

SUPPLEMENTARY REPORT

SOUTHERN REGIONAL PLANNING PANEL

SRPP No	2018STH015
DA Number	DA-2018/557
Local Government Area	Wollongong City
Proposed Development	Demolition of existing 45 bed residential aged care facility and construction of new 111 bed residential aged care facility and conversion of existing 44 hostel bed facility to 22 serviced self-care dwellings with community /ancillary spaces, reconfiguration of and additional car parking and associated landscaping and infrastructure works plus tree removals
Street Address	4 Lindsay Evans Place, Dapto Lot 1 DP 1082602
Applicant/Owner	Anglican Community Services c/o Minto Planning Services
Reason for Supplementary Report	This is a supplementary report in response to the applicant's comments on the draft conditions at Attachment 10 of the main report and to address inconsistencies noted in the landscape plans and arborist report with regard to tree removal and retention.
List additional documents submitted with this supplementary report for the panel's consideration	Attachment A – Revised Draft Conditions Attachment B – Amended Landscape Plans Attachment C – Amended Arborist Report
Recommendation	DA-2018/557 be approved subject to the conditions contained within Attachment A.
Report by	Vivian Lee, Senior Development Project Officer
Report date	29 May 2019

Introduction

This is a supplementary report in response to the applicant's comments on the draft conditions at Attachment 10 of the main report and to address inconsistencies noted in the landscape plans and arborist report with regard to tree removal and retention. Correspondence received from the applicant raised a number of comments in regards to the draft conditions to be considered that related to:

- Identifying conditions that apply to each phase of the development
- Enabling separate Occupation Certificates to be issued
- Additions to the Acoustic Attenuation to reference specific requirements contained in the Development near Rail Corridors and Busy Roads - Interim Guideline
- Clarification on total number of proposed car parking spaces and the location of the ambulance parking bay
- Clarification on the access requirements from the main entrance of the building to car parking areas
- Clarification on Sydney Trains concurrence requirements
- Stormwater drainage design in regards to overflow paths
- Revise Asset Protection Zone condition to reflect wording of the conditions provided by the Rural Fire Service in their General Terms of Approval
- Monitoring of stormwater quality
- Clarification on the proposed trees to be retained and removed

Council has considered the comments and the majority of the suggestions by the applicant have been incorporated into the revised draft conditions at **Attachment A** of this supplementary report.

A copy of this Supplementary Report and Attachment A – Revised Draft Conditions has been forwarded to the applicant.

Assessment

Landscaping

Amended landscape plans L1 – L8 Revision L prepared by Nicholas Bray Landscapes dated 28 May 2019 and an amended arborist report prepared by Moore Trees dated 28 May 2019 has been submitted by the applicant and is presented respectively at **Attachment B and C**. These amended documents were provided to address a number of inconsistencies noted between the documents and further clarification sought on the proposed Tree Protection Zones for trees located within close to the building footprint.

The submitted amended landscape plans identify the trees sought to be removed and retained within the vicinity of the proposed residential care facility building in Drawing No. L6-L and that the trees surrounding the ILUs and community centre building in Drawing No. L7-L. It is considered that the documents are now generally consistent with each other and reflect the recommendations as provided in the amended arborist report.

The proposed trees to be removed and retained for this application are identified and conditioned for in draft condition 14 at **Attachment A**. Overall, it is considered that the assessment carried out in the main report does not change as a result of the amended information provided.

Parking

It is noted that an error has been made with the proposed total number of car parking spaces for the development in the main report and the draft conditions (Attachment 10). References in the main report and draft conditions make reference to a total of 58 and 59 car parking spaces for the proposal.

The correct total number of car parking spaces for the proposal is 55 car parking spaces that include three (3) accessible spaces. The parking comprises of 31 at-grade car spaces, 24 spaces located in the undercroft car park and the ambulance space provided for in the porte cochere. Despite this error in the total number of car parking spaces, the proposal still complies with the parking requirements in State Environmental Planning Policy (Housing for Seniors or with a Disability) 2004 and Chapter E3 of

Wollongong Development Control Plan 2009, noting the number of parking spaces provided is greater than required under the relevant standards and controls.

Conclusion

The proposed development has been assessed with regard to the relevant prescribed matters for consideration outlined in Section 4.15 of the Environmental Planning & Assessment Act 1979. The proposed development is permissible with consent and is reflective of the objectives of the R2 Low Density Residential zone.

The development is generally consistent with the applicable provisions of the relevant planning instruments including SEPP (Housing for Seniors or People with a Disability) 2004, SEPP 65, SEPP (Infrastructure), SEPP 55, SEPP (Building Sustainability Index: BASIX) 2004 and Wollongong LEP 2009.

The proposal seeks an exception to Wollongong Local Environmental Plan 2009 development standard relating to building height. It is considered that the clause 4.6 exception request provided addressing this matter is satisfactory, and as such the exception is capable of support. The design of the development is appropriate with regard to the controls outlined in the Wollongong DCP 2009.

It is considered that the proposed development is unlikely to result in adverse impacts on the character or amenity of the surrounding area, environment and adjoining development.

Recommendation

DA-2018/557 be approved pursuant to Section 4.16(1) of the Environmental Planning & Assessment Act 1979 subject to the conditions provided at **Attachment A**.

Attachment A – Revised Draft Conditions

The development proposed is integrated development and approval is required from the approval bodies listed below:

NSW Rural Fire Service (RFS)

Pursuant to Section 4.14 of the Environmental Planning and Assessment (EP&A) Act 1979 – requirements imposed by the NSW RFS dated 22 June 2018 as attached form part of this Notice of Determination – Attachment 1.

Conditions imposed by Council as part of this Integrated Development Consent are:

Approved Plans and Specifications

- 1 The development shall be implemented substantially in accordance with the details and specifications set out on:
Overall Proposed Site Plan SD.S.100.1-P03 dated 28 February 2019 prepared by Merrin & Cranston
Proposed Site Plan SD.S.101-P20 dated 28 February 2019 prepared by Merrin & Cranston
Proposed RAC Site Plan SD.S.107-P14 dated 28 February 2019 prepared by Merrin & Cranston
Overall Ground Floor Layout Plan SD.R.201-P13 dated 28 February 2019 prepared by Merrin & Cranston
Overall First Floor Layout Plan SD.R.202-P08 dated 28 February 2019 prepared by Merrin & Cranston
Overall Undercroft Layout Plan SD.R.203-P15 dated 27 March 2019 prepared by Merrin & Cranston
Elevations (Sheet 1) Plan SD.R.301-P06 dated 28 February 2019 prepared by Merrin & Cranston
Elevations (Sheet 2) Plan SD.R.302-P06 dated 28 February 2019 prepared by Merrin & Cranston
Proposed Site Sections (Sheet 1) SD.S.109-P07 dated 28 February 2019 prepared by Merrin & Cranston
Sections (Sheet 2) SD.R.304-P08 dated 27 March 2019 prepared by Merrin & Cranston
Sections (Sheet 3) SD.R.305-P01 dated 27 March 2019 prepared by Merrin & Cranston
Overall Roof Plan SD.R.208-P05 dated 15 May 2019 prepared by Merrin & Cranston
Proposed ILU Site Plan SD.S.108-P15 dated 28 February 2019 prepared by Merrin & Cranston
Overall Proposed Layout Plan SD.U.201-P09 dated 7 December 2018 prepared by Merrin & Cranston
ILU Floor Plan North SD.U.203-P08 dated 20 August 2018 prepared by Merrin & Cranston
ILU Floor Plan South SD.U.204-P08 dated 20 August 2018 prepared by Merrin & Cranston
Elevations (Sheet 1) Plan SD.U.301-P04 dated 20 August 2018 prepared by Merrin & Cranston
Elevations (Sheet 2) Plan SD.U.302-P04 dated 20 August 2018 prepared by Merrin & Cranston
Elevations (Sheet 3) Plan SD.U.303-P01 dated 20 August 2018 prepared by Merrin & Cranston
Elevations (Sheet 4) Plan SD.U.304-P01 dated 20 August 2018 prepared by Merrin & Cranston
Sections (Sheet 1) Plan SD.U.305-P01 dated 20 August 2018 prepared by Merrin & Cranston
Proposed Site Sections (Sheet 2) SD.S.110-P04 dated 20 August 2018 prepared by Merrin & Cranston
and any details on the application form, and with any supporting information received, except as amended by the conditions specified and imposed hereunder.

General Matters

2 Phasing of Development

Phase 1:

- Demolition of existing residential care facility building, cottage and awning structure.
- Remediation and validation works.
- Construction of 111 bed residential care facility building and associated landscaping, provision of all car parking and access and infrastructure works including drainage works, water sensitive urban design measures, tree removals and vegetation management works.

Phase 2:

- Conversion of hostel bed facility to 22 serviced self-care dwellings (independent living units) and reconfiguration of community/ancillary spaces in community centre including associated landscaping works.

Separate Construction Certificates may be applied for regarding each phase of the development. Conditions as relevant within this consent are to be met in each instance.

3 **Sydney Trains Requirements**

Conditions imposed by the Sydney Trains dated 20 December 2018 as attached shall form part of this Notice of Determination. – Attachment 2.

4 **Water Cycle/Stormwater Quality Management**

The water cycling management treatment nodes shall be constructed as per the Civil Design Report prepared Bonacci Group (NSW) Pty Ltd dated 6 February 2019 to achieve the treatment goals for removal of pollutants and nutrients which shall be minimum: Gross pollutants – 90%, total suspended solids – 80%, total phosphorus – 55% and total nitrogen – 40%.

The stormwater quality treatment devices shall be installed and maintained under private ownership.

5 **Geotechnical**

- a All work is to be in accordance with the geotechnical recommendations contained in the report dated 15 December 2017 by Douglas Partners and any subsequent geotechnical report required to address unanticipated conditions encountered during construction.
- b All earthworks including drainage, retaining wall and footing construction is to be subject to Level 1 geotechnical supervision as defined in Australian Standard AS3798 Guidelines for Earthworks for Commercial and Residential Developments. Where necessary amendments are to be made to the designs during construction based on supplementary geotechnical advice given during the supervision to ensure that the completed works accommodates all encountered geotechnical constraints.
- c Foundation systems are to be designed for Class P soils with all footings to be founded within the underlying weathered bedrock as recommended by the geotechnical consultant.

6 **Building Work - Compliance with the Building Code of Australia**

All building work must be carried out in compliance with the provisions of the Building Code of Australia.

- 7 The access and use of the site is to be in accordance with the Commonwealth Aged Care Accreditation Standards and the Building Code of Australia.

8 **Construction Certificate**

A Construction Certificate must be obtained from Council or an Accredited Certifier prior to work commencing.

A Construction Certificate certifies that the provisions of Clauses 139-148 of the Environmental Planning and Assessment Amendment Regulations, 2000 have been satisfied, including compliance with all relevant conditions of Development Consent and the Building Code of Australia.

Note: The certifying authority must cause notice of its determination to be given to the consent authority, and to the council, by forwarding to it, within two (2) days after the date of the determination, the plans and documentation referred to in clause 142 (2) of the Environmental Planning and Assessment Regulation 2000.

9 **Disability Discrimination Act 1992**

This consent does not imply or confer compliance with the requirements of the Disability Discrimination Act 1992.

It is the responsibility of the applicant to guarantee compliance with the requirements of the Disability Discrimination Act 1992. The current Australian Standard AS1428.1 (2009) – Design for Access and Mobility is recommended to be referred for specific design and construction requirements, in order to provide appropriate access to all persons within the building.

10 Separate Consent Required for Advertising Signage

This consent does not authorise the erection of any advertising signage. Any such advertising signage will require separate Council approval, in the event that such signage is not exempt development, under Schedule 2 of Wollongong Local Environmental Plan 2009.

Any new application for advertising signage must be submitted to Council in accordance with Chapter C1 – Advertising and Signage Structure of Wollongong Development Control Plan 2009.

11 Maintenance of Access to Adjoining Properties

Access to all properties not the subject of this approval must be maintained at all times and any alteration to access to such properties, temporary or permanent, must not be commenced until such time as written evidence is submitted to Council or the Principal Certifying Authority indicating agreement by the affected property owners.

12 Height Restriction

The residential care facility building shall be restricted to a maximum height of 12.12 metres AHD from the natural ground level (inclusive of the lift tower and any air conditioning plant). Any alteration to the maximum height of the development will require further separate approval of Council.

13 Occupation Certificate

An Occupation Certificate must be issued by the Principal Certifying Authority prior to occupation of each phase or use of the development. In issuing an Occupation Certificate, the Principal Certifying Authority must be satisfied that the requirements of section 6.9 of the Environmental Planning and Assessment Act 1979, have been complied with as well as all of the conditions of the Development Consent.

14 Tree Retention/Removal

The Applicant shall retain the existing trees indicated on the Trees - Retain and Remove RAC L6-L and Trees - Retain and Remove ILU L7- L (as per the symbols on the plan), by Nicholas Bray Landscapes, dated 28 May 2019 consisting of trees numbered 101, 111, 112, 151-155, 160-164, 166-168, 170-173, 226, 229, 248, 249, 258, 259, 265-267, 271-273, 297, 298, 300, 302-305, 345, 347, 351, 352, 354, 355, 358, 361-365, 369, 371-375, 381, 383-385 and 405 (inclusive).

Any branch pruning, which has been given approval, must be carried out by a qualified arborist in accordance with Australian Standard AS4373-2007.

All tree protection measures are to be installed in accordance with Australian standard AS4970:2009 Protection of Trees on development Sites.

All recommendations in Arborist's Report by Moore Tress dated 28 May 2019 to be implemented including and not restricted to: remedial tree pruning, deadwooding, fencing and signage, sediment buffer, stem protection, establishing tree protection zones and watering and root hormone application if required.

This consent permits the removal of trees numbered, 102-110, 204, 241-243, 246, 247, 250, 356, 357, 359, 361, 376-380, 386-389, 391, 393, 395 -398, 400-404, 406-412 (inclusive) as indicated on Trees - Retain and Remove RAC L6-L and Trees - Retain and Remove ILU L7-L (as per the symbols on the plan), by Nicholas Bray Landscapes, dated 28 May 2019. No other trees shall be removed without prior written approval of Council.

Prior to the Issue of the Construction Certificate

15 Parking and Driveway Pavement over Easement

The parking area and driveway pavement over the easement must be designed by a suitably qualified civil engineer to ensure that appropriate cover is achieved over the existing stormwater line within the easement for the largest proposed design traffic loading. Pot holing must be

undertaken of the existing storm water within the easement to determine the exact location and cover where works are proposed over. Details of the potholing results must be clearly shown on construction certificate plans prior to the release of the construction certificate. The pavement design must ensure no impact on the structural integrity of the existing stormwater line. Details of the pavement design, a longitudinal section of the pipe line within the extent of works (existing and proposed) and associated pipe cover must be provided to the certifying authority prior to the issuing of a construction certificate.

16 **Construction over Easement**

A suitably qualified civil engineer must identify the largest machinery size able to work over the existing stormwater line during construction to ensure no impact on the structural integrity of the existing stormwater line. Details of the minimum cover and machinery size able to work above the existing easement must be provided to the certifying authority prior to the issuing of a construction certificate.

17 **Ecosystem Credit Retirement**

Prior to issue of the Construction Certificate the class and number of ecosystem credits in the table below must be retired to offset the residual biodiversity impacts of the development.

The requirement to retire credits in this condition may be satisfied by payment to the Biodiversity Conservation Fund of an amount equivalent to the class and number of ecosystem credits, as calculated by the Biodiversity Offsets Payment Calculator.

Evidence of the retirement of credits or payment to the Biodiversity Conservation Fund in satisfaction of this condition must be provided to Council prior to issue of the Construction Certification.

