving the trunk clear of mulch.

The site arborist is to be present during any excavation works adjacent any trees on the site. This is required to specify and supervise any horticultural works that should be carried out to any nominated tree for retention. If injury should occur to any tree during construction, it should be evaluated as soon as possible by the site arborist so that appropriate treatments can be applied. Any grading, construction, demolition, or other work that is expected to encounter tree roots must be monitored by the consulting arborist. The tree shall be irrigated on a schedule to be determined by the consultant. Each irrigation shall wet the soil within the tree protection zone to a depth of 100mm.

Erosion control devices such as silt fencing, debris basins, and Water diversion structures shall be installed to prevent siltation and or erosion within the tree protection zone. Before grading, pad preparation, or excavation for foundations, footings, walls, or trenching, they shall be 300mm outside the tree protection zone by cutting all roots cleanly to a depth of 800mm. Roots shall be cut by manually digging a trench and cutting exposed roots with a saw, vibrating knife, rock saw, and narrow trencher with sharp blades, or other approved root-pruning equipment.

Any roots damaged during grading or construction shall be exposed to sound tissue and cut cleanly with a saw. Spoil from trenches, basements, or other excavations shall not be placed within the tree protection zone either temporarily or permanently. No burn piles of debris pits shall be placed within the tree protection zone. No ashes, debris, or garbage maybe dumped or buried within the tree protection zone. Maintain fire-safe areas around fenced areas. Also, no heat sources, flames, Ignition sources or smoking is allowed near mulch or trees. These inspections will be carried out on an as needed requirement. It recommended that all excavations near trees be carried out together to reduce costs for the client.

The Contractor shall not engage in any construction activity within the Tree and Plant Protection Area without the approval of the Owner's Representative including: operating, moving or storing equipment; storing supplies or materials; locating temporary facilities including trailers or portable toilets and shall not permit employees to traverse the area to access adjacent areas of the project or use the area for lunch or any other work breaks. Permitted activity, if any, within the Tree and Plant Protection Area maybe indicated on the drawings along with any required remedial activity as listed below.

In the event that construction activity is unavoidable within the Tree and Plant Protection Area, notify the Owner’s Representative and submit a detailed written plan of action for approval. The plan shall include: a statement detailing the reason for the activity including why other areas are not suited; a description of the proposed activity; the time period for the activity, and a list of remedial actions that will reduce the impact on the Tree and Plant Protection Area from the activity. Remedial actions shall include but shall not be limited to the

following

In general, demolition and excavation within the drip line of trees and shrubs shall proceed with extreme care either by the use of hand tools, directional boring and or Air Knife excavation were indicated or with other low impact equipment that will not cause damage to the tree, roots or soil.

When encountered, exposed roots, 25mm and larger in diameter shall be worked around in a manner that does not break the outer layer of the root surface (bark). These roots shall be covered in Wood Chips and shall be maintained above permanent wilt point at all times. Roots one inch and larger in diameter shall not be cut without the approval of the owner's representative. Excavation shall be tunneled under these roots without cutting them. In the areas where roots are encountered, work shall be performed and scheduled to close excavations as quickly as possible over exposed roots.

Tree branches that interfere with the construction may be tied back or pruned to clear only to the point necessary to complete the work. Other branches shall only be removed when specifically indicated by the Owner's Representative. Tying back or trimming of all branches and the cutting of roots shall be in accordance with accepted arboricultural practices and be performed under supervision of the arborist Please see attached detail of branches to be pruned below

Matting: Install temporary matting over the Wood Chips or Mulch to the extent indicated. Do not permit foot traffic, scaffolding or the storage of materials within the Tree and Plant Protection Area to occur off of the temporary matting.

Trunk Protection: Protect the trunk of each tree to remain by covering it with a ring of 2.4m long 50mm x 150mm planks loosely banded onto the tree with 3 steel bands. Staple the bands to the planks as necessary to hold them securely in place. Trunk protection must be kept in place no longer than 12 months. If construction requires work near a particular tree to continue longer than 12 months, the steel bands shall be inspected every six months and loosened if they are found to have become tight.

Air Excavation Tool: If excavation for footings or utilities is required within the Tree and Plant Protection Area, air excavation tool techniques shall be used where practical or as designed on the drawings.

Remove the Wood Chips from an area approximately 18 inches beyond the limits of the hole or trench to be excavated. Cover the Wood Chips for a distance of not less than 15 feet around the limit of the excavation area with Filter Fabric or plastic sheeting to protect the Wood Chips from silt. Mound the Wood Chips so that the plastic slopes towards the excavation.

Using a sprinkler or soaker hose, apply water slowly to the area of the excavation for a period of at least 4 hours, approximately 12 hours prior to the work so that the ground water level is at or near field capacity at the beginning of the work. For excavations that go beyond the damp soil, re-wet the soil as necessary to keep soil moisture near field capacity.

Using an air excavation tool specifically designed and manufactured for the intended

purpose, and at pressures recommended by the manufacturer of the equipment, fracture the existing soil to the shape and the depths required. Work at rates and using techniques that do not harm tree roots. Air pressure shall be a maximum of 90-100 psi.

Using a commercial, high-powered vacuum truck if required, remove the soil from the excavation produced by the Air Knife excavation. The vacuum truck should generally operate simultaneously with the hose operator, such that the soil produced is picked up from the excavation hole, and the exposed roots can be observed and not damaged by the ongoing operation. Do not drive the vacuum truck into the Tree and Plant Protection Area unless the area is protected from compaction as approved in advance by the Owner's Representative.

Remove all excavated soil and excavated Wood Chips, and contaminated soil at the end of the excavation.

Schedule the work so that foundations or utility work is completed immediately after the excavation. Do not let the roots dry out. Mist the roots several times during the day. If the excavated area must remain open overnight, mist the roots and cover the excavation with black plastic.

Dispose of all soil in a manner that meets local laws and regulations.

Restore soil within the trench as soon as the work is completed. Utilize soil of similar texture to the removed soil and lightly compact with hand tools. Leave soil mounded over the trench to a height of approximately 10% of the trench depth to account for settlement.

Restore any Geogrids, Filter Fabric, Wood Chips or Mulch and or matting that was previously required for the area

Tree Specific Management Detail and Specifications

Tree 975 (*Eucalyptus resinfera* Red Mahogany) is a tree in fair condition Appendix 1 (In the Tree Impact Report) gives a description of the tree as per AS-4970-2009 Section 2. Appendix 2 (In the Tree Impact Report) shows a photograph of the tree; Appendix 4 (In the Tree Management Plan) indicates the location of the tree on a survey plan of the site. The tree was planted within 2 metres of neighboring infrastructure. The tree should be protected and managed as per the tree management plan in appendix 6

The tree's root zone will not be affected by the proposed development works (See Appendix 1). The hydrological and soil environments of the tree will be impacted. The TPZ of the tree will have an acceptable incursion of 10% from the proposed development works Compliance with the following items will be required before authorisation to commence construction will be consented.

Before beginning work, the contractor is required to meet with the consultant at the site to review all work procedures, access routes, storage areas, and tree protection measures have been installed. Fences have been erected to protect tree to be preserved. Fences define a specific protection zone for the tree. Fences are to remain until all site work has been completed. Fences may not be relocated or removed without the written permission of the consultant.

Construction trailers and traffic and storage areas must remain outside fenced areas at all times. All underground utilities and drain or irrigation lines shall be routed outside the tree protection zone. If lines must traverse the protection area, they shall be tunneled or bored under the tree. The site arborist should be present during any such works.

No materials, equipment, spoil, or waste or washout water may be deposited, stored, or parked within the tree protection zone (fenced area). Additional tree pruning required for clearance during construction must be performed by a qualified arborist and not by construction personnel. Any herbicides placed under paving materials must be safe for use around trees and labeled for that use. Any pesticides used on site must be tree-safe and not easily transported by water.

The tree shall be pruned to, Clear the crown of diseased, crossing, weak, and dead wood, provide 5 metres of vertical clearance over streets and 3 metres over p a t h w a y s ; Remove stubs, cutting outside the wound wood tissue that has Formed around the branch; Reduce end weight on heavy, horizontal branches by selectively removing small diameter branches, no greater than 50-100mm near the ends of the scaffolds.

Where temporary clearance is needed for access, branches shall be tied back to hold them out of the clearance zone. All pruning shall be performed by a qualified arborist with a minimum of 10 million Dollars public liability insurance. That all tree pruning works are carried out as per the Australian Standard AS 4373-2007 Pruning of amenity trees and as per the Code of Practice Amenity Tree Industry August 1998.Interior branches shall not be stripped out.

Pruning cuts larger than 100mm in diameter, except for dead wood, shall be avoided.

Pruning cuts that expose heartwood shall be avoided whenever possible. No more than 20 percent of live foliage shall be removed within the tree to be preserved. While in the tree, the arborist shall perform and aerial inspection to identify defects that require treatment. Any additional work needed shall be reported to the consultant. Brush shall be chipped and chips shall be spread underneath trees within the tree protection zone to a maximum depth of 200mm, leaving the trunk clear of mulch.

The site arborist is to be present during any excavation works adjacent any trees on the site. This is required to specify and supervise any horticultural works that should be carried out to any nominated tree for retention. If injury should occur to any tree during construction, it should be evaluated as soon as possible by the site arborist so that appropriate treatments can be applied. Any grading, construction, demolition, or other work that is expected to encounter tree roots must be monitored by the consulting arborist. The tree shall be irrigated on a schedule to be determined by the consultant. Each irrigation shall wet the soil within the tree protection zone to a depth of 100mm.

Erosion control devices such as silt fencing, debris basins, and Water diversion structures shall be installed to prevent siltation and or erosion within the tree protection zone. Before grading, pad preparation, or excavation for foundations, footings, walls, or trenching, they shall be 300mm outside the tree protection zone by cutting all roots cleanly to a depth of 800mm. Roots shall be cut by manually digging a trench and cutting exposed roots with a saw, vibrating knife, rock saw, and narrow trencher with sharp blades, or other approved root-pruning equipment.

Any roots damaged during grading or construction shall be exposed to sound tissue and cut cleanly with a saw. Spoil from trenches, basements, or other excavations shall not be placed within the tree protection zone either temporarily or permanently. No burn piles of debris pits shall be placed within the tree protection zone. No ashes, debris, or garbage maybe dumped or buried within the tree protection zone. Maintain fire-safe areas around fenced areas. Also, no heat sources, flames, Ignition sources or smoking is allowed near mulch or trees. These inspections will be carried out on an as needed requirement. It recommended that all excavations near trees be carried out together to reduce costs for the client.

The Contractor shall not engage in any construction activity within the Tree and Plant Protection Area without the approval of the Owner's Representative including: operating, moving or storing equipment; storing supplies or materials; locating temporary facilities including trailers or portable toilets and shall not permit employees to traverse the area to access adjacent areas of the project or use the area for lunch or any other work breaks. Permitted activity, if any, within the Tree and Plant Protection Area maybe indicated on the drawings along with any required remedial activity as listed below.

In the event that construction activity is unavoidable within the Tree and Plant Protection Area, notify the Owner’s Representative and submit a detailed written plan of action for approval. The plan shall include: a statement detailing the reason for the activity including why other areas are not suited; a description of the proposed activity; the time period for the activity, and a list of remedial actions that will reduce the impact on the Tree and Plant Protection Area from the activity. Remedial actions shall include but shall not be limited to the following

In general, demolition and excavation within the drip line of trees and shrubs shall proceed with extreme care either by the use of hand tools, directional boring and or Air Knife excavation were indicated or with other low impact equipment that will not cause damage to the tree, roots or soil.