Ecosystem Credits Required to be Retired – Like for Like

Impacted plant community type	Number of ecosystem credits	IBRA sub-region	Plant community type(s) that can be used to offset the impacts from development
PCT 838 - Forest Red Gum - Thin-leaved Stringybark grassy woodland on coastal lowlands, southern Sydney Basin Bioregion	5	Illawarra, Ettrema, Jervis, Moss Vale, Sydney Cataract and Northern Basalts or from a location within 100km of the impact site	Illawarra Lowlands Grassy Woodland in the Sydney Basin Bioregion (including PCT's 838, 1326)

18 **Further Detailed Site Investigation Report and Remediation Action Plan**

A further Stage 2 Detailed Site Investigation Report as recommended by the Report on Detailed Site Investigation for Contaminated Land prepared by Douglas Partners dated October 2018 to assess the extent of asbestos contamination and the extent and potential source of TRH F2 contamination shall be prepared. Based on this Report, a Stage 3 Remediation Action Plan must be prepared so that the site can be made suitable for proposed development. The Stage 2 and 3 Reports must be prepared as per the Guidelines for Consultants Reporting on Contaminated Sites, published by NSW Office of Environment & Heritage, August 2011.

The further Detailed Site Investigation Report and Remediation Action Plan must be prepared by a contaminated land consultant who is certified under one of the following certification schemes:

- the Environment Institute of Australia and New Zealand's (EIANZ) Certified Environmental Practitioner (Site Contamination) scheme (CEnvP (SC)); or
- the Soil Science Australia (SSA) Certified Professional Soil Scientist Contaminated Site Assessment and Management (CPSS CSAM) certification.

The further Detailed Site Investigation Report and Remediation Action Plan are to be issued by the certified contaminated land consultant direct to Council. No third party submissions will be accepted.

19 **Site Validation Report**

A Stage 4 Validation Report shall be submitted to Council at the completion of remediation works.

The Validation Report shall verify that:

- a the site is not affected by soil and/or groundwater contamination above the NSW EPA threshold limit criteria; and
- b the site is suitable for the proposed development.

The Validation Report must be prepared by a contaminated land consultant who is certified under one of the following certification schemes:

- the Environment Institute of Australia and New Zealand's (EIANZ) Certified Environmental Practitioner (Site Contamination) scheme (CEnvP (SC)); or
- the Soil Science Australia (SSA) Certified Professional Soil Scientist Contaminated Site Assessment and Management (CPSS CSAM) certification.

The Validation Report is to be issued by the certified contaminated land consultant direct to Council. No third party submissions will be accepted.

20 **Design and Construction of Food Premises**

Documentary evidence must be submitted to the Principal Certifying Authority confirming that the proposed kitchen and café areas on the premises comply with AS4674-2004: Design, construction and fit out of food premises prior to the issue of the Construction Certificate:

21 **Hairdresser – Design and Fit Out**

The internal fit out of the Hairdressing Salon/Barber Shop must comply with the Local Government (General) Regulation 2005 Schedule 2 Part 2, Clauses 8-10. Documentary evidence showing compliance with the above standards must be submitted to the Principal Certifying Authority prior to the issue of the construction certificate.

22 **Acoustic Attenuation**

The developer shall provide the detailed design of Section 6.1.2 Glazing Recommendations and Section 6.3.2 Noise Mitigation Measures of the Acoustic Report for Development Application prepared Wood & Grieve Engineers dated 28 February 2019 to ensure the following LAeq levels are not exceeded:

- a in any bedroom in the building: 35dB(A) at any time between 10.00 pm and 7.00 am. This should be measured and energy averaged over a period of 9 hours from 10:00pm – 7:00am over a week period. This is what the Interim Noise Guideline for Rail Corridors says, which is where this has been extracted from.
- b anywhere else in the building (other than a garage, kitchen, bathroom or hallway): 40dB(A) at any time between 10pm and 7am. This should be measured and energy averaged over a period of 15 hours from 7:00am – 10:00pm over a week period. This is what the Interim Noise Guideline for Rail Corridors says, which is where this has been extracted from.

These levels should only be relevant for train noise intrusion into the habitable spaces of the development. This has been extracted from the Busy Roads and Rail Corridors Interim Guideline and should only be applied as provided in the guideline.

In addition, detailed design of all mechanical plants must be satisfactorily attenuated to levels complying with the noise emission criteria through appropriate location and (if necessary) standard acoustic treatments such as noise screens, enclosures, in-duct treatments (silencers/lined ducting) or similar as recommended by Section 6.3.2 Noise Mitigation Measures of the Acoustic Report for Development Application prepared by Wood & Grieve Engineers dated 28 February 2019.

- 23 **Phase 2 - Building Code of Australia – Fire Safety Upgrade**
The following information will be required to be detailed on the plans or supporting documentation to the accredited certifier, prior to the issue of the Construction Certificate. This condition relates to fire safety upgrade considerations under Clause 94 of the Environmental Planning & Assessment Regulation 2000 and relates to the existing buildings applicable under this consent and/or applicable parts identified below (The upgrade work shall be carried out in accordance with the National Construction Code Series (BCA) Volume One):
- Full details, Engineering, specifications and any other supporting information/documentation demonstrating how the proposed works will comply with the National Construction Code Series Volume 1 (BCA).
 - BCA Assessment Report that includes the following:
 - a identifies any proposed upgrade works.
 - b any non - compliances with the deemed to satisfy provisions of the BCA proposed to be addressed by a Fire Engineered solution
 - c Fire safety schedule including existing and proposed Fire safety measures including any fire engineered building solutions.
 - A Fire Engineering Report prepared by a suitably accredited Fire Engineer demonstrating compliance with the performance requirements for any identified non compliances with the National Construction Code Series Volume 1 (BCA).
- 24 **Present Plans to Sydney Water**
Approved plans must be submitted online using Sydney Water Tap, available through [_____](#) to determine whether the development will affect Sydney Water's sewer and water mains, stormwater drains and/or easements, and if further requirements need to be met.
- The Certifying Authority must ensure that Sydney Water has issued an approval receipt prior to the issue of a Construction Certificate.
- Visit [_____](#) or telephone 13 20 92 for further information.
- 25 **Endeavour Energy Requirements**
The submission of documentary evidence from Endeavour Energy to the Principal Certifying Authority is required confirming that satisfactory arrangements have been made with Endeavour Energy for the provision of electricity supplies to the development, prior to the release of the Construction Certificate.
- Note:** Applications should be made to Customer Connections – South Coast, Endeavour Energy PO Box 811 Seven Hills NSW 1730.
- 26 **Telecommunications**
The submission of documentary evidence from an approved telecommunications carrier to the Principal Certifying Authority confirming that underground telecommunication services are available for this development is required prior to the issue of the Construction Certificate.
- 27 **Schedule of External Building Materials/Finishes**
The final details of the proposed external treatment/appearance of the development, including a schedule of building materials and external finishes (including the type and colour of the finishes) together with a sample board and an A4 or A3 sized photograph of the sample board shall be submitted for the separate approval of the Principal Certifying Authority, prior to the release of the Construction Certificate.
- 28 **Glass Reflectivity Index**
The reflectivity index of the glass used in the external façade of the building shall not exceed 20 per cent. The details and samples of the glass to be used are to be submitted with the Construction Certificate together with written evidence that the reflectivity of the glass is 20 per cent or less.

29 **External Clothes Drying Facilities**

In the event that external clothes drying facilities are proposed, full details of the screening and the location of these facilities shall be reflected on the Construction Certificate plans and the final landscape plan.

30 **Single Master TV Antenna**

A single master TV antenna is to be installed to service the development and provision made for connection to each dwelling unit within the development. This requirement shall be reflected on the Construction Certificate plans.

31 **Fencing of Private Open Space for Independent Living Units (ILUs)**

The terraces for each ILU are to be adequately screened to ensure amenity for the future residents in regards to their private open space. At minimum 1.5m privacy screen is to be provided as shown on Sheet SD.U.201 P09 dated 7 December 2018 prepared by Merrin & Cranston Pty Ltd. This requirement is to be reflected on the Construction Certificate plans.

32 **Garbage, Green Waste and Recycling Bin Enclosure Structure**

The garbage/recycling bin enclosure area shall be constructed of brick or other approved masonry material and shall be provided with sufficient screening of all bins contained therein. The storage area shall be constructed with a concrete floor, suitably graded to enable drainage of run-off into Council's stormwater drainage system and shall be at-grade with any proposed pedestrian accessway. The final design details of the proposed storage area shall be reflected on the Construction Certificate plans.

33 **Disabled Access and Facilities**

The provision of disabled access throughout the development is required and shall be in compliance with the Building Code of Australia Part D3 "Access for People with Disabilities" and Australian Standard AS1428.1 (2009) - Design for Access and Mobility – Part 1 General Requirements for Access – Buildings. This requirement shall be reflected on the Construction Certificate plans.

34 Toilet facilities shall be provided for disabled persons in accordance with the design criteria in AS1428.1 (2009) – Design for Access and Mobility – General Requirements for Access – New Building Work. This requirement shall be reflected on the Construction Certificate plans.

35 In order to maximise visibility in the basement carpark, the ceiling shall be painted white. This requirement shall be reflected on the Construction Certificate plans.

36 **Crime Prevention through Environmental Design (CPTED)**

In order to reduce the opportunities for "hiding places" the proposed landscaping must:

- a use shrubs/plants which are no higher than 1 metre adjacent to pathways.
- b the type of trees proposed must have a sufficiently high canopy, when installed and fully grown, so that pedestrian vision is not impeded.
- c Shrub planting to be set back min. 0.5 metres from the edge of the pathway.
Groundcover planting acceptable.

This requirement shall be reflected on the Construction Certificate plans.

37 **Design Details for Lighting – Car Parking Areas**

The proposed design details for the lighting system of the undercroft car park and at grade car parking areas are to be provided to the Principal Certifying Authority, prior to the release of the Construction Certificate.

38 **Car Parking and Access**

The development shall make provision for a total of 55 car parking spaces (including 3 disabled car parking spaces) and 1 ambulance parking bay. This requirement shall be reflected on the Construction Certificate plans. Any change in the above parking numbers shown on the approved DA plans shall be dealt with via a section 96 modification to the development. The approved parking spaces shall be maintained to the satisfaction of Council, at all times.

39 **Ambulance Access Space**

The Porte Cochere which is proposed for ambulance access must have minimum headroom as specified by the Ambulance Service of NSW being 3.5m and the swept paths for access to the proposed Ambulance Space are to be clear of obstructions. Details of such compliance are to be reflected on the Construction Certificate plans.

40 The parking dimensions, internal circulation, aisle widths, kerb splay corners, head clearance heights, ramp widths and grades of the car parking areas are to be in conformity with the current relevant Australian Standard AS2890.1, except where amended by other conditions of this consent. Details of such compliance are to be reflected on the Construction Certificate plans.

41 Each disabled person's parking space must comply with the current relevant Australian Standard AS2890.6 – Off-street parking for people with disabilities. This requirement shall be reflected on the Construction Certificate plans.

42 The main entry point to the building shall be in accordance with the current relevant Australian Standard 1428.1 - 2001 Design for Access and Mobility - Part 1 General Requirements for Access - Buildings. The proposed pedestrian ramps within the car parking areas shall incorporate gradients (with suitable landing intervals) in accordance with the Australian Standard. The final design of the pedestrian ramps, including ramp gradients shall be reflected on the Construction Certificate plans.

43 **Designated Loading/Unloading Facility**

The designated loading/unloading facility must be clearly delineated with appropriate signage and or line marking to ensure the area is kept clear at all times. The designated loading/unloading facility shall be shown on the Construction Certificate plans.

44 The provision of suitable barriers, line-marking and painted signage delineating vehicular flow movements within the car parking areas. These details shall be reflected on the Construction Certificate plans.

45 **Structures Adjacent to Driveway**

Any proposed structures adjacent to the driveway shall comply with the requirements of the current relevant Australian Standard AS2890.1 (figure 3.2 and 3.3) to provide for adequate pedestrian and vehicle sight distance. This includes, but is not limited to, structures such as signs, letterboxes, retaining walls, dense planting etc. This requirement shall be reflected on the Construction Certificate plans.

46 The depth and location of all services (ie gas, water, sewer, electricity, telephone, traffic lights, etc) must be ascertained and reflected on the Construction Certificate plans and supporting documentation.

47 **Landscaping**

The submission of a final Landscape Plan will be required in accordance with the requirements of Wollongong City Council DCP 2009 Chapter E6 and the approved Landscape Plans L1- L5 Revision L dated 28 May 2019 prepared by Nicholas Bray Landscapes (ie as part of this consent) for the approval by the Principal Certifying Authority, prior to the release of the Construction Certificate.

48 The submission of a final Landscape Plan to the Principal Certifying Authority, prior to the release of the Construction Certificate. The final Landscape Plan shall address the following requirements:

- a planting of indigenous plant species native to the Illawarra Region such as: *Melaleuca decora*, *Syzygium smithii* (syn *Acmena smithii*) Lilly pilly, *Archontophoenix cunninghamiana* Bangalow palm, *Backhousia myrtifolia* Grey myrtle, *Elaeocarpus reticulatus* Blueberry ash, *Glochidion ferdinandii* Cheese tree, *Livistona australis* Cabbage palm tree, *Syzygium paniculatum* Brush cherry.

A further list of suitable suggested species may be found in Wollongong Development Control Plan 2009 – Chapter E6: Landscaping;

- b a schedule of proposed planting, including botanic name, common name, expected mature height and staking requirements as well as number of plants and pot sizes;
- c the construction of the fire trail is not to impact on existing tree roots. Any proposed hard surface under the canopy of existing trees shall be permeable and must be laid such that the finished surface levels match the existing level. Permeable paving is to be installed in accordance with the manufacturer's recommendations;
- d The construction of any proposed hard surfaces including but not limited to paths, roads, driveways, car and car parking shall be permeable and must be laid such that the finished surface levels match the existing level. Permeable paving is to be installed in accordance with the manufacturer's recommendations; and
- e landscaping is to comply with the principles of Appendix 5 of Planning for Bush Fire Protection 2006.

The completion of the landscaping works as per the final approved Landscape Plan is required, prior to the issue of Occupation Certificate.

- 49 The submission of certification from a suitably qualified and experienced landscape designer and drainage consultant to the Principal Certifying Authority prior to the release of the Construction Certificate, confirming that the landscape plan and the drainage plan are compatible.

- 50 The implementation of a landscape maintenance program in accordance with the approved Landscape Plan for a minimum period of 12 months to ensure that all landscape work becomes well established by regular maintenance. Details of the program must be submitted with the Landscape Plan to the Principal Certifying Authority prior to release of the Construction Certificate.

51 **Tree Protection and Management**

The existing trees are to be retained upon the subject property and any trees on adjoining properties shall not be impacted upon during the excavation or construction phases of the development. This will require the installation and maintenance of appropriate tree protection measures, including (but not necessarily limited to) the following:

- a Installation of Tree Protection Fencing - Protective fencing shall be 1.8 metre cyclone chainmesh fence, with posts and portable concrete footings. Details and location of protective fencing must be indicated on the architectural and engineering plans to be submitted to the Principal Certifying Authority prior to release of the Construction Certificate.

52 **Bushfire Attack Level (BAL)**

New construction for the Residential Aged Care building shall comply with Sections 3 and 5 (BAL 12.5) Australian Standard AS3959-2009 'Construction of buildings in bush fire-prone areas' or NASH Standard (1.7.14 updated 'National Standard Steel Framed Construction in Bushfire Areas – 2014' as appropriate and section A3.7 Addendum Appendix 3 of 'Planning for Bush Fire Protection 2006'.