When encountered, exposed roots, 25mm and larger in diameter shall be worked around in a manner that does not break the outer layer of the root surface (bark). These roots shall be covered in Wood Chips and shall be maintained above permanent wilt point at all times. Roots one inch and larger in diameter shall not be cut without the approval of the owner's representative. Excavation shall be tunneled under these roots without cutting them. In the areas where roots are encountered, work shall be performed and scheduled to close excavations as quickly as possible over exposed roots.

Tree branches that interfere with the construction may be tied back or pruned to clear only to the point necessary to complete the work. Other branches shall only be removed when specifically indicated by the Owner's Representative. Tying back or trimming of all branches and the cutting of roots shall be in accordance with accepted arboricultural practices and be performed under supervision of the arborist Please see attached detail of branches to be pruned below

Matting: Install temporary matting over the Wood Chips or Mulch to the extent indicated. Do not permit foot traffic, scaffolding or the storage of materials within the Tree and Plant Protection Area to occur off of the temporary matting.

Trunk Protection: Protect the trunk of each tree to remain by covering it with a ring of 2.4m long 50mm x 150mm planks loosely banded onto the tree with 3 steel bands. Staple the bands to the planks as necessary to hold them securely in place. Trunk protection must be kept in place no longer than 12 months. If construction requires work near a particular tree to continue longer than 12 months, the steel bands shall be inspected every six months and loosened if they are found to have become tight.

Air Excavation Tool: If excavation for footings or utilities is required within the Tree and Plant Protection Area, air excavation tool techniques shall be used where practical or as designed on the drawings.

Remove the Wood Chips from an area approximately 18 inches beyond the limits of the hole or trench to be excavated. Cover the Wood Chips for a distance of not less than 15 feet around the limit of the excavation area with Filter Fabric or plastic sheeting to protect the Wood Chips from silt. Mound the Wood Chips so that the plastic slopes towards the excavation.

Using a sprinkler or soaker hose, apply water slowly to the area of the excavation for a period of at least 4 hours, approximately 12 hours prior to the work so that the ground water level is at or near field capacity at the beginning of the work. For excavations that go beyond the damp soil, re-wet the soil as necessary to keep soil moisture near field capacity.

Using an air excavation tool specifically designed and manufactured for the intended purpose, and at pressures recommended by the manufacturer of the equipment, fracture the existing soil to the shape and the depths required. Work at rates and using techniques that

do not harm tree roots. Air pressure shall be a maximum of 90-100 psi.

Using a commercial, high-powered vacuum truck if required, remove the soil from the excavation produced by the Air Knife excavation. The vacuum truck should generally operate simultaneously with the hose operator, such that the soil produced is picked up from the excavation hole, and the exposed roots can be observed and not damaged by the ongoing operation. Do not drive the vacuum truck into the Tree and Plant Protection Area unless the area is protected from compaction as approved in advance by the Owner's Representative.

Remove all excavated soil and excavated Wood Chips, and contaminated soil at the end of the excavation.

Schedule the work so that foundations or utility work is completed immediately after the excavation. Do not let the roots dry out. Mist the roots several times during the day. If the excavated area must remain open overnight, mist the roots and cover the excavation with black plastic.

Dispose of all soil in a manner that meets local laws and regulations.

Restore soil within the trench as soon as the work is completed. Utilize soil of similar texture to the removed soil and lightly compact with hand tools. Leave soil mounded over the trench to a height of approximately 10% of the trench depth to account for settlement.

Restore any Geogrids, Filter Fabric, Wood Chips or Mulch and or matting that was previously required for the area

Tree Specific Management Detail and Specifications

Tree 976 (*Eucalyptus paniculata* Grey Ironbark) is a tree in fair condition Appendix 1 (In the Tree Impact Report) gives a description of the tree as per AS-4970-2009 Section 2. Appendix 2 (In the Tree Impact Report) shows a photograph of the tree; Appendix 4 (In the Tree Management Plan) indicates the location of the tree on a survey plan of the site. The tree was planted within 2 metres of neighboring infrastructure. The tree should be protected and managed as per the tree management plan in appendix 6

The tree's root zone will not be affected by the proposed development works (See Appendix 1). The hydrological and soil environments of the tree will be impacted. The TPZ of the tree will have an acceptable incursion of 10% from the proposed development works Compliance with the following items will be required before authorisation to commence construction will be consented.

Before beginning work, the contractor is required to meet with the consultant at the site to review all work procedures, access routes, storage areas, and tree protection measures have been installed. Fences have been erected to protect tree to be preserved. Fences define a specific protection zone for the tree. Fences are to remain until all site work has been completed. Fences may not be relocated or removed without the written permission of the consultant.

Construction trailers and traffic and storage areas must remain outside fenced areas at all times. All underground utilities and drain or irrigation lines shall be routed outside the tree protection zone. If lines must traverse the protection area, they shall be tunneled or bored under the tree. The site arborist should be present during any such works.

No materials, equipment, spoil, or waste or washout water may be deposited, stored, or parked within the tree protection zone (fenced area). Additional tree pruning required for clearance during construction must be performed by a qualified arborist and not by construction personnel. Any herbicides placed under paving materials must be safe for use around trees and labeled for that use. Any pesticides used on site must be tree-safe and not easily transported by water.

The tree shall be pruned to, Clear the crown of diseased, crossing, weak, and dead wood, provide 5 metres of vertical clearance over streets and 3 metres over p a t h w a y s ; Remove stubs, cutting outside the wound wood tissue that has Formed around the branch; Reduce end weight on heavy, horizontal branches by selectively removing small diameter branches, no greater than 50-100mm near the ends of the scaffolds.

Where temporary clearance is needed for access, branches shall be tied back to hold them out of the clearance zone. All pruning shall be performed by a qualified arborist with a minimum of 10 million Dollars public liability insurance. That all tree pruning works are carried out as per the Australian Standard AS 4373-2007 Pruning of amenity trees and as per the Code of Practice Amenity Tree Industry August 1998.Interior branches shall not be stripped out.

Pruning cuts larger than 100mm in diameter, except for dead wood, shall be avoided.

Pruning cuts that expose heartwood shall be avoided whenever possible. No more than 20 percent of live foliage shall be removed within the tree to be preserved. While in the tree, the arborist shall perform and aerial inspection to identify defects that require treatment. Any additional work needed shall be reported to the consultant. Brush shall be chipped and chips shall be spread underneath trees within the tree protection zone to a maximum depth of 200mm, leaving the trunk clear of mulch.

The site arborist is to be present during any excavation works adjacent any trees on the site. This is required to specify and supervise any horticultural works that should be carried out to any nominated tree for retention. If injury should occur to any tree during construction, it should be evaluated as soon as possible by the site arborist so that appropriate treatments can be applied. Any grading, construction, demolition, or other work that is expected to encounter tree roots must be monitored by the consulting arborist. The tree shall be irrigated on a schedule to be determined by the consultant. Each irrigation shall wet the soil within the tree protection zone to a depth of 100mm.

Erosion control devices such as silt fencing, debris basins, and Water diversion structures shall be installed to prevent siltation and or erosion within the tree protection zone. Before grading, pad preparation, or excavation for foundations, footings, walls, or trenching, they shall be 300mm outside the tree protection zone by cutting all roots cleanly to a depth of 800mm. Roots shall be cut by manually digging a trench and cutting exposed roots with a saw, vibrating knife, rock saw, and narrow trencher with sharp blades, or other approved root-pruning equipment.

Any roots damaged during grading or construction shall be exposed to sound tissue and cut cleanly with a saw. Spoil from trenches, basements, or other excavations shall not be placed within the tree protection zone either temporarily or permanently. No burn piles of debris pits shall be placed within the tree protection zone. No ashes, debris, or garbage maybe dumped or buried within the tree protection zone. Maintain fire-safe areas around fenced areas. Also, no heat sources, flames, Ignition sources or smoking is allowed near mulch or trees. These inspections will be carried out on an as needed requirement. It recommended that all excavations near trees be carried out together to reduce costs for the client.

The Contractor shall not engage in any construction activity within the Tree and Plant Protection Area without the approval of the Owner's Representative including: operating, moving or storing equipment; storing supplies or materials; locating temporary facilities including trailers or portable toilets and shall not permit employees to traverse the area to access adjacent areas of the project or use the area for lunch or any other work breaks. Permitted activity, if any, within the Tree and Plant Protection Area maybe indicated on the drawings along with any required remedial activity as listed below.

In the event that construction activity is unavoidable within the Tree and Plant Protection Area, notify the Owner’s Representative and submit a detailed written plan of action for approval. The plan shall include: a statement detailing the reason for the activity including why other areas are not suited; a description of the proposed activity; the time period for the activity, and a list of remedial actions that will reduce the impact on the Tree and Plant Protection Area from the activity. Remedial actions shall include but shall not be limited to the following

In general, demolition and excavation within the drip line of trees and shrubs shall proceed with extreme care either by the use of hand tools, directional boring and or Air Knife excavation were indicated or with other low impact equipment that will not cause damage to the tree, roots or soil.

When encountered, exposed roots, 25mm and larger in diameter shall be worked around in a manner that does not break the outer layer of the root surface (bark). These roots shall be covered in Wood Chips and shall be maintained above permanent wilt point at all times. Roots one inch and larger in diameter shall not be cut without the approval of the owner's representative. Excavation shall be tunneled under these roots without cutting them. In the areas where roots are encountered, work shall be performed and scheduled to close excavations as quickly as possible over exposed roots.

Tree branches that interfere with the construction may be tied back or pruned to clear only to the point necessary to complete the work. Other branches shall only be removed when specifically indicated by the Owner's Representative. Tying back or trimming of all branches and the cutting of roots shall be in accordance with accepted arboricultural practices and be performed under supervision of the arborist Please see attached detail of branches to be pruned below

Matting: Install temporary matting over the Wood Chips or Mulch to the extent indicated. Do not permit foot traffic, scaffolding or the storage of materials within the Tree and Plant Protection Area to occur off of the temporary matting.

Trunk Protection: Protect the trunk of each tree to remain by covering it with a ring of 2.4m long 50mm x 150mm planks loosely banded onto the tree with 3 steel bands. Staple the bands to the planks as necessary to hold them securely in place. Trunk protection must be kept in place no longer than 12 months. If construction requires work near a particular tree to continue longer than 12 months, the steel bands shall be inspected every six months and loosened if they are found to have become tight.

Air Excavation Tool: If excavation for footings or utilities is required within the Tree and Plant Protection Area, air excavation tool techniques shall be used where practical or as designed on the drawings.

Remove the Wood Chips from an area approximately 18 inches beyond the limits of the hole or trench to be excavated. Cover the Wood Chips for a distance of not less than 15 feet around the limit of the excavation area with Filter Fabric or plastic sheeting to protect the Wood Chips from silt. Mound the Wood Chips so that the plastic slopes towards the excavation.

Using a sprinkler or soaker hose, apply water slowly to the area of the excavation for a period of at least 4 hours, approximately 12 hours prior to the work so that the ground water level is at or near field capacity at the beginning of the work. For excavations that go beyond the damp soil, re-wet the soil as necessary to keep soil moisture near field capacity.

Using an air excavation tool specifically designed and manufactured for the intended purpose, and at pressures recommended by the manufacturer of the equipment, fracture the existing soil to the shape and the depths required. Work at rates and using techniques that

do not harm tree roots. Air pressure shall be a maximum of 90-100 psi.

Using a commercial, high-powered vacuum truck if required, remove the soil from the excavation produced by the Air Knife excavation. The vacuum truck should generally operate simultaneously with the hose operator, such that the soil produced is picked up from the excavation hole, and the exposed roots can be observed and not damaged by the ongoing operation. Do not drive the vacuum truck into the Tree and Plant Protection Area unless the area is protected from compaction as approved in advance by the Owner's Representative.

Remove all excavated soil and excavated Wood Chips, and contaminated soil at the end of the excavation.