The existing hostel building to be refurbished to a Community Centre and Independent Living Units is required to be upgraded to improve ember protection. This is to be achieved by enclosing all openings (excluding roof tile spaces) or covering openings with a non-corrosive metal screen mesh with a maximum aperture of 2mm. Where applicable, this includes any sub floor areas, openable windows, vents, weepholes and eaves. External doors are to be fitted with draft excluders.

The above requirements shall be reflected on the Construction Certificate plans and supporting documentation for the endorsement of the Principal Certifying Authority prior to the issue of the Construction Certificate.

53 **Retaining Wall Structures**

The proposed retaining wall(s) shall be constructed in accordance with Council's Retaining Wall Policy. This requirement is to be reflected on the Construction Certificate plans and shall be

supported by a certificate from a structural engineer which confirms the structural adequacy of the proposed retaining wall structure(s) and compliance with Council's Retaining Wall Policy.

54 **Engineering Plans and Specifications - Retaining Wall Structures Greater than One (1) Metre**

The submission of engineering plans and supporting documentation of all proposed retaining walls greater than 1m to the Principal Certifying Authority for approval prior to the issue of the Construction Certificate. The retaining walls shall be designed by a suitably qualified and experienced civil and/or structural engineer. The required engineering plans and supporting documentation shall include the following:

- a A plan of the wall showing location and proximity to property boundaries;
- b An elevation of the wall showing ground levels, maximum height of the wall, materials to be used and details of the footing design and longitudinal steps that may be required along the length of the wall;
- c Details of fencing or handrails to be erected on top of the wall;
- d Sections of the wall showing wall and footing design, property boundaries and backfill material. Sections shall be provided at sufficient intervals to determine the impact of the wall on existing ground levels. The developer shall note that the retaining wall and footing structure must be contained wholly within the subject property;
- e The proposed method of subsurface and surface drainage, including water disposal;
- f Reinforcing and joining details of any bend in the wall at the passing bay of the accessway;
- g The assumed loading used by the engineer for the wall design.
- h Flows from adjoining properties shall be accepted and catered for within the site. Finished ground and top of retaining wall levels on the boundary shall be no higher than the existing upslope adjacent ground levels.

55 **Roof Dust – Proposed Independent Living Units/Community Centre**

Due to the location of this property the ceiling space may have accumulated industrial fallout over its lifespan. The proposed renovation/extensions shall be carried out in the following manner:

- a The occupants of the building and any contractors/employees involved in the construction work are to be fully protected from dust created by cutting into the roof cavity space of the building. The protection required for workers is a P2 dust mask approved by the SafeWork NSW.
 - b If dust is going to be removed from the existing roof cavity, the ceiling dust must be vacuumed with an approved industrial vacuum cleaner. The collected dust must be sealed in heavy-duty plastic bags and disposed of at an approved waste facility (call the NSW Environment Protection Authority or your local council for details).
 - c It is advised to consult the following fact sheet prior to the removal of roof dust
-

56 **Plant and Equipment - Noise Emission Levels**

The equivalent continuous noise level ($L_{Aeq}(15min)$) from the operation of the plant and equipment shall not exceed 5dB(A) above the background noise level ($L_{A90}(15min)$) when measured at the most affected point(s) along the boundaries of the site. A report from a suitably qualified and experienced acoustical consultant who is a member of the Australian Acoustical Society (AAS), or the Association of Australian Acoustical Consultants (AAAC) shall be obtained detailing the measures required to ensure compliance with this condition of consent. This report is to be submitted to the Principal Certifying Authority prior to the release of the Construction Certificate. The recommended noise attenuation measures shall be implemented, prior to the issue of any Occupation Certificate.

57 **Property Addressing Policy Compliance**

Prior to the issue of any construction certificate, the developer must ensure that any site addressing complies with Council's Property Addressing Policy (as amended). Where appropriate, the developer must also lodge a written request to Council's Infrastructure Systems

& Support – Property Addressing ([_____](#)), for the site addressing prior to the issue of the construction certificate. Please allow up to 3-5 business days for a reply. Enquiries regarding property addressing may be made by calling 4227 8660.

58

Stormwater Drainage Design

A detailed drainage design for the development must be submitted to and approved by the Principal Certifying Authority prior to the release of the Construction Certificate. The detailed drainage design must satisfy the following requirements:

- a Be prepared by a suitably qualified civil engineer in accordance with Chapter E14 of Wollongong City Council's Development Control Plan 2009, Subdivision Policy, conditions listed under this consent, and generally in accordance with the concept plan/s lodged for development approval, The Concept Stormwater Management Plan, prepared by Bonacci Reference No. 201040501, Drawing no. C031, revision P6 dated 28 February 2019.
- b Include details of the method of stormwater disposal. Stormwater from the development must be piped to Council's existing stormwater drainage system and the existing stormwater line servicing the development site.
- c Engineering plans and supporting calculations for the stormwater drainage system are to be prepared by a suitably qualified engineer and be designed to ensure that stormwater runoff from upstream properties is conveyed through the site without adverse impact on the development or adjoining properties. The plan must indicate the method of disposal of all stormwater and must include rainwater tanks, existing ground levels, finished surface levels on all paved areas, estimated flow rates, invert levels and sizes of all pipelines.
- d Overflow paths shall be provided to allow for flows of water in excess of the capacity of the pipe/drainage system draining the land, as well as from any detention storage on the land. Blocked pipe situations with 1 in 100 year ARI events shall be incorporated in the design. Overflow paths shall also be provided in low points and depressions. Each overflow path shall be designed to ensure no entry of surface water flows into any building and no concentration of surface water flows onto any adjoining property. Details of each overflow path shall be shown on the detailed drainage design. Where overland flow paths are unable to be provided (i.e./ lower level carparking, etc.) a 2 stage stormwater system, being a primary and overflow system both designed to cater for the 100 year flow from the contributing catchment must be provided.

59

On-Site Stormwater Detention (OSD) Design

The developer must provide on-site stormwater detention (OSD) storage for stormwater runoff from the development. The design and details of the OSD system must be provided in conjunction with the detailed drainage design and approved by the Principal Certifying Authority prior to the release of the Construction Certificate. The OSD design and details must satisfy the following requirements:

- a Must be prepared by a suitable qualified engineer in accordance with Chapter E14 of the Wollongong DCP 2009.
- b The developer must provide on-site detention storage for stormwater runoff from the development designed to ensure no increase in stormwater discharge at each discharge location for events up to and including the 100 year storm ensuring no increase in flows to neighbouring properties. The Site Storage Requirement (SSR) and Permissible Site Discharge (PSD) values for the site must be determined by a suitably qualified civil engineer, pre and post development stormwater discharge rates at each discharge location from the site must be provided clearly demonstrating the above requirements. Details of the detention facility, SSR/PSD values and certification from a suitably qualified civil engineer must be submitted with the Construction Certificate application.
- c The OSD facility must be designed to withstand the maximum loadings occurring from any combination of traffic (with consideration to residential and heavy vehicles), hydrostatic, earth, and buoyancy forces. Details must be provided demonstrating these requirements have been achieved.

- d The OSD facility shall incorporate a minimum 900mm x 900mm square lockable grate for access and maintenance purposes, provision for safety, debris control screen, and a suitably graded invert to the outlet to prevent ponding. The access must not be within the building to ensure non ingress of stormwater into the building.
- e Must include discharge control calculations (i.e. orifice/weir calculations) generally in accordance with Section 12.2.6 and 12.5.4 of Chapter E14 of the Wollongong DCP2009.
- f Details of the orifice plate including diameter of orifice and method of fixing shall be provided.
- g Must include details of a corrosion resistant identification plaque for location on or close to the OSD facility. The plaque shall include the following information and shall be installed prior to the issue of the occupation certificate:
 - The structure is an OSD facility, being part of the stormwater drainage network, and is not to be tampered with.
 - Identification number DA-2018/557.
 - Any specialist maintenance requirements.
- h Must include a maintenance schedule for the OSD system, generally in accordance with Chapter E14 of the Wollongong DCP2009.

60 **Fire Hydrants**

The fire hydrant network is to comply with AS2419.1 – 2005 for the new buildings. The hydrant sizing, spacing and pressures must comply with AS2419.1– 2005 for the new buildings. The fire hydrant(s) must be shown on the construction certificate plans.

61 **Fire Safety Schedule**

When issuing a Construction Certificate, a certifying authority must attach a Fire Safety Schedule specifying all of the fire safety measures required for the building to ensure the safety of persons in the building in the event of fire.

Prior to the Commencement of Works

62 **Pre Development CCTV/Dilapidation Report**

All stormwater pipes within existing easement and in the area of proposed works must be inspected by CCTV prior to the commencement of work. A copy of the CCTV inspection (report and CCTV video's) must be submitted to Councils Development Engineering Manager and the Certifying Authority prior to the commencement of works.

63 **Prior to Tree Removal**

Prior to removal, the trees approved for removal under this development consent shall be closely inspected for native vertebrate fauna occupation, and if occupied by native vertebrate fauna, then the NSW Wildlife Information, Rescue and Education Service (WIRES) shall be contacted for advice (phone 1300 094 737).

64 **Appointment of Principal Certifying Authority**

Prior to commencement of work, the person having the benefit of the Development Consent and a Construction Certificate must:

- a Appoint a Principal Certifying Authority (PCA) and notify Council in writing of the appointment irrespective of whether Council or an accredited private certifier is appointed; and
- b notify Council in writing of their intention to commence work (at least two days notice is required).

The Principal Certifying Authority must determine when inspections and compliance certificates are required.

65 **Sign – Supervisor Contact Details**

Before commencement of any work, a sign must be erected in a prominent, visible position:

- a stating that unauthorised entry to the work site is not permitted;

- b showing the name, address and telephone number of the Principal Certifying Authority for the work; and
- c showing the name and address of the principal contractor in charge of the work site and a telephone number at which that person can be contacted at any time for business purposes.

This sign shall be maintained while the work is being carried out and removed upon the completion of the construction works.

66 **Temporary Toilet/Closet Facilities**

Toilet facilities are to be provided at or in the vicinity of the work site on which work involved in the erection or demolition of a building is being carried out at the rate of one toilet for every 20 persons or part of 20 persons employed at the site.

Each toilet provided must be:

- a a standard flushing toilet; and
- b connected to either:
 - i the Sydney Water Corporation Ltd sewerage system or
 - ii an accredited sewage management facility or
 - iii an approved chemical closet.

The toilet facilities shall be provided on-site, prior to the commencement of any works.

67 **Structural Engineer's Details**

Structural engineer's details for all structurally designed building works such as reinforced concrete footings, reinforced concrete slabs and structural steelwork must be submitted to the Principal Certifying Authority, prior to the commencement of any works on the site.

68 **Enclosure of the Site**

The site must be enclosed with a suitable security fence to prohibit unauthorised access, to be approved by the Principal Certifying Authority. No building work is to commence until the fence is erected.

69 **Demolition Works**

The demolition of the existing building elements/buildings/structures shall be carried out in accordance with Australian Standard AS2601 (2001): The Demolition of Structures or any other subsequent relevant Australian Standard and the requirements of the SafeWork NSW.

No demolition materials shall be burnt or buried on-site. The person responsible for the demolition works shall ensure that all vehicles leaving the site carrying demolition materials have their loads covered and do not track soil or waste materials onto the road. Any unforeseen hazardous and/or intractable wastes shall be disposed of to the satisfaction of the Principal Certifying Authority. In the event that the demolition works may involve the obstruction of any road reserve/footpath or other Council owned land, a separate application shall be made to Council to enclose the public place with a hoarding or fence over the footpath or other Council owned land.

70 **Notification to SafeWork NSW**

The demolition licence holder who proposes demolition of a structure or part of a structure that is loadbearing or otherwise related to the physical integrity of the structure that is at least six metres in height, involving load shifting machinery on a suspended floor, or involving the use of explosives must notify SafeWork NSW in writing at least five (5) calendar days before the work commences.

71 **Notification to Surrounding Property Owners/Occupants Prior to Commencement of Demolition Works**

At least five (5) days notice must be given in writing to any residence or business within 100 metres of the premises to which this consent pertains of the impending demolition works. The written notice must include at least the following information:

- a a summary of the work plan and method for the demolition and a timetable for completion of works, including hours of operation, transport routes etc;
- b details of the primary contractor and/or company conducting the demolition works;
- c the name and telephone number for a person supervising the works to which residents can direct questions, comments and/or concerns about the works for the duration of the works.

72 **Updated Hazardous Materials Survey Report**

At least one (1) week prior to demolition, the applicant must prepare an updated hazardous materials survey report and any asbestos hazard management strategy (prepared by a suitably qualified and experienced licensed asbestos assessor) with the results of additional survey work and submit the updated report to Council and the PCA (should Council not be the PCA).

73 **Consultation with SafeWork NSW – Prior to Asbestos Removal**

A licensed asbestos removalist must give written notice to SafeWork NSW at least five (5) days before licensed asbestos removal work is commenced.

74 **Temporary Sediment Fences**

Temporary sediment fences (eg haybales or geotextile fabric) must be installed on the site, prior to the commencement of any excavation, demolition or construction works in accordance with Council's guidelines. Upon completion of the development, sediment fencing is to remain until the site is grassed or alternatively, a two (2) metre strip of turf is provided along the perimeter of the site, particularly lower boundary areas.

75 **All-weather Access**

An all-weather stabilised access point must be provided to the site to prevent sediment leaving the site as a result of vehicular movement. Vehicular movement should be limited to this single accessway.

76 **Sediment Control Measures**

The developer must ensure that sediment-laden runoff from the site is controlled at all times subsequent to commencement of construction works. Sediment control measures must be maintained at all times and checked for adequacy at the conclusion of each day's work.

77 **Supervising Arborist – Tree Inspection and Installation of Tree Protection Measures**

Prior to the commencement of any demolition, excavation or construction works, the supervising arborist must certify in writing that tree protection measures have been inspected and installed in accordance with the arborist's recommendations and relevant conditions of this consent.

78 **Certification from Arborist - Adequate Protection of Trees to be Retained**

A qualified arborist is required to be engaged for the supervision of all on-site excavation or land clearing works. The submission of appropriate certification from the appointed arborist to the Principal Certifying Authority is required which confirms that all trees and other vegetation to be retained are protected by fencing and other measures, prior to the commencement of any such excavation or land clearing works.

79 **Application for Occupation, Use, Disturbance or Work on Footpath/Roadway**

Any occupation, use, disturbance or work on the footpath or road reserve for construction purposes, which is likely to cause an interruption to existing pedestrian and/or vehicular traffic flows requires Council consent under Section 138 of the Roads Act 1993. An application must be submitted and approved by Council prior to the works commencing where it is proposed to carry out activities such as, but not limited to, the following:

- a Digging or disruption to footpath/road reserve surface;
- b Loading or unloading machinery/equipment/deliveries;
- c Installation of a fence or hoarding;
- d Stand mobile crane/plant/concrete pump/materials/waste storage containers;
- e Pumping stormwater from the site to Council's stormwater drains;
- f Installation of services, including water, sewer, gas, stormwater, telecommunications and power;

- g Construction of new vehicular crossings or footpaths;
- h Removal of street trees;
- i Carrying out demolition works.

80 **Asset Protection Zones**

At the commencement of building works and in perpetuity the existing 40m Asset Protection Zone, shall continue to be maintained as an Inner Protection Area (IPA) as outlined within section 4.1.3 and Appendix 5 of 'Planning for Bush Fire Protection 2006' and the NSW Rural Fire Service's document 'Standards for asset protection zones'.