Schedule the work so that foundations or utility work is completed immediately after the excavation. Do not let the roots dry out. Mist the roots several times during the day. If the excavated area must remain open overnight, mist the roots and cover the excavation with black plastic.

Dispose of all soil in a manner that meets local laws and regulations.

Restore soil within the trench as soon as the work is completed. Utilize soil of similar texture to the removed soil and lightly compact with hand tools. Leave soil mounded over the trench to a height of approximately 10% of the trench depth to account for settlement.

Restore any Geogrids, Filter Fabric, Wood Chips or Mulch and or matting that was previously required for the area

Tree Specific Management Detail and Specifications

Tree 977 (*Syncarpia glomulifera* Turpentine) is a tree in fair condition Appendix 1 (In the Tree Impact Report) gives a description of the tree as per AS-4970-2009 Section 2. Appendix 2 (In the Tree Impact Report) shows a photograph of the tree; Appendix 4 (In the Tree Management Plan) indicates the location of the tree on a survey plan of the site. The tree was planted within 2 metres of neighboring infrastructure. The tree should be protected and managed as per the tree management plan in appendix 6

The tree's root zone will not be affected by the proposed development works (See Appendix 1). The hydrological and soil environments of the tree will be impacted. The TPZ of the tree will have an acceptable incursion of 10% from the proposed development works Compliance with the following items will be required before authorisation to commence construction will be consented.

Before beginning work, the contractor is required to meet with the consultant at the site to review all work procedures, access routes, storage areas, and tree protection measures have been installed. Fences have been erected to protect tree to be preserved. Fences define a specific protection zone for the tree. Fences are to remain until all site work has been completed. Fences may not be relocated or removed without the written permission of the consultant.

Construction trailers and traffic and storage areas must remain outside fenced areas at all times. All underground utilities and drain or irrigation lines shall be routed outside the tree protection zone. If lines must traverse the protection area, they shall be tunneled or bored under the tree. The site arborist should be present during any such works.

No materials, equipment, spoil, or waste or washout water may be deposited, stored, or parked within the tree protection zone (fenced area). Additional tree pruning required for clearance during construction must be performed by a qualified arborist and not by construction personnel. Any herbicides placed under paving materials must be safe for use around trees and labeled for that use. Any pesticides used on site must be tree-safe and not easily transported by water.

The tree shall be pruned to, Clear the crown of diseased, crossing, weak, and dead wood, provide 5 metres of vertical clearance over streets and 3 metres over p a t h w a y s ; Remove stubs, cutting outside the wound wood tissue that has Formed around the branch; Reduce end weight on heavy, horizontal branches by selectively removing small diameter branches, no greater than 50-100mm near the ends of the scaffolds.

Where temporary clearance is needed for access, branches shall be tied back to hold them out of the clearance zone. All pruning shall be performed by a qualified arborist with a minimum of 10 million Dollars public liability insurance. That all tree pruning works are carried out as per the Australian Standard AS 4373-2007 Pruning of amenity trees and as per the Code of Practice Amenity Tree Industry August 1998.Interior branches shall not be stripped out.

Pruning cuts larger than 100mm in diameter, except for dead wood, shall be avoided.

Pruning cuts that expose heartwood shall be avoided whenever possible. No more than 20 percent of live foliage shall be removed within the tree to be preserved. While in the tree, the arborist shall perform and aerial inspection to identify defects that require treatment. Any additional work needed shall be reported to the consultant. Brush shall be chipped and chips shall be spread underneath trees within the tree protection zone to a maximum depth of 200mm, leaving the trunk clear of mulch.

The site arborist is to be present during any excavation works adjacent any trees on the site. This is required to specify and supervise any horticultural works that should be carried out to any nominated tree for retention. If injury should occur to any tree during construction, it should be evaluated as soon as possible by the site arborist so that appropriate treatments can be applied. Any grading, construction, demolition, or other work that is expected to encounter tree roots must be monitored by the consulting arborist. The tree shall be irrigated on a schedule to be determined by the consultant. Each irrigation shall wet the soil within the tree protection zone to a depth of 100mm.

Erosion control devices such as silt fencing, debris basins, and Water diversion structures shall be installed to prevent siltation and or erosion within the tree protection zone. Before grading, pad preparation, or excavation for foundations, footings, walls, or trenching, they shall be 300mm outside the tree protection zone by cutting all roots cleanly to a depth of 800mm. Roots shall be cut by manually digging a trench and cutting exposed roots with a saw, vibrating knife, rock saw, and narrow trencher with sharp blades, or other approved root-pruning equipment.

Any roots damaged during grading or construction shall be exposed to sound tissue and cut cleanly with a saw. Spoil from trenches, basements, or other excavations shall not be placed within the tree protection zone either temporarily or permanently. No burn piles of debris pits shall be placed within the tree protection zone. No ashes, debris, or garbage maybe dumped or buried within the tree protection zone. Maintain fire-safe areas around fenced areas. Also, no heat sources, flames, Ignition sources or smoking is allowed near mulch or trees. These inspections will be carried out on an as needed requirement. It recommended that all excavations near trees be carried out together to reduce costs for the client.

The Contractor shall not engage in any construction activity within the Tree and Plant Protection Area without the approval of the Owner's Representative including: operating, moving or storing equipment; storing supplies or materials; locating temporary facilities including trailers or portable toilets and shall not permit employees to traverse the area to access adjacent areas of the project or use the area for lunch or any other work breaks. Permitted activity, if any, within the Tree and Plant Protection Area maybe indicated on the drawings along with any required remedial activity as listed below.

In the event that construction activity is unavoidable within the Tree and Plant Protection Area, notify the Owner’s Representative and submit a detailed written plan of action for approval. The plan shall include: a statement detailing the reason for the activity including why other areas are not suited; a description of the proposed activity; the time period for the activity, and a list of remedial actions that will reduce the impact on the Tree and Plant Protection Area from the activity. Remedial actions shall include but shall not be limited to the following

In general, demolition and excavation within the drip line of trees and shrubs shall proceed with extreme care either by the use of hand tools, directional boring and or Air Knife excavation were indicated or with other low impact equipment that will not cause damage to the tree, roots or soil.

When encountered, exposed roots, 25mm and larger in diameter shall be worked around in a manner that does not break the outer layer of the root surface (bark). These roots shall be covered in Wood Chips and shall be maintained above permanent wilt point at all times. Roots one inch and larger in diameter shall not be cut without the approval of the owner's representative. Excavation shall be tunneled under these roots without cutting them. In the areas where roots are encountered, work shall be performed and scheduled to close excavations as quickly as possible over exposed roots.

Tree branches that interfere with the construction may be tied back or pruned to clear only to the point necessary to complete the work. Other branches shall only be removed when specifically indicated by the Owner's Representative. Tying back or trimming of all branches and the cutting of roots shall be in accordance with accepted arboricultural practices and be performed under supervision of the arborist Please see attached detail of branches to be pruned below

Matting: Install temporary matting over the Wood Chips or Mulch to the extent indicated. Do not permit foot traffic, scaffolding or the storage of materials within the Tree and Plant Protection Area to occur off of the temporary matting.

Trunk Protection: Protect the trunk of each tree to remain by covering it with a ring of 2.4m long 50mm x 150mm planks loosely banded onto the tree with 3 steel bands. Staple the bands to the planks as necessary to hold them securely in place. Trunk protection must be kept in place no longer than 12 months. If construction requires work near a particular tree to continue longer than 12 months, the steel bands shall be inspected every six months and loosened if they are found to have become tight.

Air Excavation Tool: If excavation for footings or utilities is required within the Tree and Plant Protection Area, air excavation tool techniques shall be used where practical or as designed on the drawings.

Remove the Wood Chips from an area approximately 18 inches beyond the limits of the hole or trench to be excavated. Cover the Wood Chips for a distance of not less than 15 feet around the limit of the excavation area with Filter Fabric or plastic sheeting to protect the Wood Chips from silt. Mound the Wood Chips so that the plastic slopes towards the excavation.

Using a sprinkler or soaker hose, apply water slowly to the area of the excavation for a period of at least 4 hours, approximately 12 hours prior to the work so that the ground water level is at or near field capacity at the beginning of the work. For excavations that go beyond the damp soil, re-wet the soil as necessary to keep soil moisture near field capacity.

Using an air excavation tool specifically designed and manufactured for the intended purpose, and at pressures recommended by the manufacturer of the equipment, fracture the existing soil to the shape and the depths required. Work at rates and using techniques that

do not harm tree roots. Air pressure shall be a maximum of 90-100 psi.

Using a commercial, high-powered vacuum truck if required, remove the soil from the excavation produced by the Air Knife excavation. The vacuum truck should generally operate simultaneously with the hose operator, such that the soil produced is picked up from the excavation hole, and the exposed roots can be observed and not damaged by the ongoing operation. Do not drive the vacuum truck into the Tree and Plant Protection Area unless the area is protected from compaction as approved in advance by the Owner's Representative.

Remove all excavated soil and excavated Wood Chips, and contaminated soil at the end of the excavation.

Schedule the work so that foundations or utility work is completed immediately after the excavation. Do not let the roots dry out. Mist the roots several times during the day. If the excavated area must remain open overnight, mist the roots and cover the excavation with black plastic.

Dispose of all soil in a manner that meets local laws and regulations.

Restore soil within the trench as soon as the work is completed. Utilize soil of similar texture to the removed soil and lightly compact with hand tools. Leave soil mounded over the trench to a height of approximately 10% of the trench depth to account for settlement.

Restore any Geogrids, Filter Fabric, Wood Chips or Mulch and or matting that was previously required for the area

Tree Specific Management Detail and Specifications

Tree 982 (*Eucalyptus paniculata* Grey Ironbark) is a tree in fair condition Appendix 1 (In the Tree Impact Report) gives a description of the tree as per AS-4970-2009 Section 2. Appendix 2 (In the Tree Impact Report) shows a photograph of the tree; Appendix 4 (In the Tree Management Plan) indicates the location of the tree on a survey plan of the site. The tree was planted within 2 metres of neighboring infrastructure. The tree should be protected and managed as per the tree management plan in appendix 6

The tree's root zone will not be affected by the proposed development works (See Appendix 1). The hydrological and soil environments of the tree will be impacted. The TPZ of the tree will have an acceptable incursion of 10% from the proposed development works Compliance with the following items will be required before authorisation to commence construction will be consented.

Before beginning work, the contractor is required to meet with the consultant at the site to review all work procedures, access routes, storage areas, and tree protection measures have been installed. Fences have been erected to protect tree to be preserved. Fences define a specific protection zone for the tree. Fences are to remain until all site work has been completed. Fences may not be relocated or removed without the written permission of the consultant.

Construction trailers and traffic and storage areas must remain outside fenced areas at all times. All underground utilities and drain or irrigation lines shall be routed outside the tree protection zone. If lines must traverse the protection area, they shall be tunneled or bored under the tree. The site arborist should be present during any such works.

No materials, equipment, spoil, or waste or washout water may be deposited, stored, or parked within the tree protection zone (fenced area). Additional tree pruning required for clearance during construction must be performed by a qualified arborist and not by construction personnel. Any herbicides placed under paving materials must be safe for use around trees and labeled for that use. Any pesticides used on site must be tree-safe and not easily transported by water.

The tree shall be pruned to, Clear the crown of diseased, crossing, weak, and dead wood, provide 5 metres of vertical clearance over streets and 3 metres over p a t h w a y s ; Remove stubs, cutting outside the wound wood tissue that has Formed around the branch; Reduce end weight on heavy, horizontal branches by selectively removing small diameter branches, no greater than 50-100mm near the ends of the scaffolds.

Where temporary clearance is needed for access, branches shall be tied back to hold them out of the clearance zone. All pruning shall be performed by a qualified arborist with a minimum of 10 million Dollars public liability insurance. That all tree pruning works are carried out as per the Australian Standard AS 4373-2007 Pruning of amenity trees and as per the Code of Practice Amenity Tree Industry August 1998.Interior branches shall not be stripped out.

Pruning cuts larger than 100mm in diameter, except for dead wood, shall be avoided.

Pruning cuts that expose heartwood shall be avoided whenever possible. No more than 20 percent of live foliage shall be removed within the tree to be preserved. While in the tree, the arborist shall perform and aerial inspection to identify defects that require treatment. Any additional work needed shall be reported to the consultant. Brush shall be chipped and chips shall be spread underneath trees within the tree protection zone to a maximum depth of 200mm, leaving the trunk clear of mulch.

The site arborist is to be present during any excavation works adjacent any trees on the site. This is required to specify and supervise any horticultural works that should be carried out to any nominated tree for retention. If injury should occur to any tree during construction, it should be evaluated as soon as possible by the site arborist so that appropriate treatments can be applied. Any grading, construction, demolition, or other work that is expected to encounter tree roots must be monitored by the consulting arborist. The tree shall be irrigated on a schedule to be determined by the consultant. Each irrigation shall wet the soil within the tree protection zone to a depth of 100mm.

Erosion control devices such as silt fencing, debris basins, and Water diversion structures shall be installed to prevent siltation and or erosion within the tree protection zone. Before grading, pad preparation, or excavation for foundations, footings, walls, or trenching, they shall be 300mm outside the tree protection zone by cutting all roots cleanly to a depth of 800mm. Roots shall be cut by manually digging a trench and cutting exposed roots with a saw, vibrating knife, rock saw, and narrow trencher with sharp blades, or other approved root-pruning equipment.

Any roots damaged during grading or construction shall be exposed to sound tissue and cut cleanly with a saw. Spoil from trenches, basements, or other excavations shall not be placed within the tree protection zone either temporarily or permanently. No burn piles of debris pits shall be placed within the tree protection zone. No ashes, debris, or garbage maybe dumped or buried within the tree protection zone. Maintain fire-safe areas around fenced areas. Also, no heat sources, flames, Ignition sources or smoking is allowed near mulch or trees. These inspections will be carried out on an as needed requirement. It recommended that all excavations near trees be carried out together to reduce costs for the client.

The Contractor shall not engage in any construction activity within the Tree and Plant Protection Area without the approval of the Owner's Representative including: operating, moving or storing equipment; storing supplies or materials; locating temporary facilities including trailers or portable toilets and shall not permit employees to traverse the area to access adjacent areas of the project or use the area for lunch or any other work breaks. Permitted activity, if any, within the Tree and Plant Protection Area maybe indicated on the drawings along with any required remedial activity as listed below.

In the event that construction activity is unavoidable within the Tree and Plant Protection Area, notify the Owner’s Representative and submit a detailed written plan of action for approval. The plan shall include: a statement detailing the reason for the activity including why other areas are not suited; a description of the proposed activity; the time period for the activity, and a list of remedial actions that will reduce the impact on the Tree and Plant Protection Area from the activity. Remedial actions shall include but shall not be limited to the following

In general, demolition and excavation within the drip line of trees and shrubs shall proceed with extreme care either by the use of hand tools, directional boring and or Air Knife excavation were indicated or with other low impact equipment that will not cause damage to the tree, roots or soil.

When encountered, exposed roots, 25mm and larger in diameter shall be worked around in a manner that does not break the outer layer of the root surface (bark). These roots shall be covered in Wood Chips and shall be maintained above permanent wilt point at all times. Roots one inch and larger in diameter shall not be cut without the approval of the owner's representative. Excavation shall be tunneled under these roots without cutting them. In the areas where roots are encountered, work shall be performed and scheduled to close excavations as quickly as possible over exposed roots.

Tree branches that interfere with the construction may be tied back or pruned to clear only to the point necessary to complete the work. Other branches shall only be removed when specifically indicated by the Owner's Representative. Tying back or trimming of all branches and the cutting of roots shall be in accordance with accepted arboricultural practices and be performed under supervision of the arborist Please see attached detail of branches to be pruned below

Matting: Install temporary matting over the Wood Chips or Mulch to the extent indicated. Do not permit foot traffic, scaffolding or the storage of materials within the Tree and Plant Protection Area to occur off of the temporary matting.

Trunk Protection: Protect the trunk of each tree to remain by covering it with a ring of 2.4m long 50mm x 150mm planks loosely banded onto the tree with 3 steel bands. Staple the bands to the planks as necessary to hold them securely in place. Trunk protection must be kept in place no longer than 12 months. If construction requires work near a particular tree to continue longer than 12 months, the steel bands shall be inspected every six months and loosened if they are found to have become tight.

Air Excavation Tool: If excavation for footings or utilities is required within the Tree and Plant Protection Area, air excavation tool techniques shall be used where practical or as designed on the drawings.

Remove the Wood Chips from an area approximately 18 inches beyond the limits of the hole or trench to be excavated. Cover the Wood Chips for a distance of not less than 15 feet around the limit of the excavation area with Filter Fabric or plastic sheeting to protect the Wood Chips from silt. Mound the Wood Chips so that the plastic slopes towards the excavation.

Using a sprinkler or soaker hose, apply water slowly to the area of the excavation for a period of at least 4 hours, approximately 12 hours prior to the work so that the ground water level is at or near field capacity at the beginning of the work. For excavations that go beyond the damp soil, re-wet the soil as necessary to keep soil moisture near field capacity.

Using an air excavation tool specifically designed and manufactured for the intended purpose, and at pressures recommended by the manufacturer of the equipment, fracture the existing soil to the shape and the depths required. Work at rates and using techniques that

do not harm tree roots. Air pressure shall be a maximum of 90-100 psi.

Using a commercial, high-powered vacuum truck if required, remove the soil from the excavation produced by the Air Knife excavation. The vacuum truck should generally operate simultaneously with the hose operator, such that the soil produced is picked up from the excavation hole, and the exposed roots can be observed and not damaged by the ongoing operation. Do not drive the vacuum truck into the Tree and Plant Protection Area unless the area is protected from compaction as approved in advance by the Owner's Representative.

Remove all excavated soil and excavated Wood Chips, and contaminated soil at the end of the excavation.

Schedule the work so that foundations or utility work is completed immediately after the excavation. Do not let the roots dry out. Mist the roots several times during the day. If the excavated area must remain open overnight, mist the roots and cover the excavation with black plastic.

Dispose of all soil in a manner that meets local laws and regulations.

Restore soil within the trench as soon as the work is completed. Utilize soil of similar texture to the removed soil and lightly compact with hand tools. Leave soil mounded over the trench to a height of approximately 10% of the trench depth to account for settlement.

Restore any Geogrids, Filter Fabric, Wood Chips or Mulch and or matting that was previously required for the area

Tree Specific Management Detail and Specifications

Tree 996 (*Eucalyptus saligna* Sydney Blue Gum) is a tree in fair condition Appendix 1 (In the Tree Impact Report) gives a description of the tree as per AS-4970-2009 Section 2. Appendix 2 (In the Tree Impact Report) shows a photograph of the tree; Appendix 4 (In the Tree Management Plan) indicates the location of the tree on a survey plan of the site. The tree was planted within 2 metres of neighboring infrastructure. The tree should be protected and managed as per the tree management plan in appendix 6

The tree's root zone will not be affected by the proposed development works (See Appendix 1). The hydrological and soil environments of the tree will be impacted. The TPZ of the tree will have an acceptable incursion of 10% from the proposed development works Compliance with the following items will be required before authorisation to commence construction will be consented.

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Construction trailers and traffic and storage areas must remain outside fenced areas at all times. All underground utilities and drain or irrigation lines shall be routed outside the tree protection zone. If lines must traverse the protection area, they shall be tunneled or bored under the tree. The site arborist should be present during any such works.

No materials, equipment, spoil, or waste or washout water may be deposited, stored, or parked within the tree protection zone (fenced area). Additional tree pruning required for clearance during construction must be performed by a qualified arborist and not by construction personnel. Any herbicides placed under paving materials must be safe for use around trees and labeled for that use. Any pesticides used on site must be tree-safe and not easily transported by water.

The tree shall be pruned to, Clear the crown of diseased, crossing, weak, and dead wood, provide 5 metres of vertical clearance over streets and 3 metres over p a t h w a y s ; Remove stubs, cutting outside the wound wood tissue that has Formed around the branch; Reduce end weight on heavy, horizontal branches by selectively removing small diameter branches, no greater than 50-100mm near the ends of the scaffolds.

Where temporary clearance is needed for access, branches shall be tied back to hold them out of the clearance zone. All pruning shall be performed by a qualified arborist with a minimum of 10 million Dollars public liability insurance. That all tree pruning works are carried out as per the Australian Standard AS 4373-2007 Pruning of amenity trees and as per the Code of Practice Amenity Tree Industry August 1998.Interior branches shall not be stripped out.

Pruning cuts larger than 100mm in diameter, except for dead wood, shall be avoided.

Pruning cuts that expose heartwood shall be avoided whenever possible. No more than 20 percent of live foliage shall be removed within the tree to be preserved. While in the tree, the arborist shall perform and aerial inspection to identify defects that require treatment. Any additional work needed shall be reported to the consultant. Brush shall be chipped and chips shall be spread underneath trees within the tree protection zone to a maximum depth of 200mm, leaving the trunk clear of mulch.

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Erosion control devices such as silt fencing, debris basins, and Water diversion structures shall be installed to prevent siltation and or erosion within the tree protection zone. Before grading, pad preparation, or excavation for foundations, footings, walls, or trenching, they shall be 300mm outside the tree protection zone by cutting all roots cleanly to a depth of 800mm. Roots shall be cut by manually digging a trench and cutting exposed roots with a saw, vibrating knife, rock saw, and narrow trencher with sharp blades, or other approved root-pruning equipment.

Any roots damaged during grading or construction shall be exposed to sound tissue and cut cleanly with a saw. Spoil from trenches, basements, or other excavations shall not be placed within the tree protection zone either temporarily or permanently. No burn piles of debris pits shall be placed within the tree protection zone. No ashes, debris, or garbage maybe dumped or buried within the tree protection zone. Maintain fire-safe areas around fenced areas. Also, no heat sources, flames, Ignition sources or smoking is allowed near mulch or trees. These inspections will be carried out on an as needed requirement. It recommended that all excavations near trees be carried out together to reduce costs for the client.

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Matting: Install temporary matting over the Wood Chips or Mulch to the extent indicated. Do not permit foot traffic, scaffolding or the storage of materials within the Tree and Plant Protection Area to occur off of the temporary matting.

Trunk Protection: Protect the trunk of each tree to remain by covering it with a ring of 2.4m long 50mm x 150mm planks loosely banded onto the tree with 3 steel bands. Staple the bands to the planks as necessary to hold them securely in place. Trunk protection must be kept in place no longer than 12 months. If construction requires work near a particular tree to continue longer than 12 months, the steel bands shall be inspected every six months and loosened if they are found to have become tight.

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Remove the Wood Chips from an area approximately 18 inches beyond the limits of the hole or trench to be excavated. Cover the Wood Chips for a distance of not less than 15 feet around the limit of the excavation area with Filter Fabric or plastic sheeting to protect the Wood Chips from silt. Mound the Wood Chips so that the plastic slopes towards the excavation.

Using a sprinkler or soaker hose, apply water slowly to the area of the excavation for a period of at least 4 hours, approximately 12 hours prior to the work so that the ground water level is at or near field capacity at the beginning of the work. For excavations that go beyond the damp soil, re-wet the soil as necessary to keep soil moisture near field capacity.