81 **Works in Road Reserve - Minor Works**

Approval, under Section 138 of the Roads Act must be obtained from Wollongong City Council's Development Engineering Team prior to any works commencing or any proposed interruption to pedestrian and/or vehicular traffic within the road reserve caused by the construction of this development.

The application form for Works within the Road Reserve – Section 138 Roads Act can be found on Council's website. The form outlines the requirements to be submitted with the application, to give approval to commence works under the roads act. It is advised that all applications are submitted and fees paid, five (5) days prior to the works within the road reserve are intended to commence. The Applicant is responsible for the restoration of all Council assets within the road reserve which are impacted by the works/occupation. Restoration must be in accordance with the following requirements:

- a All restorations are at the cost of the Applicant and must be undertaken in accordance with Council's standard document, "Specification for work within Council's Road reserve".
- b Any existing damage within the immediate work area or caused as a result of the work/occupation, must also be restored with the final works.

82 **Building Exclusion Zone – Protection of Existing Vegetation**

Prior to the commencement of work the land marked on the plan and shown as "VMP subject site" in Figure 1.1 on page 7 in the Vegetation Management Plan dated 28 February 2019 prepared by Ecoplaning is to be pegged out on site to clearly identify the area, so not be impacted during demolition, excavation or construction.

A plan of the VMP subject site is attached to this development consent at Attachment 3.

During Demolition, Excavation or Construction

83 **Survey Report – Residential Care Facility Building**

The submission of a survey report by a registered Land Surveyor to the Principal Certifying Authority is required to guarantee that the development is completed in accordance with the approved plans, that the residential care facility building does not exceed the maximum height of 12.12 metres AHD.

84 **Installation of Water Sensitive Urban Design Treatment Train**

The developer shall install the water sensitive urban design treatment measures as stated in Table 3-2 of the Civil Design Report prepared by Bonacci Group (NSW) Pty Ltd dated 6 February 2019.

85 **Avoidance of Cruelty and Harm to Fauna**

During tree removal works, all care shall be taken to avoid cruelty and harm to fauna.

86 **Injured Native Fauna**

In the event any native fauna are injured during tree removal works, then the NSW Wildlife Information, Rescue and Education Service (WIRES) shall be contacted (phone 1300 094 737) for assistance.

87 **Disposal of Excess Removed Vegetation Off-site**

Excess removed vegetation taken from the site shall be disposed of only at a location that may lawfully accept that waste.

- 88 **Weed Control**
No known environmental weeds or known invasive plant species shall be used in any plantings or landscaping on the site, or otherwise brought onto the site.
- 89 **Protection of Native Vegetation Beyond the Development Footprint**
Construction impacts must be restricted to the development site and must not encroach into areas of retained native vegetation and habitat. All materials stockpiles, vehicle parking, machinery storage and other temporary facilities must be located within the areas for which biodiversity impacts were assessed in the Biodiversity Development Assessment Report prepared by Ecoplanning dated 24 January 2019.
- 90 **Building Exclusion Zone – Protection of Existing Vegetation**
No excavation or compaction, no building or other structure and no filling material shall be erected, placed or be permitted to remain within that part of the land marked on the plan and shown as “VMP subject site” in Figure 1.1 on page 7 in the Vegetation Management Plan dated 28 February 2019 prepared by Ecoplanning. A plan of the VMP subject site is attached to this development consent at Attachment 3.
- 91 **Implementation of Vegetation Management Plan**
The Vegetation Management Plan prepared by Ecoplanning dated 28 February 2019 shall be implemented as described.
- 92 **Supervision of Engineering Works**
All engineering works associated with the development are to be carried out under the supervision of a practicing engineer and/or registered surveyor.
- 93 **No Adverse Run-off Impacts on Adjoining Properties**
The design of the development shall ensure there are no adverse effects to adjoining properties as a result of flood or stormwater run-off. Attention must be paid to ensure adequate protection for buildings against the ingress of surface run-off.

Allowance must be made for surface run-off from adjoining properties. Any redirection or treatment of that run-off must not adversely affect any other property.
- 94 **Branch or Root Pruning in accordance with Australian Standard**
Any branch or root pruning which has been given approval, must be carried out by a qualified arborist in accordance with Australian Standard AS4373 (2007).
- 95 **Copy of Consent to be in Possession of Person carrying out Tree Removal**
The applicant/developer must ensure that any person carrying out tree removal is in possession of this development consent, in respect to the trees which have been given approval to be removed in accordance with this consent.
- 96 **Restricted Washing of Equipment or Disposal of Materials on any Tree Dripline Area**
No washing of equipment and or the disposal of building materials such as cement slurry must occur within the drip line of any tree which has been nominated for retention of the site and adjacent property.
- 97 **Treatment of any Tree Damage by a Supervised Arborist**
Any damage inflicted on a tree during the construction phase which has been nominated for retention shall be treated by an approved arborist at the developer’s expense.
- 98 **Waste Inventory Report**
A Waste Inventory report must be maintained on-site during demolition work. The waste inventory is a register of all materials and waste removed from the site during the demolition work. The register must record each load or movement of material and waste from the site and must include at a minimum the following information:
- a the description of the material (including identified hazardous material);
 - b an estimate of the quantity by volume and weight;
 - c the name of the transporter and the registration details of the relevant vehicle;
 - d the intended destination of the material;

- e a copy of the Waste Inventory and copies of relevant receipts of disposal shall be forwarded to Council's Division of Regulation and Enforcement prior to the Construction Certificate for re-development being issued.

99 **Restricted Hours of Construction Work**

The developer must not carry out any work, other than emergency procedures, to control dust or sediment laden runoff outside the normal working hours, namely, 7.00 am to 5.00 pm, Monday to Saturday, without the prior written consent of the Principal Certifying Authority and Council. No work is permitted on public holidays or Sundays.

Any request to vary these hours shall be submitted to the **Council** in writing detailing:

- a the variation in hours required (length of duration);
- b the reason for that variation (scope of works);
- c the type of work and machinery to be used;
- d method of neighbour notification;
- e supervisor contact number;
- f any proposed measures required to mitigate the impacts of the works.

Note: The developer is advised that other legislation may control the activities for which Council has granted consent, including but not limited to, the Protection of the Environment Operations Act 1997.

- 100 Drains, gutters, access ways and roadways must be maintained free of sediment and any other material.

101 **Dust Suppression Measures**

Activities occurring during the demolition and construction phases of the development must be carried out in a manner that will minimise the generation of dust.

102 **Asbestos – Removal, Handling and Disposal Measures/Requirements Asbestos Removal by a Licensed Asbestos Removalist**

The removal of any asbestos material must be carried out by a licensed asbestos removalist if over 10 square metres in area of non-friable asbestos, or if any type of friable asbestos in strict accordance with SafeWork NSW requirements (_____).

103 **Asbestos Waste Collection, Transportation and Disposal**

Asbestos waste must be prepared, contained, transported and disposed of in accordance with SafeWork NSW and NSW Environment Protection Authority requirements. Asbestos waste must only be disposed of at a landfill site that can lawfully receive this type of waste. A receipt must be retained and submitted to the Principal Certifying Authority, and a copy submitted to Council (in the event that Council is not the Principal Certifying Authority), prior to commencement of the construction works.

104 **Lead Based Paint**

To prevent contamination of the soil and human health risks associated with lead dust, safeguards must be used when removing flaking paint or sanding paint surfaces that are suspected to contain lead.

105 **Provision of Waste Receptacle**

The developer must provide an adequate receptacle to store all waste generated by the development, pending disposal. The receptacle must be regularly emptied and waste must not be allowed to lie or accumulate on the property other than in the receptacle. Consideration should be given to the source separation of recyclable and re-usable materials.

106 **BASIX**

All the commitments listed in each relevant BASIX Certificate for the development must be fulfilled in accordance with Clause 97A(2) of the Environmental Planning & Assessment Regulation 2000.

A relevant BASIX Certificate means:

- A BASIX Certificate that was applicable to the development when this development consent was granted (or, if the development consent is modified under section 4.55 of the Environmental Planning & Assessment Act 1979, a BASIX Certificate that is applicable to the development when this development consent is modified); or
- if a replacement BASIX Certificate accompanies any subsequent application for a construction certificate, the replacement BASIX Certificate; and
- BASIX Certificate has the meaning given to that term in the Environmental Planning & Assessment Regulation 2000.”

107 **Excess Excavated Material – Disposal**

Excess excavated material shall be classified according to the NSW Environment Protection Authority’s Waste Classification Guidelines – Part 1: Classifying Waste (2014) prior to being transported from the site and shall be disposed of only at a location that may lawfully receive that waste.

108 **Access**

Fire trails shall comply with section 4.1.3(3) of ‘Planning for Bush Fire Protection 2006’ and internal roads shall comply with section 4.2.7 of ‘Planning for Bush Fire Protection 2006’.

109 **Water and Utilities**

Water, electricity and gas are to comply with section 4.1.3 and 4.2.7 of ‘Planning for Bush Fire Protection 2006’.

110 **Provision of Taps/Irrigation System**

The provision of common taps and/or an irrigation system is required to guarantee that all landscape works are adequately watered. The location of common taps and/or irrigation system must be implemented in accordance with the approved Landscape Plan.

111 **Podium Planting**

All podium planting areas are to have a waterproofing membrane that can provide a minimum 10 year warranty on product. Protective boarding is to be installed to protect membrane from damage.

All podium planting areas to be provided with an adequate drainage system connected to the stormwater drainage system. The planter box is to be backfilled with free draining planter box soil mix.

If selected mulch is decorative pebbles/gravel, the maximum gravel pebble size is 10mm diameter.

Prior to the Issue of the Occupation Certificate

112 **Positive Covenant – Vegetation Management Plan**

A positive covenant shall be created under the Conveyancing Act 1919 requiring the property owner(s) to carry out works described in the Vegetation Management Plan prepared by Ecoplanning dated 28 February 2019.

The 88E Instrument shall contain a provision that this clause may not be altered, modified or extinguished, except with the written consent of Wollongong City Council.

The instrument showing the positive covenant must be submitted to the Principal Certifying Authority for endorsement prior to the issue of the Construction Certificate.

113 **Building Exclusion Zone – Protection of Existing Vegetation**

The submission of a Section 88B Instrument with the Occupation Certificate application, which incorporates the following restriction-as-to-use on the subject site/lot:

Building Exclusion Zone

No excavation or compaction, no building or other structure and no filling material shall be erected, placed or be permitted to remain within that part of the land marked on the plan and shown as “VMP subject site” in Figure 1.1 on page 7 in the Vegetation Management Plan dated

28 February 2019 prepared by Ecoplaning. A plan of the VMP subject site is attached to this development consent at Attachment 3.

The 88B Instrument shall also contain a provision that it may not be altered, modified or extinguished without the written consent of Wollongong City Council. The 88B Instrument shall be submitted to the Principal Certifying Authority, prior to the release of the Construction Certificate.

114 **Phase 2 - Fire Engineering Certification**

Prior to the issue of an Occupation Certificate, provide a clearing certificate from the Accredited C10 Fire Engineer certifying that all of the building solutions detailed within the Fire Engineering Report approved with the Construction Certificate have been implemented/installed/constructed within the building to the their satisfaction.

115 **Phase 2 - Fire Safety Upgrade**

Prior to the issue of an Occupation Certificate, the building must be upgraded to comply with the recommendations contained in the Building Code of Australia Report submitted and considered by the accredited certifier at Construction Certificate Stage.

116 **Post Development CCTV/Dilapidation Report**

All stormwater pipes within existing easement and in the area of proposed works must be inspected by CCTV following the completion of all construction works within the easement. A copy of the CCTV inspection (report and CCTV video's) must be submitted to Councils Development Engineering Manager for assessment prior to the issue of the Occupation Certificate. A comparison must be undertaken against the pre development CCTV report where defects are identified. Defects as a result of the development must either be replaced or repaired to Councils satisfaction prior to the issuing of the Occupation Certificate.

117 **Acoustic Compliance Report**

The developer shall submit to the Principal Certifying Authority an acoustic compliance report prepared by an acoustic consultant who is a member of the Australian Acoustic Society (AAS) or the Association of Australian Acoustic Consultants (AAAC) in stating that the building internal noise levels comply with the noise criteria of Clause 87(3) of State Environmental Planning Policy (Infrastructure) 2007.

118 **Design, Construction and Fit Out of Kitchen and Café Areas**

The design, construction and fit out of the kitchen and café portions of the development must comply with AS4674-2004: Design, construction and fit out of food premises and the construction certificate plans for the development prior to the issue of the occupation certificate.

119 **SEPP (Housing for Seniors or People with a Disability) 2004**

The accommodation component of the development may only be occupied by the kinds of people referred to in subclause (1) of Clause 18 of the SEPP. In accordance with Clause 18(2) of the SEPP, restriction as to user must be registered against the title of the property in accordance with section 88E of the Conveyancing Act 1919. Evidence of the restriction must be forwarded to the Principal Certifying Authority prior to the issue of the Occupation Certificate.

120 **Restriction on Use – Asset Protection Zone**

The applicant must create a restriction on title under section 88 of the Conveyancing Act 1919 that requires land 40 metres from the existing buildings (as approved in DA-2008/1470) to be managed as an inner protection area (IPA) as outlined within section 4.1.3 and Appendix 5 of Planning for Bush Fire Protection 2006 and the NSW Rural Fire Service's document Standards for asset protection zones.

Name of the authority having the power to release, vary or modify the restriction referred to is Wollongong City Council.

The instrument, showing the restriction, must be submitted to the Principal Certifying Authority for endorsement prior to the issue of the final Occupation Certificate and the use of the development.

121 A Section 73 Certificate must be submitted to the Principal Certifying Authority prior to occupation of the development/release of the plan of subdivision.

122 **Fire Safety Certificate**

A Fire Safety Certificate must be issued for the building prior to the issue of an Occupation Certificate. As soon as practicable after a Fire Safety Certificate is issued, the owner of the building to which it relates:

- a Must cause a copy of the certificate (together with a copy of the current fire safety schedule) to be given to the Commissioner of New South Wales Fire Brigades, and
- b must cause a further copy of the certificate (together with a copy of the current fire safety schedule) to be prominently displayed in the building.

123 **Drainage**

The developer must obtain a certificate of Hydraulic Compliance (using Council's M19 form) from a suitably qualified civil engineer, to confirm that all stormwater drainage and on-site detention works have been constructed in accordance with the approved plans. In addition, full works-as-executed plans, prepared and signed by a Registered Surveyor must be submitted. These plans and certification must satisfy all the stormwater requirements stated in Chapter E14 of the Wollongong DCP2009. This information must be submitted to the Principal Certifying Authority prior to the issue of the final Occupation Certificate.

124 **Restriction on Use – On-site Detention System**

The applicant must create a restriction on use under the Conveyancing Act 1919 over the on-site detention system. The following terms must be included in an appropriate instrument created under the Conveyancing Act 1919 for approval of Council:

“The registered proprietor of the lot burdened must not make or permit or suffer the making of any alterations to any on-site stormwater detention system on the lot(s) burdened without the prior consent in writing of the authority benefited. The expression ‘on-site stormwater detention system’ shall include all ancillary gutters, pipes, drains, walls, kerbs, pits, grates, tanks, chambers, basins and surfaces designed to temporarily detain stormwater as well as all surfaces graded to direct stormwater to those structures.

Name of the authority having the power to release, vary or modify the restriction referred to is Wollongong City Council.”

The instrument, showing the restriction, must be submitted to the Principal Certifying Authority for endorsement prior to the issue of the final Occupation Certificate and the use of the development.