Using an air excavation tool specifically designed and manufactured for the intended purpose, and at pressures recommended by the manufacturer of the equipment, fracture the existing soil to the shape and the depths required. Work at rates and using techniques that

do not harm tree roots. Air pressure shall be a maximum of 90-100 psi.

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Remove all excavated soil and excavated Wood Chips, and contaminated soil at the end of the excavation.

Schedule the work so that foundations or utility work is completed immediately after the excavation. Do not let the roots dry out. Mist the roots several times during the day. If the excavated area must remain open overnight, mist the roots and cover the excavation with black plastic.

Dispose of all soil in a manner that meets local laws and regulations.

Restore soil within the trench as soon as the work is completed. Utilize soil of similar texture to the removed soil and lightly compact with hand tools. Leave soil mounded over the trench to a height of approximately 10% of the trench depth to account for settlement.

Restore any Geogrids, Filter Fabric, Wood Chips or Mulch and or matting that was previously required for the area

Tree Specific Management Detail and Specifications

Tree 998 (*Eucalyptus saligna* Sydney Blue Gum) is a tree in fair condition Appendix 1 (In the Tree Impact Report) gives a description of the tree as per AS-4970-2009 Section 2. Appendix 2 (In the Tree Impact Report) shows a photograph of the tree; Appendix 4 (In the Tree Management Plan) indicates the location of the tree on a survey plan of the site. The tree was planted within 2 metres of neighboring infrastructure. The tree should be protected and managed as per the tree management plan in appendix 6

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The tree shall be pruned to, Clear the crown of diseased, crossing, weak, and dead wood, provide 5 metres of vertical clearance over streets and 3 metres over p a t h w a y s ; Remove stubs, cutting outside the wound wood tissue that has Formed around the branch; Reduce end weight on heavy, horizontal branches by selectively removing small diameter branches, no greater than 50-100mm near the ends of the scaffolds.

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Pruning cuts that expose heartwood shall be avoided whenever possible. No more than 20 percent of live foliage shall be removed within the tree to be preserved. While in the tree, the arborist shall perform and aerial inspection to identify defects that require treatment. Any additional work needed shall be reported to the consultant. Brush shall be chipped and chips shall be spread underneath trees within the tree protection zone to a maximum depth of 200mm, leaving the trunk clear of mulch.

The site arborist is to be present during any excavation works adjacent any trees on the site. This is required to specify and supervise any horticultural works that should be carried out to any nominated tree for retention. If injury should occur to any tree during construction, it should be evaluated as soon as possible by the site arborist so that appropriate treatments can be applied. Any grading, construction, demolition, or other work that is expected to encounter tree roots must be monitored by the consulting arborist. The tree shall be irrigated on a schedule to be determined by the consultant. Each irrigation shall wet the soil within the tree protection zone to a depth of 100mm.

Erosion control devices such as silt fencing, debris basins, and Water diversion structures shall be installed to prevent siltation and or erosion within the tree protection zone. Before grading, pad preparation, or excavation for foundations, footings, walls, or trenching, they shall be 300mm outside the tree protection zone by cutting all roots cleanly to a depth of 800mm. Roots shall be cut by manually digging a trench and cutting exposed roots with a saw, vibrating knife, rock saw, and narrow trencher with sharp blades, or other approved root-pruning equipment.

Any roots damaged during grading or construction shall be exposed to sound tissue and cut cleanly with a saw. Spoil from trenches, basements, or other excavations shall not be placed within the tree protection zone either temporarily or permanently. No burn piles of debris pits shall be placed within the tree protection zone. No ashes, debris, or garbage maybe dumped or buried within the tree protection zone. Maintain fire-safe areas around fenced areas. Also, no heat sources, flames, Ignition sources or smoking is allowed near mulch or trees. These inspections will be carried out on an as needed requirement. It recommended that all excavations near trees be carried out together to reduce costs for the client.

The Contractor shall not engage in any construction activity within the Tree and Plant Protection Area without the approval of the Owner's Representative including: operating, moving or storing equipment; storing supplies or materials; locating temporary facilities including trailers or portable toilets and shall not permit employees to traverse the area to access adjacent areas of the project or use the area for lunch or any other work breaks. Permitted activity, if any, within the Tree and Plant Protection Area maybe indicated on the drawings along with any required remedial activity as listed below.

In the event that construction activity is unavoidable within the Tree and Plant Protection Area, notify the Owner’s Representative and submit a detailed written plan of action for approval. The plan shall include: a statement detailing the reason for the activity including why other areas are not suited; a description of the proposed activity; the time period for the activity, and a list of remedial actions that will reduce the impact on the Tree and Plant Protection Area from the activity. Remedial actions shall include but shall not be limited to the following

In general, demolition and excavation within the drip line of trees and shrubs shall proceed with extreme care either by the use of hand tools, directional boring and or Air Knife excavation were indicated or with other low impact equipment that will not cause damage to the tree, roots or soil.

When encountered, exposed roots, 25mm and larger in diameter shall be worked around in a manner that does not break the outer layer of the root surface (bark). These roots shall be covered in Wood Chips and shall be maintained above permanent wilt point at all times. Roots one inch and larger in diameter shall not be cut without the approval of the owner's representative. Excavation shall be tunneled under these roots without cutting them. In the areas where roots are encountered, work shall be performed and scheduled to close excavations as quickly as possible over exposed roots.

Tree branches that interfere with the construction may be tied back or pruned to clear only to the point necessary to complete the work. Other branches shall only be removed when specifically indicated by the Owner's Representative. Tying back or trimming of all branches and the cutting of roots shall be in accordance with accepted arboricultural practices and be performed under supervision of the arborist Please see attached detail of branches to be pruned below

Matting: Install temporary matting over the Wood Chips or Mulch to the extent indicated. Do not permit foot traffic, scaffolding or the storage of materials within the Tree and Plant Protection Area to occur off of the temporary matting.

Trunk Protection: Protect the trunk of each tree to remain by covering it with a ring of 2.4m long 50mm x 150mm planks loosely banded onto the tree with 3 steel bands. Staple the bands to the planks as necessary to hold them securely in place. Trunk protection must be kept in place no longer than 12 months. If construction requires work near a particular tree to continue longer than 12 months, the steel bands shall be inspected every six months and loosened if they are found to have become tight.

Air Excavation Tool: If excavation for footings or utilities is required within the Tree and Plant Protection Area, air excavation tool techniques shall be used where practical or as designed on the drawings.

Remove the Wood Chips from an area approximately 18 inches beyond the limits of the hole or trench to be excavated. Cover the Wood Chips for a distance of not less than 15 feet around the limit of the excavation area with Filter Fabric or plastic sheeting to protect the Wood Chips from silt. Mound the Wood Chips so that the plastic slopes towards the excavation.

Using a sprinkler or soaker hose, apply water slowly to the area of the excavation for a period of at least 4 hours, approximately 12 hours prior to the work so that the ground water level is at or near field capacity at the beginning of the work. For excavations that go beyond the damp soil, re-wet the soil as necessary to keep soil moisture near field capacity.

Using an air excavation tool specifically designed and manufactured for the intended purpose, and at pressures recommended by the manufacturer of the equipment, fracture the existing soil to the shape and the depths required. Work at rates and using techniques that

do not harm tree roots. Air pressure shall be a maximum of 90-100 psi.

Using a commercial, high-powered vacuum truck if required, remove the soil from the excavation produced by the Air Knife excavation. The vacuum truck should generally operate simultaneously with the hose operator, such that the soil produced is picked up from the excavation hole, and the exposed roots can be observed and not damaged by the ongoing operation. Do not drive the vacuum truck into the Tree and Plant Protection Area unless the area is protected from compaction as approved in advance by the Owner's Representative.

Remove all excavated soil and excavated Wood Chips, and contaminated soil at the end of the excavation.

Schedule the work so that foundations or utility work is completed immediately after the excavation. Do not let the roots dry out. Mist the roots several times during the day. If the excavated area must remain open overnight, mist the roots and cover the excavation with black plastic.

Dispose of all soil in a manner that meets local laws and regulations.

Restore soil within the trench as soon as the work is completed. Utilize soil of similar texture to the removed soil and lightly compact with hand tools. Leave soil mounded over the trench to a height of approximately 10% of the trench depth to account for settlement.

Restore any Geogrids, Filter Fabric, Wood Chips or Mulch and or matting that was previously required for the area

Tree Specific Management Detail and Specifications

Tree 999 (*Eucalyptus scoparia* Willow Gum) is a tree in fair condition Appendix 1 (In the Tree Impact Report) gives a description of the tree as per AS-4970-2009 Section 2. Appendix 2 (In the Tree Impact Report) shows a photograph of the tree; Appendix 4 (In the Tree Management Plan) indicates the location of the tree on a survey plan of the site. The tree was planted within 2 metres of neighboring infrastructure. The tree should be protected and managed as per the tree management plan in appendix 6

The tree's root zone will not be affected by the proposed development works (See Appendix 1). The hydrological and soil environments of the tree will be impacted. The TPZ of the tree will have an acceptable incursion of 10% from the proposed development works Compliance with the following items will be required before authorisation to commence construction will be consented.

Before beginning work, the contractor is required to meet with the consultant at the site to review all work procedures, access routes, storage areas, and tree protection measures have been installed. Fences have been erected to protect tree to be preserved. Fences define a specific protection zone for the tree. Fences are to remain until all site work has been completed. Fences may not be relocated or removed without the written permission of the consultant.

Construction trailers and traffic and storage areas must remain outside fenced areas at all times. All underground utilities and drain or irrigation lines shall be routed outside the tree protection zone. If lines must traverse the protection area, they shall be tunneled or bored under the tree. The site arborist should be present during any such works.

No materials, equipment, spoil, or waste or washout water may be deposited, stored, or parked within the tree protection zone (fenced area). Additional tree pruning required for clearance during construction must be performed by a qualified arborist and not by construction personnel. Any herbicides placed under paving materials must be safe for use around trees and labeled for that use. Any pesticides used on site must be tree-safe and not easily transported by water.

The tree shall be pruned to, Clear the crown of diseased, crossing, weak, and dead wood, provide 5 metres of vertical clearance over streets and 3 metres over p a t h w a y s ; Remove stubs, cutting outside the wound wood tissue that has Formed around the branch; Reduce end weight on heavy, horizontal branches by selectively removing small diameter branches, no greater than 50-100mm near the ends of the scaffolds.

Where temporary clearance is needed for access, branches shall be tied back to hold them out of the clearance zone. All pruning shall be performed by a qualified arborist with a minimum of 10 million Dollars public liability insurance. That all tree pruning works are carried out as per the Australian Standard AS 4373-2007 Pruning of amenity trees and as per the Code of Practice Amenity Tree Industry August 1998.Interior branches shall not be stripped out.

Pruning cuts larger than 100mm in diameter, except for dead wood, shall be avoided.

Pruning cuts that expose heartwood shall be avoided whenever possible. No more than 20 percent of live foliage shall be removed within the tree to be preserved. While in the tree, the arborist shall perform and aerial inspection to identify defects that require treatment. Any additional work needed shall be reported to the consultant. Brush shall be chipped and chips shall be spread underneath trees within the tree protection zone to a maximum depth of 200mm, leaving the trunk clear of mulch.

The site arborist is to be present during any excavation works adjacent any trees on the site. This is required to specify and supervise any horticultural works that should be carried out to any nominated tree for retention. If injury should occur to any tree during construction, it should be evaluated as soon as possible by the site arborist so that appropriate treatments can be applied. Any grading, construction, demolition, or other work that is expected to encounter tree roots must be monitored by the consulting arborist. The tree shall be irrigated on a schedule to be determined by the consultant. Each irrigation shall wet the soil within the tree protection zone to a depth of 100mm.