125 **Access Certification**

Prior to the occupation of the building, the Principal Certifying Authority must ensure that a certificate from an “accredited access consultant” has been issued certifying that the development complies with the requirements of the Statement of Compliance Access for People with a Disability prepared by Accessible Building Solutions dated 23 April 2018.

126 **Retaining Wall Certification**

The submission of a certificate from a suitably qualified and experienced structural engineer or civil engineer to the Principal Certifying Authority is required, prior to the issue of the Occupation Certificate or commencement of the use. This certification is required to verify the structural adequacy of the retaining walls and that the retaining walls have been constructed in accordance with plans approved by the Principal Certifying Authority.

127 **Waste Inventory**

A copy of the Waste Inventory which was maintained on-site during the demolition work and copies of relevant receipts of waste material being deposited at a waste disposal facility shall be forwarded to the Principal Certifying Authority and Council's Regulation and Enforcement Division (in the event that Council is not the Principal Certifying Authority), prior to the issue of the Occupation Certificate or commencement of the use.

- 128 **Hairdressing**
The Hairdressing Salon/Barber Shop shall comply with the Local Government (Orders) Regulation.
- 129 **Clinical Waste**
Clinical waste, waste containers and storage areas must be managed to comply with the NSW “Waste Minimisation Act and Management Act” and the NSW Health Department “Waste Management Guidelines for Health Care Facilities”.
- 130 The developer must make compensatory provision for the trees required to be removed as a result of the development. In this regard, twenty 100 litre container mature plant stock shall be placed adjacent to the new building within the property boundary of the site. The suggested species are Illawarra escarpment species.
- 131 **BASIX – Independent Living Units (ILUs)**
A final occupation certificate must not be issued unless accompanied by the BASIX Certificate applicable to the development. The Principal Certifying Authority must not issue the final occupation certificate unless satisfied that selected commitments have been complied with as specified in the relevant BASIX Certificate. NOTE: Clause 154B of the Environmental Planning and Assessment Regulation 2000 provides for independent verification of compliance in relation to certain BASIX commitments.
- 132 **Positive Covenant – On-Site Detention Maintenance Schedule**
A positive covenant shall be created under the Conveyancing Act 1919, requiring the property owner(s) to undertake maintenance in accordance with the Construction Certificate approved On-Site Stormwater Detention System and Maintenance Schedule (application number to be referenced).

The instrument, showing the positive covenant must be submitted to the Principal Certifying Authority for endorsement prior to the issue of the final Occupation Certificate and the use of the development.
- 133 **On-Site Detention – Structural Certification**
The submission of a certificate from a suitably qualified practising civil and/or structural engineer to the Principal Certifying Authority is required prior to the issue of the final Occupation Certificate. This certification is required to verify the structural adequacy of the on-site detention facility and that the facility has been constructed in accordance with the approved Construction Certificate plans.
- 134 **Registration**
The food business is required to be registered with Council’s Regulation and Enforcement Division. An application must be made submitting the appropriate form prior to business operations commencing. Form can be found on Councils’ web page <http://www.wollongong.nsw.gov.au/council/formsandfactsheets.asp>. then navigate to Health/Application for Licence
- 135 **Food Business Notification Requirement**
The proprietor of the premises is required to notify their business details to the NSW Food Authority prior to operations commencing. An application can be made via www.foodnotify.nsw.gov.au, or by submitting a notification form and fee to Council or NSW Food Authority.
- 136 **Bushfire – Compliance Certificate**
A Compliance Certificate shall accompany any Occupation Certificate for Bushfire construction works as have been completed, verifying that the development has been constructed in accordance with the relevant Bushfire Attack Level (BAL) requirements of the Development Consent and Construction Certificate.
- 137 **Completion of Landscape Works**
The completion of the landscaping works as per the final approved Landscape Plan is required prior to the issue of Occupation Certificate.

138 **Height of Residential Care Facility Building**

A Survey Report must be submitted to the Principal Certifying Authority verifying the residential care facility building does not exceed the maximum height of 12.12 metres AHD from the natural ground level (inclusive of the lift tower and any air conditioning plant).

Operational Phases of the Development/Use of the Site

139 **Monitoring of Stormwater Quality**

Within one (1) year after the water sensitive urban design treatment system has been established, the proponent shall undertake water sampling and analysis to prove statistically the water sensitive urban design treatment train is functional and achieving the targeted improvements in water quality. The report must be sent to Wollongong City Council's Strategy Division.

140 **Vegetation Management Plan Reporting**

Three (3) monthly reports on the progress of the implementation of the Vegetation Management Plan prepared by Ecoplaning dated 28 February 2019 and annual reports summarising activity for the year shall be submitted to Wollongong City Council's City Strategy Division at least until the end of the three year maintenance period and until the performance criteria have been met.

141 **Operation of the Mini Bus**

The mini bus shall be available both to and from the proposed development during daylight hours at least once each day from Monday to Friday (inclusive). The bus shall take the residents to nearby centres and is to park at a distance of not more than 400 metres from the facilities and services referred to below:

- a shops, bank service providers and other retail and commercial services;
- b community services and recreation facilities; and
- c the practice of a general medical practitioner.

142 **Restricted Delivery Hours**

The delivery of service trucks shall be limited to 6.30 am to 9.00 pm daily, Mondays to Fridays and 8.00 am to 5.00 pm Saturdays only. Any alteration to the approved delivery hours will require the separate approval of Council.

143 **Loading/Unloading Operations/Activities**

All loading/unloading operations are to take place at all times wholly within the confines of the site or within the road reserve under an approved traffic control plan.

Attachment 1

All communications to be addressed to:

Headquarters
15 Carter Street
Lidcombe NSW 2141

Headquarters
Locked Bag 17
Granville NSW 2142

Telephone: 1300 NSW RFS
e-mail: records@rfs.nsw.gov.au

Facsimile: 8741 5433



The General Manager
Wollongong City Council
Locked Bag 8821
WOLLONGONG DC NSW 2500

Your Ref: DA-2018/557
Our Ref: D18/5612
DA18052413213 DD

ATTENTION: Vivian Lee

22 June 2018

Dear Sir / Madam

Integrated Development Application - 4 Lindsay Evans Place Dapto 2530

I refer to your correspondence dated 14 May 2018 seeking general terms of approval for the above Integrated Development Application.

The New South Wales Rural Fire Service (NSW RFS) has considered the information submitted. General Terms of Approval, under Division 4.8 of the 'Environmental Planning and Assessment Act 1979', and a Bush Fire Safety Authority, under Section 100B of the 'Rural Fires Act 1997', are now issued subject to the following conditions:

Asset Protection Zones

The intent of measures is to provide sufficient space and maintain reduced fuel loads so as to ensure radiant heat levels of buildings are below critical limits and to prevent direct flame contact with a building. To achieve this, the following conditions shall apply:

1. At the commencement of building works and in perpetuity the existing 40m Asset Protection Zone, shall continue to be maintained as an inner protection area (IPA) as outlined within section 4.1.3 and Appendix 5 of 'Planning for Bush Fire Protection 2006' and the NSW Rural Fire Service's document 'Standards for asset protection zones'.

Water and Utilities

The intent of measures is to provide adequate services of water for the protection of buildings during and after the passage of a bush fire, and to locate gas and electricity so as not to contribute to the risk of fire to a building. To achieve this, the following conditions shall apply:

2. Water, electricity and gas are to comply with sections 4.1.3 and 4.2.7 of 'Planning for Bush Fire Protection 2006'.

Access

The intent of measures for fire trails is to provide suitable access for fire management purposes and maintenance of APZs. To achieve this, the following conditions shall apply:

3. Fire trails shall comply with section 4.1.3 (3) of 'Planning for Bush Fire Protection 2006'.

The intent of measures for internal roads is to provide safe operational access for emergency services personnel in suppressing a bush fire, while residents are accessing or egressing an area. To achieve this, the following conditions shall apply:

4. Internal roads shall comply with section 4.2.7 of 'Planning for Bush Fire Protection 2006'.

Evacuation and Emergency Management

The intent of measures is to provide suitable emergency and evacuation (and relocation) arrangements for occupants of special fire protection purpose developments. To achieve this, the following conditions shall apply:

5. Arrangements for emergency and evacuation are to comply with section 4.2.7 of 'Planning for Bush Fire Protection 2006'.

Design and Construction

The intent of measures is that buildings are designed and constructed to withstand the potential impacts of bush fire attack. To achieve this, the following conditions shall apply:

6. New construction for the Residential Aged Care building shall comply with Sections 3 and 5 (BAL 12.5) Australian Standard AS3959-2009 'Construction of buildings in bush fire-prone areas' or NASH Standard (1.7.14 updated) 'National Standard Steel Framed Construction in Bushfire Areas – 2014' as appropriate and section A3.7 Addendum Appendix 3 of 'Planning for Bush Fire Protection 2006'.
7. The existing hostel building to be refurbished to a Community Centre and 1 Bed Independent Living Units is required to be upgraded to improve ember protection. This is to be achieved by enclosing all openings (excluding roof tile spaces) or covering openings with a non-corrosive metal screen mesh with a maximum aperture of 2mm. Where applicable, this includes any sub floor areas, openable windows, vents, weepholes and eaves. External doors are to be fitted with draft excluders.

Landscaping

8. Landscaping to the site is to comply with the principles of Appendix 5 of 'Planning for Bush Fire Protection 2006'.

Should you wish to discuss this matter please contact Deborah Dawson on 1300 NSW RFS.

Yours sincerely

A handwritten signature in dark ink, appearing to read 'M. Dotter', with a stylized flourish at the end.

Martha Dotter

A/Team Leader Development Assessment & Planning

For general information on bush fire protection please visit www.rfs.nsw.gov.au

Attachment 2



20 December 2018

The General Manager
Wollongong City Council
Locked Bag 8821
Wollongong DC NSW 2500

ATTENTION: VIVIAN LEE

Dear Sir/Madam,

**STATE ENVIRONMENTAL PLANNING POLICY (INFRASTRUCTURE) 2007
DEVELOPMENT APPLICATION – DA-2018/557
Lot 1 DP 1082602
4 Lindsay Evans Place, Dapto**

I refer to Council's letter requesting RailCorp's concurrence for the above development application in accordance with clause 86(1) of the above SEPP.

Sydney Trains has been delegated to act as the rail authority for development applications captured by State Environmental Planning Policy (Infrastructure) 2007 and has also been delegated to act as agent for RailCorp, the land owner of rail land.

As such, Sydney Trains now advises that the proposed development is being assessed in accordance with the requirements of Clause 86(4) being:

- a) the potential effects of the development (whether alone or cumulatively with other development or proposed development) on:
 - i) the safety or structural integrity of existing or proposed rail infrastructure facilities in the rail corridor, and
 - ii) the safe and effective operation of existing or proposed rail infrastructure facilities in the rail corridor, and
- b) what measures are proposed, or could reasonably be taken, to avoid or minimise those potential effects.

In this regard, Sydney Trains has taken the above matters into consideration and has decided to grant its concurrence to the development proposed in development application DA-2018/557 subject to Council imposing the operational conditions listed in Attachment A that will need to be complied with.



Should Council choose not to impose the operational conditions provided in Attachment A (as written), then concurrence from Sydney Trains has not been granted to the proposed development.

In the event that this development proposal is the subject of a Land and Environment Court appeal, Council's attention is drawn to Section 8.12 of the Environmental Planning and Assessment Act 1979 which requires Council to give notice of that appeal to a concurrence authority. Sydney Trains therefore requests that Council comply with this requirements should such an event occur.

Please contact Miss Sarah Anderson on 8575 0237 should you wish to discuss this matter. Finally, Sydney Trains requests that a copy of the Notice of Determination and conditions of consent be forwarded to Sydney Trains.

Yours sincerely,

A handwritten signature in blue ink, appearing to read "John Camarda".

John Camarda
Executive Manager
Commercial Property

Attachment A

- *Copies of any certificates, drawings, approvals/certification or documents endorsed by, given to or issued by Sydney Trains must be submitted to Council for its records prior to the issuing of a Construction Certificate.*
- *Where a condition of consent requires Sydney Trains or Transport for NSW endorsement the Principal Certifying Authority is not to issue a Construction Certificate or Occupancy Certificate, as the case may be, until written confirmation has been received from those entities that the particular condition has been complied with. The issuing of staged Construction Certificates dealing with specific works and compliance conditions can be issued subject to written agreement from those entities to which the relevant conditions applies.*
- *Any conditions issued as part of Sydney Trains approval/certification of any documentation for compliance with the Sydney Trains conditions of consent, those approval/certification conditions will also form part of the consent conditions that the Applicant is required to comply with.*
- *Sydney Trains or Transport for NSW (TfNSW), and persons authorised by those entities for the purpose of this condition, are entitled to inspect the site of the development and all structures to enable it to consider whether those structures have been or are being constructed and maintained in accordance with the approved plans and these conditions of consent, on giving reasonable notice to the principal contractor for the development or the owner or occupier of the part of the site to which access is sought.*
- *Prior to the commencement of works the Applicant shall peg-out the common property boundary with RailCorp's land. This work is to be undertaken by a registered surveyor.*
- *If required by Sydney Trains, prior to the commencement of works, prior to the issue of the Occupation Certificate, or at any time during the excavation and construction period deemed necessary by Sydney Trains, a joint inspection of the rail infrastructure and property in the vicinity of the project is to be carried out by representatives from Sydney Trains and the Applicant. These dilapidation surveys will establish the extent of any existing damage and enable any deterioration during construction to be observed. The submission of a detailed dilapidation report will be required unless otherwise notified by Sydney Trains.*
- *An acoustic assessment is to be submitted to Council prior to the issue of a construction certificate demonstrating how the proposed development will comply with the Department of Planning's document titled "Development Near Rail Corridors and Busy Roads- Interim Guidelines".*

- *Prior to the issue of a Construction Certificate the Applicant is to engage an Electrolysis Expert to prepare a report on the Electrolysis Risk to the development from stray currents. The Applicant must incorporate in the development all the measures recommended in the report to control that risk. A copy of the report is to be provided to the Principal Certifying Authority with the application for a Construction Certificate.*
- *Prior to the issue of a Construction Certificate, the Applicant shall provide certification from a qualified Geotechnical and Structural Engineers stating that the proposed works are to have no negative impact on the rail corridor and associated rail infrastructure.*
- *Unless advised by Sydney Trains in writing, all excavation, shoring and piling works within 25m of the rail corridor are to be supervised by a geotechnical engineer experienced with such excavation projects.*
- *No rock anchors/bolts are to be installed into Sydney Trains property or easements.*
- *During all stages of the development, environmental legislation and regulations will be complied with.*
- *During all stages of the development extreme care shall be taken to prevent environmental harm within the railway corridor. Any form of environmental harm to areas within the railway corridor or legislative non-compliance that arises as a consequence of the development activities shall remain the full responsibility of the Applicant.*
- *During all stages of the development, extreme care shall be taken to prevent any form of pollution (including dust) entering the railway corridor. Any form of pollution that arises as a consequence of the development activities shall remain the full responsibility of the Applicant.*
- *Excess soil is not allowed to enter, be spread or stockpiled within the rail corridor (and its easements) and must be adequately managed/ disposed of.*
- *The design, installation and use of lights, signs and reflective materials, whether permanent or temporary, which are (or from which reflected light might be) visible from the rail corridor must limit glare and reflectivity to the satisfaction of Sydney Trains. The Principal Certifying Authority is not to issue the Construction Certificate until written confirmation has been received from Sydney Trains confirming that this condition has been satisfied.*