Erosion control devices such as silt fencing, debris basins, and Water diversion structures shall be installed to prevent siltation and or erosion within the tree protection zone. Before grading, pad preparation, or excavation for foundations, footings, walls, or trenching, they shall be 300mm outside the tree protection zone by cutting all roots cleanly to a depth of 800mm. Roots shall be cut by manually digging a trench and cutting exposed roots with a saw, vibrating knife, rock saw, and narrow trencher with sharp blades, or other approved root-pruning equipment.

Any roots damaged during grading or construction shall be exposed to sound tissue and cut cleanly with a saw. Spoil from trenches, basements, or other excavations shall not be placed within the tree protection zone either temporarily or permanently. No burn piles of debris pits shall be placed within the tree protection zone. No ashes, debris, or garbage maybe dumped or buried within the tree protection zone. Maintain fire-safe areas around fenced areas. Also, no heat sources, flames, Ignition sources or smoking is allowed near mulch or trees. These inspections will be carried out on an as needed requirement. It recommended that all excavations near trees be carried out together to reduce costs for the client.

The Contractor shall not engage in any construction activity within the Tree and Plant Protection Area without the approval of the Owner's Representative including: operating, moving or storing equipment; storing supplies or materials; locating temporary facilities including trailers or portable toilets and shall not permit employees to traverse the area to access adjacent areas of the project or use the area for lunch or any other work breaks. Permitted activity, if any, within the Tree and Plant Protection Area maybe indicated on the drawings along with any required remedial activity as listed below.

In the event that construction activity is unavoidable within the Tree and Plant Protection Area, notify the Owner’s Representative and submit a detailed written plan of action for approval. The plan shall include: a statement detailing the reason for the activity including why other areas are not suited; a description of the proposed activity; the time period for the activity, and a list of remedial actions that will reduce the impact on the Tree and Plant Protection Area from the activity. Remedial actions shall include but shall not be limited to the following

In general, demolition and excavation within the drip line of trees and shrubs shall proceed with extreme care either by the use of hand tools, directional boring and or Air Knife excavation were indicated or with other low impact equipment that will not cause damage to the tree, roots or soil.

When encountered, exposed roots, 25mm and larger in diameter shall be worked around in a manner that does not break the outer layer of the root surface (bark). These roots shall be covered in Wood Chips and shall be maintained above permanent wilt point at all times. Roots one inch and larger in diameter shall not be cut without the approval of the owner's representative. Excavation shall be tunneled under these roots without cutting them. In the areas where roots are encountered, work shall be performed and scheduled to close excavations as quickly as possible over exposed roots.

Tree branches that interfere with the construction may be tied back or pruned to clear only to the point necessary to complete the work. Other branches shall only be removed when specifically indicated by the Owner's Representative. Tying back or trimming of all branches and the cutting of roots shall be in accordance with accepted arboricultural practices and be performed under supervision of the arborist Please see attached detail of branches to be pruned below

Matting: Install temporary matting over the Wood Chips or Mulch to the extent indicated. Do not permit foot traffic, scaffolding or the storage of materials within the Tree and Plant Protection Area to occur off of the temporary matting.

Trunk Protection: Protect the trunk of each tree to remain by covering it with a ring of 2.4m long 50mm x 150mm planks loosely banded onto the tree with 3 steel bands. Staple the bands to the planks as necessary to hold them securely in place. Trunk protection must be kept in place no longer than 12 months. If construction requires work near a particular tree to continue longer than 12 months, the steel bands shall be inspected every six months and loosened if they are found to have become tight.

Air Excavation Tool: If excavation for footings or utilities is required within the Tree and Plant Protection Area, air excavation tool techniques shall be used where practical or as designed on the drawings.

Remove the Wood Chips from an area approximately 18 inches beyond the limits of the hole or trench to be excavated. Cover the Wood Chips for a distance of not less than 15 feet around the limit of the excavation area with Filter Fabric or plastic sheeting to protect the Wood Chips from silt. Mound the Wood Chips so that the plastic slopes towards the excavation.

Using a sprinkler or soaker hose, apply water slowly to the area of the excavation for a period of at least 4 hours, approximately 12 hours prior to the work so that the ground water level is at or near field capacity at the beginning of the work. For excavations that go beyond the damp soil, re-wet the soil as necessary to keep soil moisture near field capacity.

Using an air excavation tool specifically designed and manufactured for the intended purpose, and at pressures recommended by the manufacturer of the equipment, fracture the existing soil to the shape and the depths required. Work at rates and using techniques that

do not harm tree roots. Air pressure shall be a maximum of 90-100 psi.

Using a commercial, high-powered vacuum truck if required, remove the soil from the excavation produced by the Air Knife excavation. The vacuum truck should generally operate simultaneously with the hose operator, such that the soil produced is picked up from the excavation hole, and the exposed roots can be observed and not damaged by the ongoing operation. Do not drive the vacuum truck into the Tree and Plant Protection Area unless the area is protected from compaction as approved in advance by the Owner's Representative.

Remove all excavated soil and excavated Wood Chips, and contaminated soil at the end of the excavation.

Schedule the work so that foundations or utility work is completed immediately after the excavation. Do not let the roots dry out. Mist the roots several times during the day. If the excavated area must remain open overnight, mist the roots and cover the excavation with black plastic.

Dispose of all soil in a manner that meets local laws and regulations.

Restore soil within the trench as soon as the work is completed. Utilize soil of similar texture to the removed soil and lightly compact with hand tools. Leave soil mounded over the trench to a height of approximately 10% of the trench depth to account for settlement.

Restore any Geogrids, Filter Fabric, Wood Chips or Mulch and or matting that was previously required for the area

Tree Specific Management Detail and Specifications

Tree 1774 (*Eucalyptus pilularis* Black Butt) is a tree in fair condition Appendix 1 (In the Tree Impact Report) gives a description of the tree as per AS-4970-2009 Section 2. Appendix 2 (In the Tree Impact Report) shows a photograph of the tree; Appendix 4 (In the Tree Management Plan) indicates the location of the tree on a survey plan of the site. The tree was planted within 2 metres of neighboring infrastructure. The tree should be protected and managed as per the tree management plan in appendix 6

The tree's root zone will not be affected by the proposed development works (See Appendix 1). The hydrological and soil environments of the tree will be impacted. The TPZ of the tree will have an acceptable incursion of 10% from the proposed development works Compliance with the following items will be required before authorisation to commence construction will be consented.

Before beginning work, the contractor is required to meet with the consultant at the site to review all work procedures, access routes, storage areas, and tree protection measures have been installed. Fences have been erected to protect tree to be preserved. Fences define a specific protection zone for the tree. Fences are to remain until all site work has been completed. Fences may not be relocated or removed without the written permission of the consultant.

Construction trailers and traffic and storage areas must remain outside fenced areas at all times. All underground utilities and drain or irrigation lines shall be routed outside the tree protection zone. If lines must traverse the protection area, they shall be tunneled or bored under the tree. The site arborist should be present during any such works.

No materials, equipment, spoil, or waste or washout water may be deposited, stored, or parked within the tree protection zone (fenced area). Additional tree pruning required for clearance during construction must be performed by a qualified arborist and not by construction personnel. Any herbicides placed under paving materials must be safe for use around trees and labeled for that use. Any pesticides used on site must be tree-safe and not easily transported by water.

The tree shall be pruned to, Clear the crown of diseased, crossing, weak, and dead wood, provide 5 metres of vertical clearance over streets and 3 metres over p a t h w a y s ; Remove stubs, cutting outside the wound wood tissue that has Formed around the branch; Reduce end weight on heavy, horizontal branches by selectively removing small diameter branches, no greater than 50-100mm near the ends of the scaffolds.

Where temporary clearance is needed for access, branches shall be tied back to hold them out of the clearance zone. All pruning shall be performed by a qualified arborist with a minimum of 10 million Dollars public liability insurance. That all tree pruning works are carried out as per the Australian Standard AS 4373-2007 Pruning of amenity trees and as per the Code of Practice Amenity Tree Industry August 1998.Interior branches shall not be stripped out.

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Air Excavation Tool: If excavation for footings or utilities is required within the Tree and Plant Protection Area, air excavation tool techniques shall be used where practical or as designed on the drawings.

Remove the Wood Chips from an area approximately 18 inches beyond the limits of the hole or trench to be excavated. Cover the Wood Chips for a distance of not less than 15 feet around the limit of the excavation area with Filter Fabric or plastic sheeting to protect the Wood Chips from silt. Mound the Wood Chips so that the plastic slopes towards the excavation.

Using a sprinkler or soaker hose, apply water slowly to the area of the excavation for a period of at least 4 hours, approximately 12 hours prior to the work so that the ground water level is at or near field capacity at the beginning of the work. For excavations that go beyond the damp soil, re-wet the soil as necessary to keep soil moisture near field capacity.

Using an air excavation tool specifically designed and manufactured for the intended purpose, and at pressures recommended by the manufacturer of the equipment, fracture the existing soil to the shape and the depths required. Work at rates and using techniques that

do not harm tree roots. Air pressure shall be a maximum of 90-100 psi.

Using a commercial, high-powered vacuum truck if required, remove the soil from the excavation produced by the Air Knife excavation. The vacuum truck should generally operate simultaneously with the hose operator, such that the soil produced is picked up from the excavation hole, and the exposed roots can be observed and not damaged by the ongoing operation. Do not drive the vacuum truck into the Tree and Plant Protection Area unless the area is protected from compaction as approved in advance by the Owner's Representative.

Remove all excavated soil and excavated Wood Chips, and contaminated soil at the end of the excavation.

Schedule the work so that foundations or utility work is completed immediately after the excavation. Do not let the roots dry out. Mist the roots several times during the day. If the excavated area must remain open overnight, mist the roots and cover the excavation with black plastic.

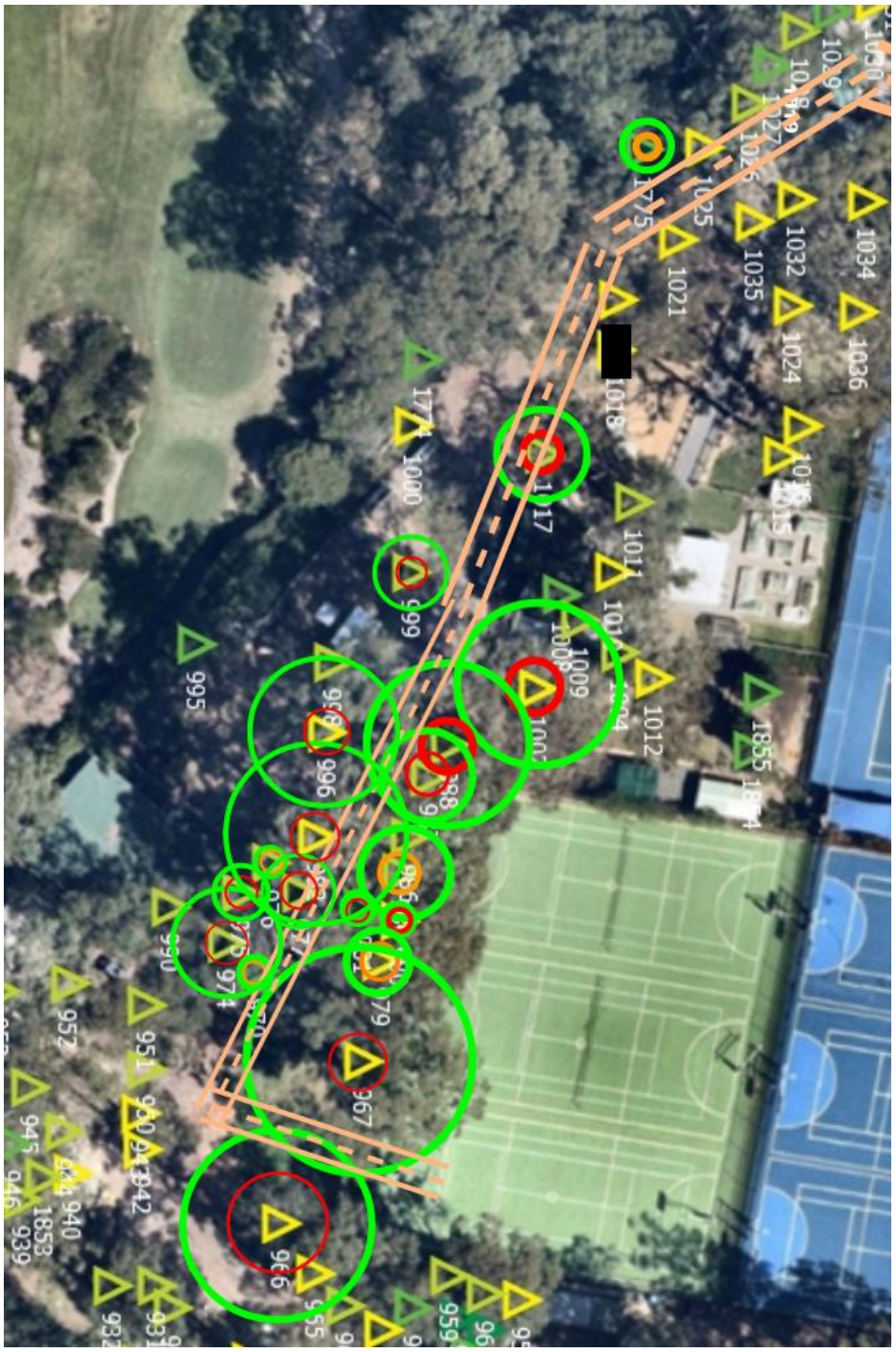
Dispose of all soil in a manner that meets local laws and regulations.

Restore soil within the trench as soon as the work is completed. Utilize soil of similar texture to the removed soil and lightly compact with hand tools. Leave soil mounded over the trench to a height of approximately 10% of the trench depth to account for settlement.

Restore any Geogrids, Filter Fabric, Wood Chips or Mulch and or matting that was previously required for the area

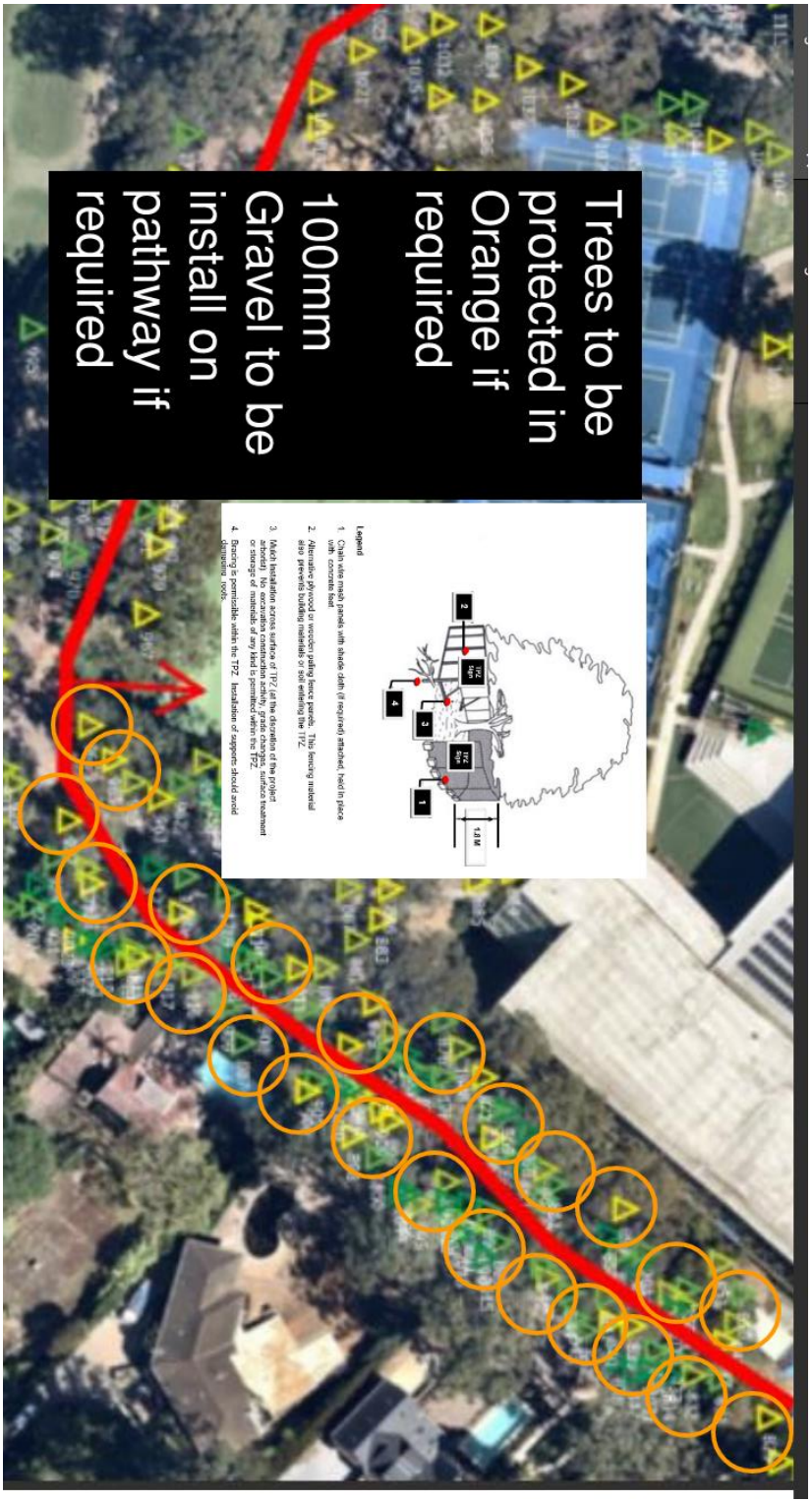
Tree Management Plan

Tree Protection Zones to be established prior to any construction works on site commencing



Tree Management Plan , Truck Accesway for Approved Development Pymble Ladies College
Truck Path
To have 100mm Gravel specified
Trees in orange to have Trunk Protection,
Trees in red to be removed
Tree Protection fencing to be installed as specified along both sides truck accessway

Extra Tree Management if Required



Tree No	Species	DBH MM	TPZ M	DBB MM	SRZ M	Incursion	Incursion Area M2	Tpz Area M2	Incursion Percentage
1775	*Callistemon salignus* White Bottlebrush	150	2	150	1.5	0	0	12.57	0
1018	*Eucalyptus paniculata* Grey Ironbark	780	9	870	3.1	0	0	254.47	0
1017	*Eucalyptus microcorys* Tallowood	500	6	540	2.5	0	0	113.10	0
1002	*Eucalyptus paniculata* Grey Ironbark	900	10.8	1020	3.3	0	0	366.44	0
988	*Syncarpia glomulifera* Turpentine	900	10.8	1080	3.4	0	0	366.44	0
987	*Eucalyptus paniculata* Grey Ironbark	500	6	680	2.8	0	0	113.10	0
986	*Eucalyptus resinfera* Red Mahogany	500	6	580	2.6	0	0	113.10	0
984	*Eucalyptus paniculata* Grey Ironbark	300	3.6	300	2	0	0	40.72	0
981	*Eucalyptus paniculata* Grey Ironbark	200	2.4	250	1.9	0	0	18.10	0
979	*Eucalyptus paniculata* Grey Ironbark	350	4.2	480	2.4	0	0	55.42	0
980	*Eucalyptus paniculata* Grey Ironbark	700	8.4	890	3.2	0	0	221.67	0
967	*Eucalyptus saligna* Sydney Blue Gum	1250	15	1380	3.8	0	0	706.86	0
966	*Eucalyptus paniculata* Grey Ironbark	550	6.6	680	2.8	0	0	136.85	0

No	Species	DBH MM	TPZ M	DBB MM	SRZ M	Incursion	Incursion Area M2	Tpz Area M2	Incursion Percentage
970	*Eucalyptus paniculata* Grey Ironbark	200	2.4	280	1.9	0	0	18.10	0
974	*Eucalyptus resinfera* Red Mahogany	600	7.2	680	2.8	0	0	40.72	0
975	*Eucalyptus resinfera* Red Mahogany	300	3.6	320	2.1	0	0	40.72	0
976	*Eucalyptus paniculata* Grey Ironbark	150	2	210	1.7	0	0	12.75	0
977	*Syncarpia glomulifera* Turpentine	400	4.8	450	2.4	0	0	72.38	0
982	*Eucalyptus paniculata* Grey Ironbark	1000	12	1230	3.6	0	0	452.39	0
996	*E*ucalyptus *saligna* Sydney Blue Gum	650	9.8	790	3	0	0	301.72	0
998	*E*ucalyptus *saligna* Sydney Blue Gum	400	4.8	520	2.5	0	0	72.38	0
999	*E*ucalyptus scoparia Willow Gum	400	4.8	490	2.3	0	0	72.38	0
1774	*Eucalyptus pilularis* Black Butt	150	2	200	1.7	0	0	12.57	0

Appendix 8 - Bibliography / References

Chapman G and Murphy C Soil (1989) Landscapes of NSW, Soil Conservation Service of NSW

Institute of Australian Consulting Arborists (2008) Dictionary of Terminology Management of Trees in Urban Environments.

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.

Carolyn, R.C. (1994), Flora of the Sydney Region, Reed

Costermans L.F. (Leon F.) (1994). Native Trees and Shrubs of south-eastern Australia Rev. ed. Lansdowne Publishing Pty Ltd

Harris, R.W., Clark, J.R., Matheny, N.P., (2004) Arboriculture – Integrated Management of Landscape Trees, Shrubs, and Vines, Fourth Edition, Prentice Hall

Mattheck C, Breloer, H (2004) The Body Language of Trees. A Handbook for Failure Analysis. Research for Amenity Trees No. 4. The Stationary Shop.

NSW TAFE Commission (1994) Tree Care & Maintenance, print West Pile,

Tony, (2000), Sydney Gardening by Suburb, Murdoch Books Shigo, A.L.

(1986) a New Tree Biology, Shigo & Tree Associates

Rolf K 1992a A Review of preventative and loosening measures to alleviate soil compaction in tree planting areas, Arboricultural Journal 18:431-88.

Rolf K 1992b Soil physical effects of pneumatic subsoil loosening using a Terralift soil aerator. Journal of Arboriculture 18:235-240.

Rolf K 1994Soil Compaction and Loosening on soil physics and Tree Growth. In the Landscape Below Ground G. Watson and D Neely, eds, Savoy, IL: International Society of Arboriculture pp,131-148.

Gross R 1995. Construction applications of hydraulic soil excavation, In Trees and Building Sites. G Watson and D Neely, eds, Savoy, IL; International Society of Arboriculture. Pp177-184.

Smiley, T. 1994 The effects of soilaeration equipment on tree growth. In the Landscape Below Ground.G Watson and D Neely, eds. Savoy IL; International Society of Arboriculture.pp.207-210.

Day, S, and N. Bassuk 1994. A review of the effects of soil compaction and amelioration treatments of Landscape Trees. Journal of Arboriculture,20:9-17.

Harris R.W 1992. Arboriculture: Integrated Management of Landscape Trees, Shrubs, and Vines 2nd Edition Englewood Cliffs NJ: Prentice Hall 674pp

Watson, G. 1991. Attaining root: crown balance in landscape trees. Journal of Arboriculture17:211-216.