- *Prior to the issue of a Construction Certificate a Risk Assessment/Management Plan regarding any potential risk to or from the rail corridor and assets, and detailed Safe Work Method Statements (SWMS) for the proposed works are to be submitted to Sydney Trains for review and comment on the impacts on the rail corridor. The Principal Certifying Authority shall not issue the Construction Certificate until written confirmation has been received from Sydney Trains confirming that this condition has been satisfied.*
- *If required by Sydney Trains, a track monitoring plan (including instrumentation and the monitoring regime during excavation and construction phases) is to be submitted to Sydney Trains for review and endorsement prior to the issuing of a Construction Certificate. The Principal Certifying Authority is not to issue a Construction Certificate until written confirmation has been received from Sydney Trains advising of the need to undertake the track monitoring plan, and if required, that it has been endorsed.*
- *Prior to the issuing of a Construction Certificate the Applicant is to submit to Sydney Trains a plan showing all craneage and other aerial operations for the development and must comply with all Sydney Trains requirements. If required by Sydney Trains, the Applicant must amend the plan showing all craneage and other aerial operations to comply with all Sydney Trains requirements. The Principal Certifying Authority is not to issue the Construction Certificate until written confirmation has been received from the Sydney Trains confirming that this condition has been satisfied.*
- *Given the development site's location next to the rail corridor, drainage from the development must be adequately managed/ disposed of and not allowed to be discharged into the corridor (and its easements) unless an Agreement has been entered into with Sydney Trains. The Principal Certifying Authority shall not issue a Construction Certificate until written confirmation has been received from Sydney Trains confirming that either there is no drainage to the Rail Corridor or an approval that an Agreement has been granted.*
- *The Applicant shall provide details of any intended encroachment into RailCorp's easement or RailCorp owned lands, for review and approval by Sydney Trains.*
- *No work is permitted within the rail corridor, or its easements, at any time unless prior approval or an Agreement has been entered into with Sydney Trains. Where the Applicant proposes to enter the rail corridor, the Principal Certifying Authority shall not issue a Construction Certificate until written confirmation has been received from Sydney Trains confirming that its approval has been granted.*
- *Prior to the commencement of works appropriate fencing is to be in place along the rail corridor to prevent unauthorised access to the rail corridor during construction. Details of the type of fencing and the method of erection are to be to the satisfaction of Sydney Trains prior to the fencing work being undertaken.*

- *The development shall have appropriate fencing fit for the future usage of the development site to prevent unauthorised access to the rail corridor by future occupants of the development. Prior to the issuing of an Occupation Certificate the Applicant shall liaise with Sydney Trains regarding the adequacy of any existing fencing along the rail corridor boundary. Details of the type of new fencing to be installed and the method of erection are to be to the satisfaction of Sydney Trains prior to the fencing work being undertaken.*
- *Sydney Trains advises they have a 33kV H/V aerial transmission line near to this site and any works, scaffolding and crane movements within 6 metres of the nearest transmission line conductor must be discussed and approved by Sydney Trains beforehand.*
- *In addition, all works within 6 metres of the nearest transmission line conductor must comply with:*
 - *ISSC 20 – Guideline for the Management of Activities within Electricity Easements and Close to Electricity Infrastructure.*
 - *The Safe Approach Distances (SADs) in the Sydney Trains Document titled “SMS-06-GD-0268 – Working Around Electrical Equipment”.*
- *If required, prior to the issue of a Construction Certificate the Applicant is to contact Sydney Trains Engineering Management Interfaces to determine the need for public liability insurance cover. If insurance cover is deemed necessary this insurance be for sum as determined by Sydney Trains and shall not contain any exclusion in relation to works on or near the rail corridor, rail infrastructure. The Applicant is to contact Sydney Trains Engineering Management Interfaces to obtain the level of insurance required for this particular proposal. Prior to issuing the Construction Certificate the Principal Certifying Authority must witness written proof of this insurance in conjunction with Sydney Trains written advice to the Applicant on the level of insurance required.*
- *If required, prior to the issue of a Construction Certificate the Applicant is to contact Sydney Trains Engineering Management Interfaces to determine the need for the lodgement of a Bond or Bank Guarantee for the duration of the works. The Bond/Bank Guarantee shall be for the sum determined by Sydney Trains. Prior to issuing the Construction Certificate the Principal Certifying Authority must witness written advice from Sydney Trains confirming the lodgement of this Bond/Bank Guarantee.*
- *Prior to the issuing of an Occupation Certificate the Applicant is to submit as-built drawings to Sydney Trains and Council. The as-built drawings are to be endorsed by a Registered Surveyor confirming that there has been no encroachment into Sydney Trains property or easements, unless agreed to be these authorities. The Principal Certifying Authority is not to issue the final Occupation Certificate until written confirmation has been received from Sydney Trains confirming that this condition has been satisfied.*

—o0o—

Attachment 3 – Vegetation Management Plan (VMP) subject site

Vegetation Management Plan
4 Lindsay Evans Place, Dapto



Figure 1.1: The study area, BDAR subject land and VMP subject site.

The diagram illustrates the layout of the test track, showing six segments of 5m each, labeled 0-10, 15-20, 25-30, 35-40, 45-50, and 55-60 m.

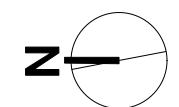
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PLANT SCHEDULE
{TYPICAL LAYOUT FOR THE ILU}

ID	Botanical Name	Common Name	Quantity
Bk My	Baccharisia myrtifolia	Grey Myrtle, Lancewood	4
CA	Cupaniopsis anacardioides	Tuckeroo	6
Cdb	Correa "Dusky Bells"	Correa "Dusky Bells"	12
DLJ	Dianella caerulea "Little Jess"	Dianella Little Jess	497
DtTR	Dianella tasmanica "Tas Red"	Dianella Tas Red	257
Euem	Elaeocarpus eumundi	Smoothed leaved Quandong	3
ERe	Elaeocarpus reticulatus	Blueberry Ash	8
ErMy	Eriostemon myoporoides (syn Philotheca	Long-Leaf Wax flower	62
Euc mo	Eucalyptus moorei	Little Sally	2
EuEl	Eucalyptus elata	River Peppermint	2
EuTe	Eucalyptus tereticornis	Forest Red Gum, Burringoa	3
FiRu	Ficus rubiginosa	Port Jackson Fig, Rusty Fig	2
GR	Grevillea rosmarinifolia	Rosemary Grevillea	93
HSc	Hibbertia scandens	Golden Guinea Flower, Snake Vine	19
HV	Hardenbergia violacea "Mini-Ha-Ha"	Mini-Ha-Ha Hardenbergia	157
JUs	Juncus usitatus	Rush	133
LcCJ	Lomandra confertifolia "Crackerjack"	Mat-rush	64
Lomt	Lomandra "Tiiga"	mat rush	342
LTAN	Lomandra tanika—	---	196
MPar	Myoporum parvifolium	Carpet Spreading Myoporum	32
RCo	Correa glabra	Rock Correa	48
RhIn	Rhaphiolepis indica	Indian Hawthorn	18
RI	Rapheolepis indica 'Oriental Pearl'	Dwarf White Indian Hawthorn	41
SC	Scapellato calandulacea	Scented Fan Flower	13
WBrev	Westringia brevifolia	Westringia	40
			0

LEGEND

-  **GARDEN BEDS
SHRUBS AND GROUND COVERS**
-  **LAWN AREAS**
-  **ARTIFICIAL GRASS ON PODIUM
TO WESTERN COURTYARD**
-  **600MM DEPTH PLANTERS
ON PODIUM**



PROJECT

Landscape DA Updated Package

ANGLICARE ST LUKES
DAPTO NSW

RAC Planting Plan



LANDSCAPE ARCHITECTS
Southern Highlands Office:
School of Arts
471 Argyle Street Moss Vale NSW
Postal: PO Box 323 Moss Vale NSW 2577
Telephone: 02 4869 4240
Mobile: 0417278267
ABN: 25001055205

Sydney Meeting Centre:
Union University and Schools Club
25 Bent Street Sydney
contact@nicholasbray.net.au
www.nicholasbray.net.au

Paper size **A1**

L2-L



- LEGEND**
- GRAVEL MULCHED GARDEN BEDS
SHRUBS AND GROUND COVERS
 - LAWN AREAS
 - RETAINER WALLS
 - TILES TO PRIVATE COURTYARDS.
WITH GRATED DRAIN AGAINST DOOR OPENINGS
 - GRAVEL PATHWAYS
 - TREES TO BE RETAINED
 - TREES TO BE REMOVED
 - BUSH FIRE ZONE
 - NEW TREES



PROJECT
Landscape DA Updated Package

ADDRESS
**ANGLICARE ST LUKES
DAPTO NSW**

DRAWING
Landscape Layout ILU



LANDSCAPE ARCHITECTS
Southern Highlands Office
School of Arts
471 Argyle Street Moss Vale NSW
Postal: PO Box 323 Moss Vale NSW 2577
Telephone: 02 4869 4240
Mobile: 0417278267
ABN: 2001055205

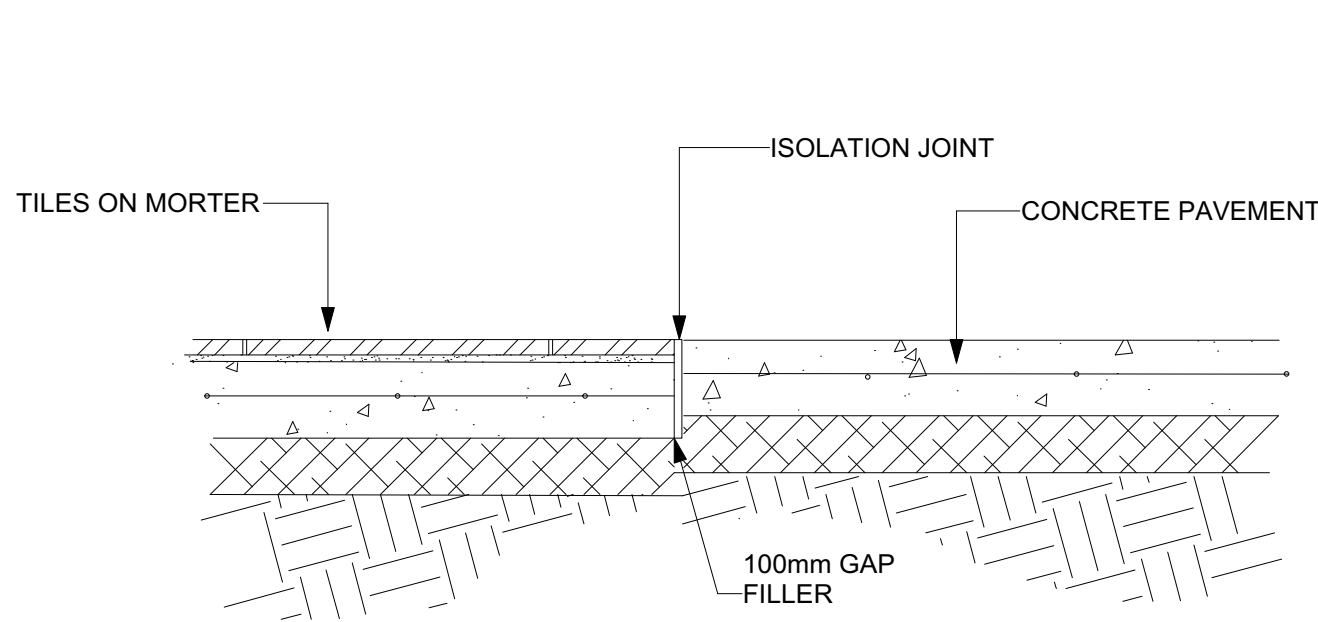
Sydney Meeting Centre:
Union University and Schools Club
25 Bent Street Sydney
contact@nicholasbray.net.au
www.nicholasbray.net.au