Watson. G. 1996. Tree root system enhancement with paclobutrazol. Journal of Arboriculture. 22:211-217.

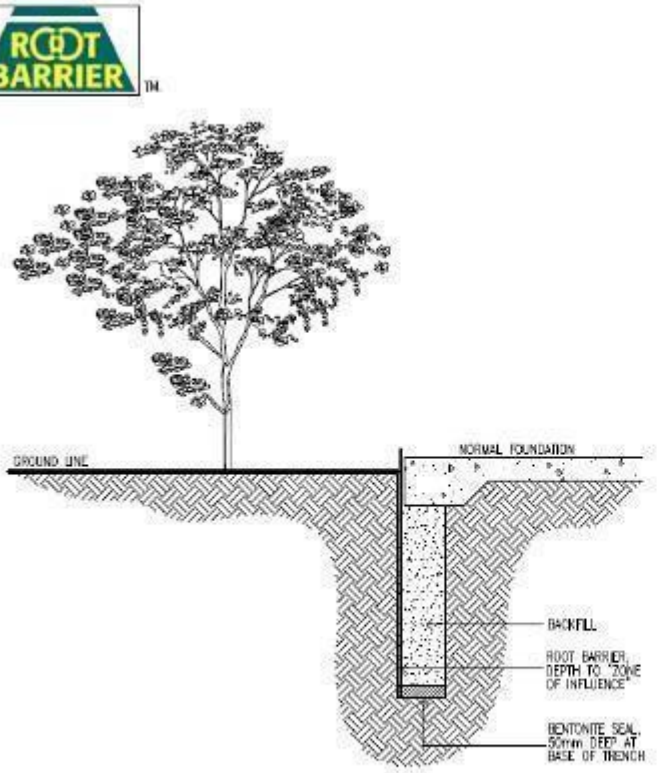
Watson. G 1996. Replacing soil in the root zone of mature trees for better root growth. Journal of Arboriculture 22:167-173

P Svihra. P. 1991 A practical guide for diagnosing root rot in ornamentals. Journal of Arboriculture.12:129-134

Miller, R. 1993 Greenbelt Silverculture. In proceedings of the Sixth National Urban Forestry Conference Washington DC: American Forests pp194-196

Weaver, M and R. Stipes. 1988, White pine decline: A case study from Virginia landscapes, Journal of Arboriculture. 14:109-120.

Appendix 9 - Root Management Systems



TYPICAL ROOT BARRIER INSTALLATION AS PART OF FOUNDATION

DESIGN & INSTALLATION GUIDELINES

(INCLUDING TYPICAL)

NORMALLY PLACED BETWEEN THE TREE AND WHATEVER YOU WISH TO PROTECT. TRY **NOT** TO SURROUND THE TREE. OUR PREFERRED METHOD IS PLACING THE ROOT BARRIER ALONG BESIDE THE PATH, BUILDING, PIPE ETC SO THAT THE TREE ROOTS CAN NOT GAIN ACCESS TO THE STRUCTURE. **TO STABILISE MOISTURE IN REACTIVE CLAYS UNDER THE STRUCTURE A DEEPER BARRIER IS REQUIRED.**

DEPTH

OUTER-MOST "ZONE OF INFLUENCE". NORMALLY 1.5 TO 2 METRES DEEP.

SEAL

SUDDUM BENTONITE OR OTHER ROOT GROWTH INHIBITOR IS USED TO SEAL THE BOTTOM OF THE TRENCH AND BIND THE BOTTOM OF THE ROOT BARRIER TO THE UNDISTURBED SOIL. IN SUMMARY, TAKE THE BARRIER DOWN TO SOIL THAT NOTHING CAN GROW IN AND BIND THE ROOT BARRIER TO IT.

LENGTH

SUFFICIENT TO PROTECT THE STRUCTURE FROM THE EFFECTS OF MOISTURE CHANGE IN THE SOIL. BSA GUIDELINES CONSIDER THE FOLLOWING DISTANCES AS REASONABLE. STRUCTURES CLOSER THAN THESE MARGINS TO TREES MUST BE PROTECTED FROM, OR SPECIALLY ENGINEERED TO WITHSTAND THE EFFECT OF THE TREE/S.

HEIGHT OF TREE (h). DISTANCE FROM HOUSE (d)
d = 1h FOR CLASS "M" & "W" SITES
d = 1.5h FOR CLASS "E" SITES
d = 2h FOR ROWS OR GROUPS OF TREES
INSTALL ROOT BARRIER IN ONE PIECE.

TREE CARE

WORKING IN FROM THE DRIP LINE, (THE EDGE OF THE LEAVES) THE CLOSER YOU GET TO THE TRUNK THE HIGHER THE RISK OF DAMAGING OR DESTABILISING THE TREE. 1\50 OF THE DISTANCE FROM THE DRIP LINE TO THE TRUNK (1\20 OF THE TREES TOTAL ROOT PLATFORM) IS REGARDED AS THE CLOSEST YOU CAN CUT WITHOUT MAJOR RISK TO PLANTS HEALTH. IF IT IS NECESSARY TO CUT CLOSER THAN HALFWAY TOWARDS THE TRUNK, IT WOULD BE ADVISABLE TO ENGAGE THE SERVICES OF AN ARBORIST TO ASSESS THE TREE PRIOR TO THE WORK BEING CARRIED OUT, AND TO HELP NURSE THE TREE THROUGH THE PERIOD OF INSTALLATION

BARRIER PLACEMENT

1. DIG A NARROW TRENCH TO THE REQUIRED DEPTH. INSERT ROOT BARRIER. ENSURE 50mm OF ROOT BARRIER IS LEFT ABOVE FINISHED GROUND HEIGHT (THIS IS TO ALLOW FOR SETTLEMENT AND MAY BE TRIMMED OFF LATER).
2. TRIM EXPOSED TREE ROOTS TO LEAVE A CLEAN CUT, TREAT WITH FUNGICIDE IF REQUIRED.
3. BACK FILL THE BASE OF THE TRENCH PLACING A LAYER OF BENTONITE, THEN BACK FILL WITH FLOWABLE FILL TO GET COMPACTION
4. BRING ROOT BARRIER UP INSIDE FOUNDATION FORMWORK PRIOR TO POURING SLAB
5. ROOT BARRIER SHOULD BE TRIMMED TO JUST BELOW DAMP COURSE HEIGHT BUT ABOVE GROUND (TOP OF ROOT BARRIER MUST BE EXPOSED ON COMPLETION.

ROOT BARRIER SUPPLY AND/OR COMPLETE INSTALLATION AVAILABLE. CONTACT ROOT BARRIER, PHONE 1300 136 644. WWW.ROOTBARRIER.COM.AU

Appendix 10 - Arborist Report Required

A report by a qualified arborist shall be prepared detailing the position, species, height, truck diameter and canopy spread of existing trees on or adjacent to the site, and a detailed analysis of the conditional and health of these trees. The trees are to be clearly numbered in the report.

The report is to provide a tree location plan which is easily legible, at a suitable scale of not less than 1:200, indicating the trees and tree numbers.

Information is to be provided detailing trees proposed to be removed and trees to be retained in regard to the proposal, full reasons for recommending removal, including development impacts, tree condition, relevant structural testing or other relevant arboricultural analysis supporting the conclusions. Unsubstantiated observations, analysis or opinion is not acceptable.

The report shall also provide an analysis of the impacts of the proposal on existing trees both on the site and adjacent to the site.

The report shall address, the viability of tree retention, and methods by which adverse impacts of the proposal on trees if any may be avoided.

The report shall reference and use the standards and principals as set out in AS4970-2009 Protection of Trees on Development Sites.

1. Arboricultural Impact Assessment Reports

Council will require a comprehensive assessment of the impact of the development of trees on the site (and any trees on adjoining private or public land if the proposed development will encroach into the TPZ of those trees).

The report must contain at a minimum:

1. A site address;

2. Author's contact details and qualifications;

3. Statement detailing who (person/s, organisation, company) commissioned the arborist to prepare the report;

4. Date of inspection;

5. Executive summary (for larger reports);

6. Statement outlining the aims of the report;

7.The methodology of investigation techniques used in the research and preparation of the report;

8.Identification of trees by a numerical value that correlates to a site survey plan;
9. A corresponding numbered plan (to scale, with the scale shown) showing all the trees on the site (and trees on adjoining private and public land if the proposed development will encroach into the TPZ of those trees);

10 An analysis of the architectural and landscape drawings and description of the proposed development including alterations to existing buildings, services, drainage and driveways, and the proposed building footprint;

11 A plan (to scale, with the scale shown) showing all trees to be retained, removed or transplanted (colour coded);

12 An accurate, comprehensive assessment of the likely impact of the proposed development on the trees on the site and trees on adjoining private or public land if the proposed development will encroach into the TPZ of those trees.

The assessment must include:
A. Details of any soil modification

B. Discussion of the impact during building construction (hoardings, scaffolding, site and vehicle access etc);

c. A discussion of the impact of the proposed buildings, infrastructure and stormwater drainage; and

d A discussion of the impact of the landscape modifications on the trees;

13. Recommendations as to design modifications and construction methods to minimise the adverse impact on trees to be retained; and

14.References used in the preparation of the report.

2. Tree Protection Plans

Council will require site specific tree protection measures to be provided for all trees on the site (and any trees on adjoining private or public land if the proposed development will encroach into the TPZ of those trees). The protection measures must comply with Australian Standard 4970 - 2009 Protection of trees on development sites.

The Tree Protection Plan must contain at a minimum:
1. A site address;

2. Author's contact details and qualifications;

3. Statement detailing who (person/s, organisation, company) commissioned the arborist to

prepare the Plan;

4. Statement outlining the aims of the Plan;

5. A plan based on the survey plan (to scale, with the scale shown) showing all the trees on the site to be retained and trees on adjoining private and public land if the proposed development will encroach into the TPZ of those trees;
6. Details of any pruning required for the proposed development or construction works, and a pruning specification containing the information set out in this Appendix under “Pruning Specification”;

7. Site specific recommendations in accordance with AS 4970- 2009 Protection of trees on development site for tree protection for all trees to be retained. The proposed protection measures must protect the trees throughout the entire development and construction process (Including the demolition and excavation stages);

8. A plan (to scale with the scale shown) showing the TPZ, and location and type of tree protection measures to be installed. The plan must include all trees on the site (and trees on adjoining private and public land if the proposed development will encroach into the TPZ of those trees); and

Appendix 11 - Disclaimer

This assessment has been prepared for the exclusive use of the client and Mark Bury Consulting which accepts no responsibility for its use by other persons.

The client acknowledges that this appraisal, and any opinions, advice or recommendations expressed or given in it, are based on the information supplied by the client and on the data inspections, measurements and analysis carried out or obtained by Mark Bury Consulting and referred to in the assessment. The client should rely on the assessment and on its contents, only to that extent.

This assessment was carried out from the ground, and covers what was reasonably able to be assessed and available to this assessor at the time of inspection. No aerial or subterranean inspections were carried out.

This report is to be utilized in its entirety only. Any written or verbal submission, report or presentation that includes statements taken from the findings, discussions conclusions or recommendations made in this report, may only be used where the whole of the original report (or a copy) is referenced in, and directly attached to that submission, report or presentation. This report must be revised for use in the Land and Environment Court and permission sorted from the owner for its use in court.

Care has been taken to obtain information from reliable sources. All data has been verified were possible, however, Mark Bury Consulting can neither guarantee nor be responsible for the accuracy of information provided by others.

Information contained in this report covers only the trees that were examined and reflects the condition of the trees at the time of inspection, furthermore the inspection was limited to a visual examination of the subject trees without dissection, excavation, probing or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the subject tree may not arise in the future. This report cannot be used in a court of law until it is revised and referenced.