DWG DATE: **28.05.19** CAD FILE NAME: **NBL_201711Dapto**

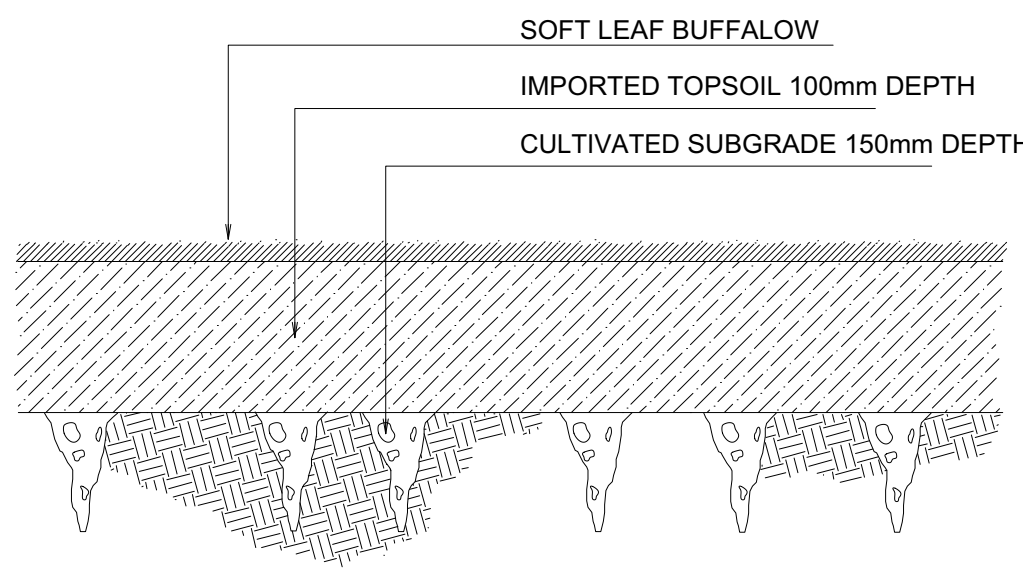
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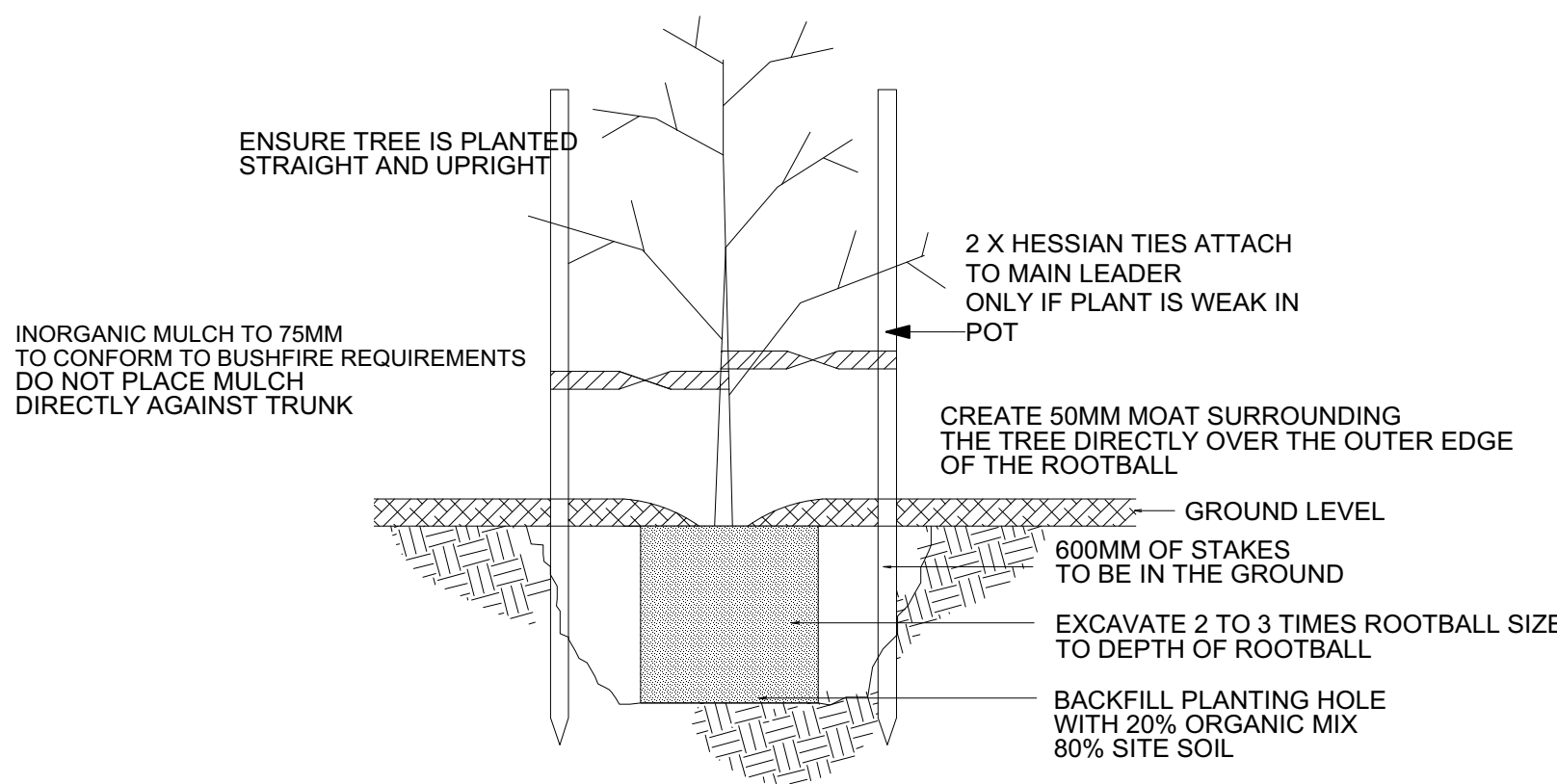
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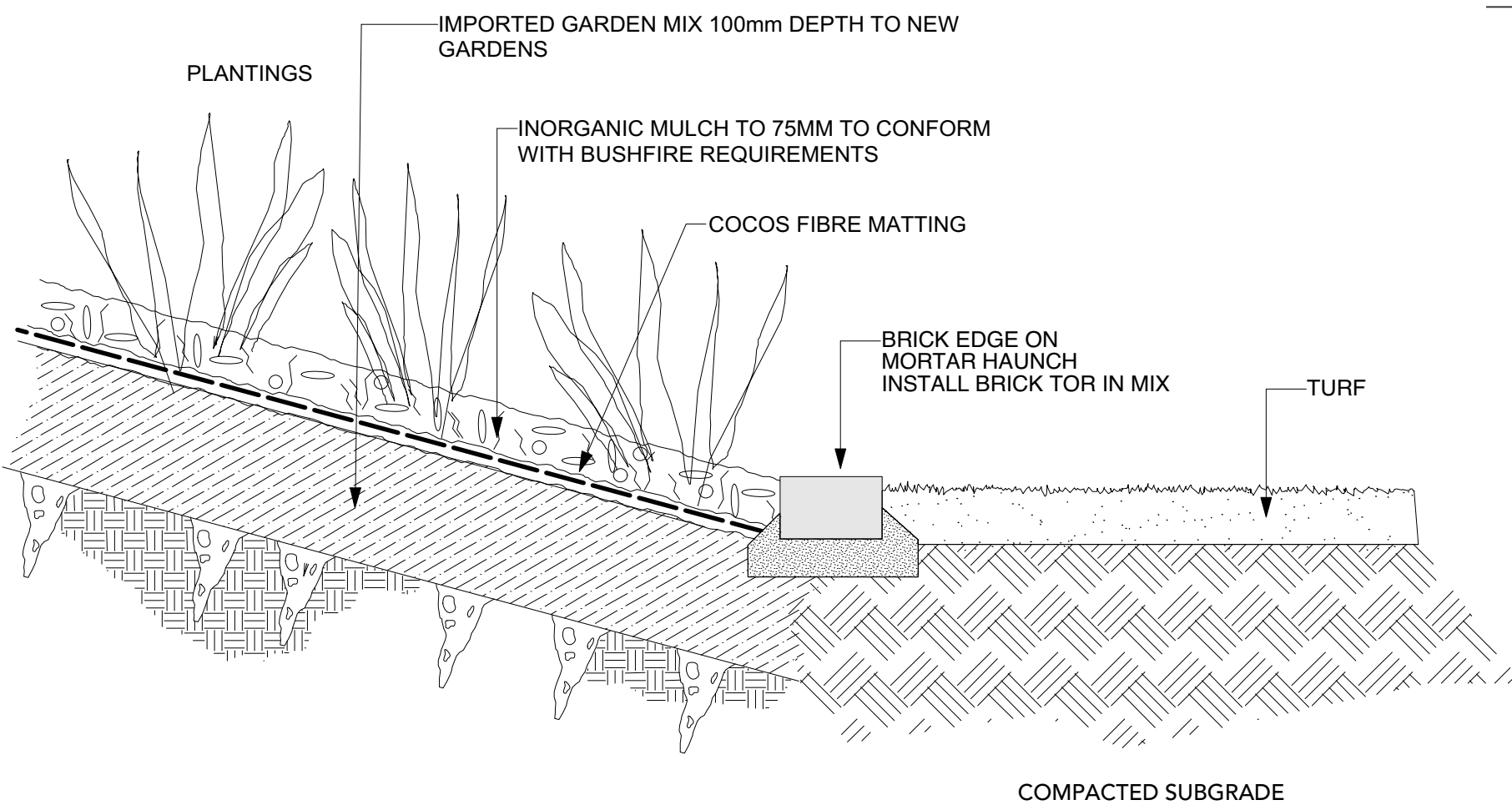
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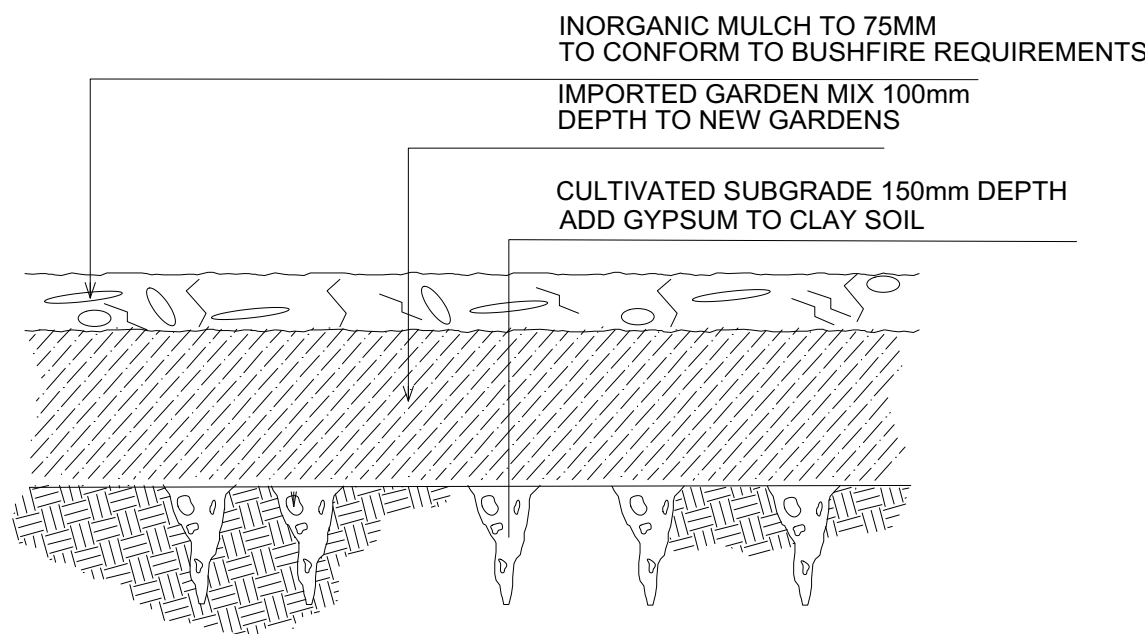
TURF
SCALE 1:10



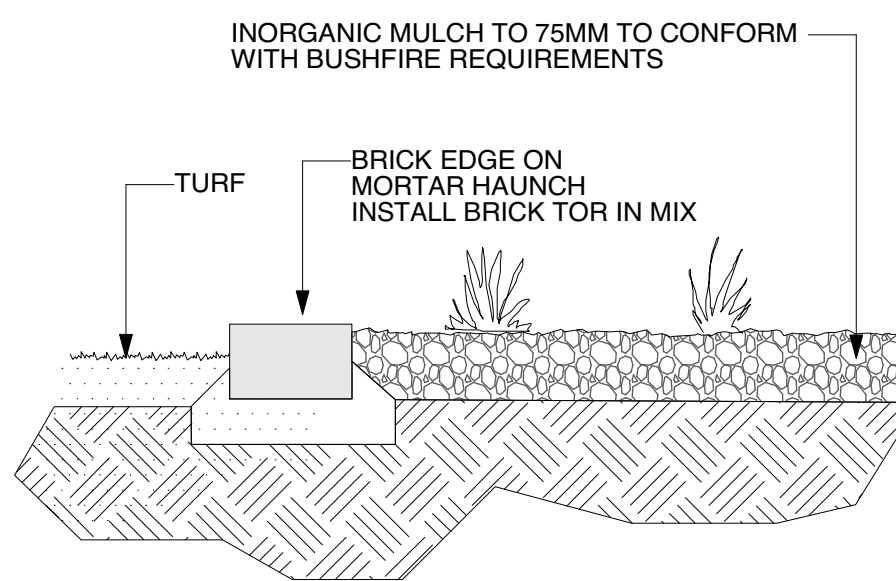
TREE PLANTING



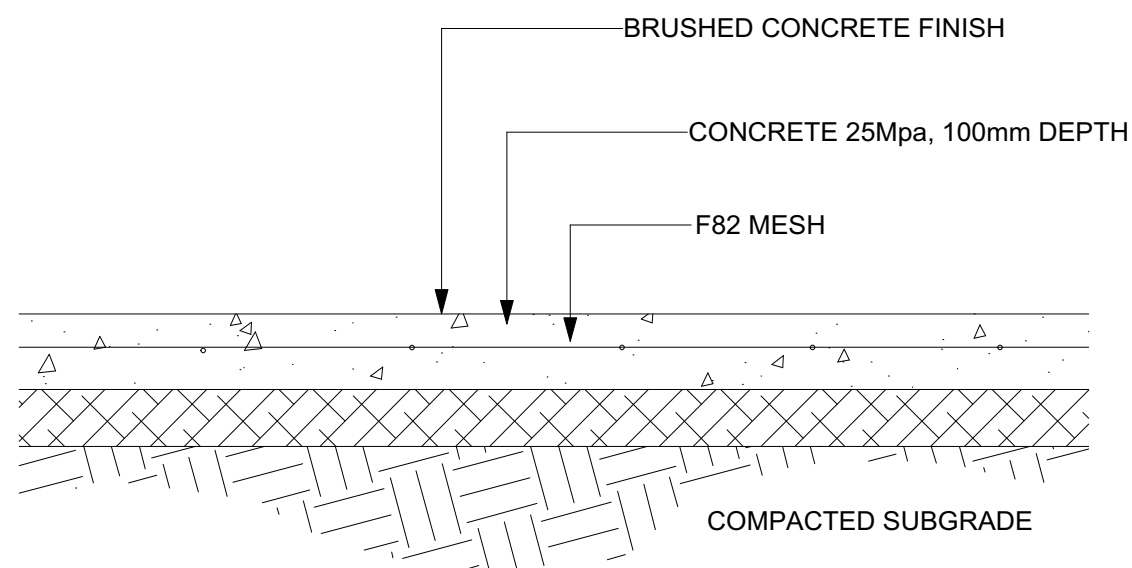
GARDEN BRICK EDGE FOR
SLOPES THAT EXCEED 1:3



GARDEN BEDS ON GRADE
SCALE 1:10



BRICK EDGING GARDEN BED TO TURF



CONCRETE PATHWAY

Specifications

Mulched Planting Bed	Refer plans	50mm inorganic mulch to satisfy bushfire requirements.300mm imported topsoil to AS 4419 (35% coarse sand 25% black soil, 40% composted organic matter), ripped into subsoil. Mass planting as specified, refer to planting plans.
Tree in mulch planting	Refer plans	50mm inorganic mulch to satisfy bushfire requirements.300mm imported topsoil to AS 4419 (35% coarse sand 25% black soil, 40% composted organic matter), ripped into subsoil
Concrete paving Type 1	Refer plans	General: Concrete Pavement as per Council's standards. Contractor to ensure slip rating of P4 or R11 in accordance with NCC/BCA D2.13 & D2.14. Colours: (Light Grey) CSS Pewter 6% by Concrete Colour System similar or approved product. Sealing: As per manufacturers recommendations
Driveway concrete paving Type 2	Refer plans	General: Concrete Pavement as per Council's standards. Contractor to ensure slip rating of P4 or R11 in accordance with NCC/BCA D2.13 & D2.14. tested in accordance with AS4586 Colours: Natural Grey to match existing Sealing: Council's specification
Concrete paving Type 3	Courtyard & Pedestrian Entry area	General: Coloured oxide Concrete Pavement as per Council's standards. Contractor to ensure slip rating of P4 or R11 in accordance with NCC/BCA D2.13 & D2.14. tested in accordance with AS4586 Colours: TBC Sealing: Council's specification
Paving Type 4 Paver	Private Courtyard	General:Eurostone Paver Colour: Prague L: 400mm x D: 400mm x H: 40mm Screed to fall over concrete slab

Irrigation

Contractor's Requirements.
The contractor is to provide a design and lump sum cost to install an approved irrigation system which meets the requirements the Australian Standards and this specification, to the turf areas, and garden beds. All work is to be carried out to the generally accepted urban irrigation industry/Vi standard and, as a minimum, is to meet the requirements of AS 3500 and AS 3500.1.

Connection to Water Supply

A water connection point is to be provided for the irrigation system. A back flow prevention valve meeting the requirements of AS3500, AS 3500.1 shall be fitted at the water connection point.

Irrigation types.

Turf areas- No fixed sprinklers
Garden beds - drip irrigation

A Minimum of 230KPA water pressure will be required at the source of the irrigation system.
Unless KPA exceeds 350KPA a variable frequency drive booster pump for lifting supply mains pressure to 450KPA will be required. .
Irrigation schedule will be 6 hours to apply 4mm per night to the irrigated areas.
4 Litres a second will be required to deliver this water within the 6 hour period.

Specifications

- * Hunter ACC Decoder System with 100 Stations per 2 wire cable run
- * Hunter Solar Sinc Rain Sensor with ET Adjustment
- * RPZ Backflow device with Primary Filtration to 120 micro
- * Filtration will be required at each incoming water valve to ensure preventative maintenance.
- * Drip irrigation to garden beds :
 - Toro rootguard at 0.3m spacing at 2 litres per hour
- * Tree Planting
 - Toro rootguard at 0.3m spacing in 0.6 metre diameter ring around each tree
- * The central main line piping :
 - 75mm pipes for the start of the line
 - 63mm pipes for branching into garden beds and turf zones
- * Sub-lines running off mainline will be 20-40mm pipes

Sydney Water Metre Requirements

Master meter to be installed at property boundary.
Non return valve at Master Metre.

Sydney Water bill splitting must to be provided to the property owners (Anglicare), including the water consumption for the ILU's.
Anglicare is then responsible for passing on the water consumption associated with the ILU's to each occupier.

No additional meters to be provided to common areas. All communal landscape zones to be run off one metre.

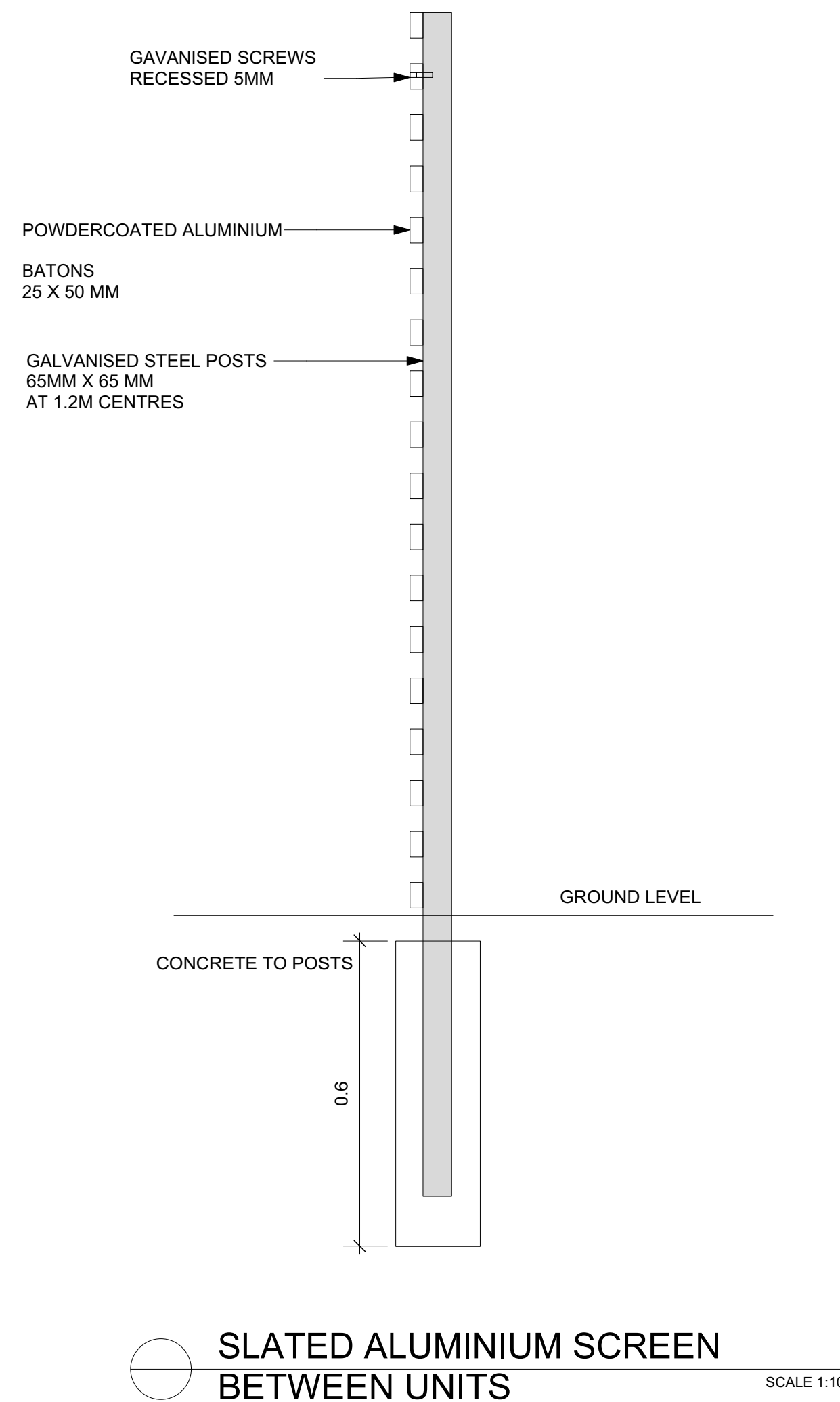


Landscape DA Updated Package

ANGLICARE ST LUKES DAPTO NSW

Construction Details

 Nicholas Bray Landscapes	LANDSCAPE ARCHITECTS Southern Highlands Office: School of Arts 471 Angles Street Moss Vale NSW Postal: PO Box 323 Moss Vale NSW 2577 Telephone: 02 4869 4240 Mobile: 041776307 ABN: 25001055205 Sydney Meeting Centre: Union University and Schools Club 25 Bent Street Sydney contact@nicholasbray.net.au www.nicholasbray.net.au
 Australian Institute of Landscape Architects	
ISSUE DATE	28.05.19
DATE AND REVISION	NBL_201711Dapto



Specifications			
Fence Type 2		Refer plans	1800mm high treated pine fence. 125 x 125 x 2400mm treated pine post set into concrete. 100 x 19 x 1732mm treated pine timber palings fixed to rails. 100 x 38mm treated pine capping fixed to posts and top rail. top sloped to shed water. 150 x 25 timber plinth to base of fence (kick board).
Fence Type 1		Refer plans	1800mm high aluminium picket top fence. 50 x 50 aluminium post in ground post. 200x 500-600mm post hole filled with Post Mix Concrete at 2400mm cntrs refer to manufacturers detail. 38 x 25 top and bottom horizontal fence bracket (150mm offset from top bracket), 16mm CHS vertical tubes at 100mm cntrs. Powder coated in black
Fence Type 3		Refer plans	1020mm high TB2 – Aluminium Vertical Slat Balustrade. 65 x 16mm x 1.4mm Aluminium Slat Std 65mm Slat Spacings - Max 125mm Spacings Allowed Intermediate Posts 40 x 40 x 3mm Intermediate Posts set at Maximum 1500mm apart Flanged Intermediate Posts 110 x 50 x 9mm Base Plate

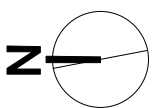


DETAILED AREA AROUND THE PROPOSED
RAC - SCALE 1:300



- LEGEND
- Trees to be removed
 - Trees to be retained
 - Tree Protection Zone

0 5 10 15 20 25 30 35 40 45 50 M



PROPOSAL	Tree	Species
RETAIN	101	Melaleuca decora
REMOVE	102	Melaleuca decora
REMOVE	103	Melaleuca decora
REMOVE	104	Melaleuca decora
REMOVE	105	Corymbia maculata
REMOVE	106	Corymbia maculata
REMOVE	107	Robinia pseudacacia
REMOVE	108	Robinia pseudacacia
REMOVE	109	Syagrus romanzoffiana
REMOVE	110	Syagrus romanzoffiana
REMOVE	204	Melaleuca decora
REMOVE	241	Casuarina glauca
REMOVE	242	Melaleuca decora
REMOVE	243	Melaleuca decora
REMOVE	246	Melaleuca decora
REMOVE	247	Melaleuca decora
RETAIN	248	Melaleuca decora
RETAIN	249	Melaleuca decora
REMOVE	250	Melaleuca decora
RETAIN	345	Casuarina glauca
RETAIN	351	Forest red gum (Eucalyptus tereticornis)
RETAIN	352	Melaleuca styphelioides
RETAIN	354	Forest red gum (Eucalyptus tereticornis)
RETAIN	355	Melaleuca decora
REMOVE	356	River she oak (Casuarina cunninghamiana)
REMOVE	357	River she oak (Casuarina cunninghamiana)
RETAIN	358	River she oak (Casuarina cunninghamiana)
REMOVE	359	Melaleuca styphelioides
RETAIN	361	Sydney blue gum (Eucalyptus saligna)
RETAIN	362	Swamp mahogany (Eucalyptus robusta)
RETAIN	363	Melaleuca decora
RETAIN	364	River she oak (Casuarina cunninghamiana)
RETAIN	365	Forest red gum (Eucalyptus tereticornis)
RETAIN	369	Casuarina glauca

RETAIN	371	Tallowood (Eucalyptus microcorys)
RETAIN	372	Swamp mahogany (Eucalyptus robusta)
RETAIN	373	Casuarina cunninghamiana
RETAIN	374	Casuarina cunninghamiana
RETAIN	375	Casuarina cunninghamiana
REMOVE	376	Melaleuca decora
REMOVE	377	Melaleuca styphelioides
REMOVE	378	Casuarina glauca
REMOVE	379	Casuarina glauca
REMOVE	380	Melaleuca decora
RETAIN	381	Cocos palm (Syagrus romanzoffiana)
RETAIN	385	Melaleuca styphelioides
REMOVE	386	Lophostemon confertus
REMOVE	387	Lophostemon confertus
REMOVE	388	Casuarina glauca
REMOVE	389	Melaleuca decora
REMOVE	391	Melia azadirach
REMOVE	393	Melaleuca styphelioides
REMOVE	395	Casuarina cunninghamiana
REMOVE	396	Casuarina glauca
REMOVE	397	Casuarina glauca
REMOVE	398	Melaleuca decora
REMOVE	400	Melaleuca styphelioides
REMOVE	401	Ulmus parvifolia
REMOVE	402	Melaleuca decora
REMOVE	403	Citrus aurantium
REMOVE	404	Melaleuca decora
RETAIN	405	Casuarina glauca
REMOVE	406	Melaleuca decora
REMOVE	407	Cupressus sempervirens
REMOVE	408	Melaleuca decora
REMOVE	409	Melaleuca decora
REMOVE	412	Melaleuca decora
REMOVE	413	Yucca gloriosa
REMOVE	414	Jacaranda mimosifolia

Information gathered from Moore Trees Consulting Arborists
16 May 2019 (Updated 28th May 2019)



PROJECT
Landscape DA Updated Package

ANGLICARE ST LUKES
DAPTO NSW

Trees Retain and Remove RAC



Nicholas Bray
Landscapes

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DATE
28.05.19

CAD FILE NAME
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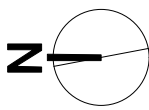
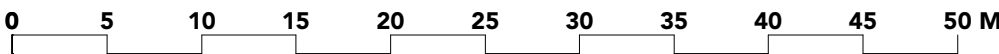
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DETAILED AREA AROUND THE PROPOSED
ILU - SCALE 1:300



LEGEND
 Trees to be retained



PROJECT
Landscape DA Updated Package

ADDRESS
ANGLICARE ST LUKES
DAPTO NSW

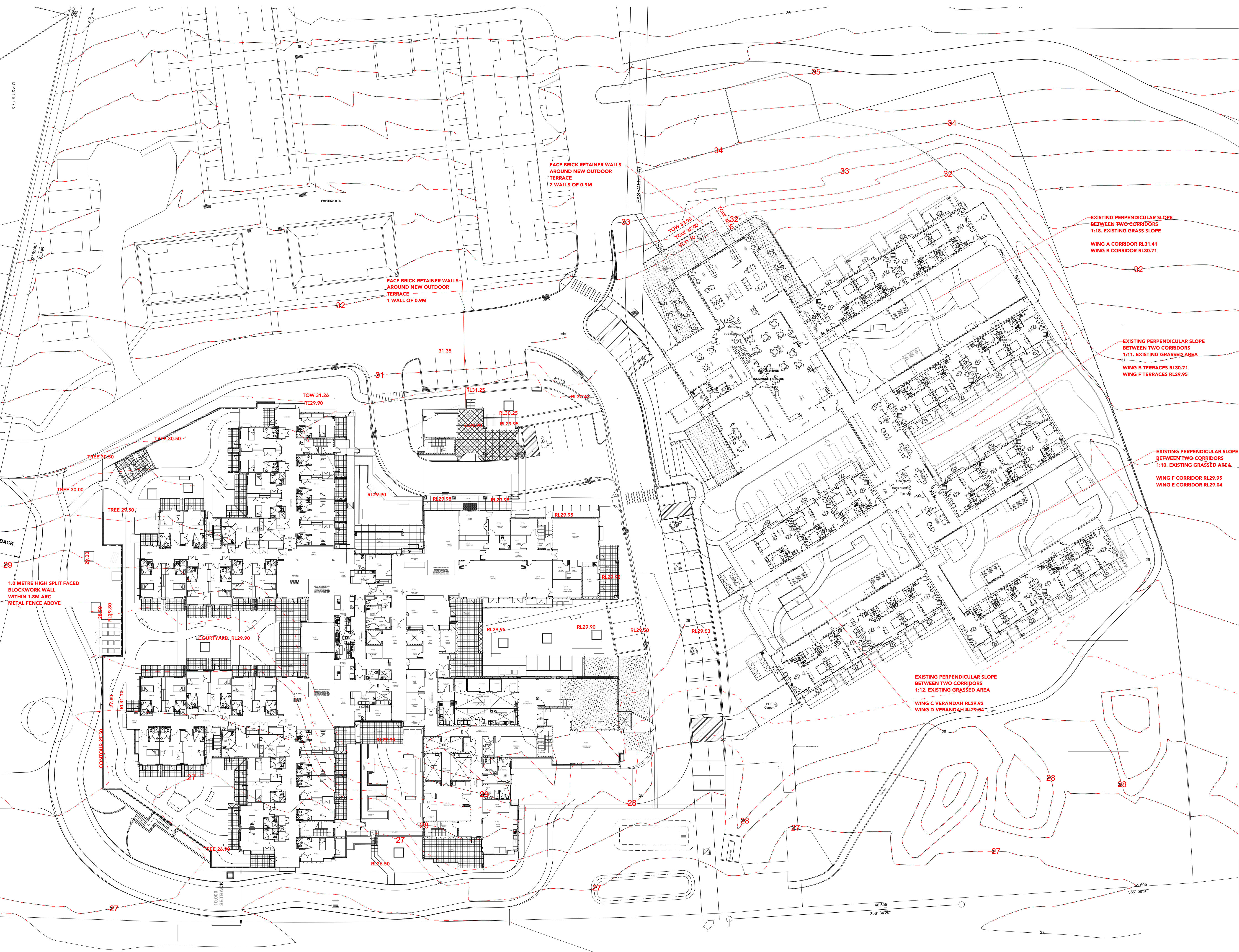
DRAWING
Trees Retain and Remove ILU

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DATE
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DRAWING NAME
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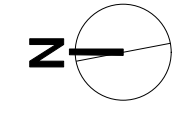
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DP181775

LEGEND

- EXISTING CONTOURS
- TREES REMOVE
- REVISED LEVELS



PROJECT
Landscape DA Updated Package

ADDRESS
**ANGLICARE ST LUKES
DAPTO NSW**

DRAWING
Overall Site levels

**Nicholas Bray
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DATE
28.05.19

CAD FILE NAME
NBL_201711Dapto

DATE AND REVISION



MOORE TREES

Consulting Arborist

16 May 2019 (Updated 28th May 2019)

Anglicare
c/o RJA Projects
P O Box 3051
North Turrumurra NSW 2074
FAO: Richard Abbott

Site: Anglicare, St Lukes - 4 Lindsay Evans Place, Dapto NSW 2530

This Report has been commissioned by RJA Projects on behalf of Anglicare. The Report concerns a number of trees impacted by the proposed works at the aforementioned site.



1. Introduction: This report has been requested due to design variations that are proposed to increase the number of trees to be retained for this project. Sixty nine (69) trees have been assessed for this report. An initial Arboricultural Report was undertaken by Hugh Taylor for Asplundh dated 11.10.2017. Tree numbering within this report does not cover the trees assessed for this report. The numbering of the trees within my report are based on the actual tree numbered tags present at the time of inspection. The subject trees assessed for this report are numbered as 101, 102-110, 204, 241-243, 246, 247, 248, 249, 250, 345, 351, 352, 354, 355, 356, 357, 358, 359, 361-365, 369, 371-380, 381, 385-389, 391, 393, 395-398, 400-412.

Additional numbered trees are shown on the plan within this report for reference. The subject trees are located at Anglicare St Lukes Village, Dapto (Diagram 1).

Recommendations have been made for the trees based on the project requirements and the current condition of the tree, taking into consideration surrounding trees and the project impacts.

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PO Box 3114 Austinmer NSW 2515

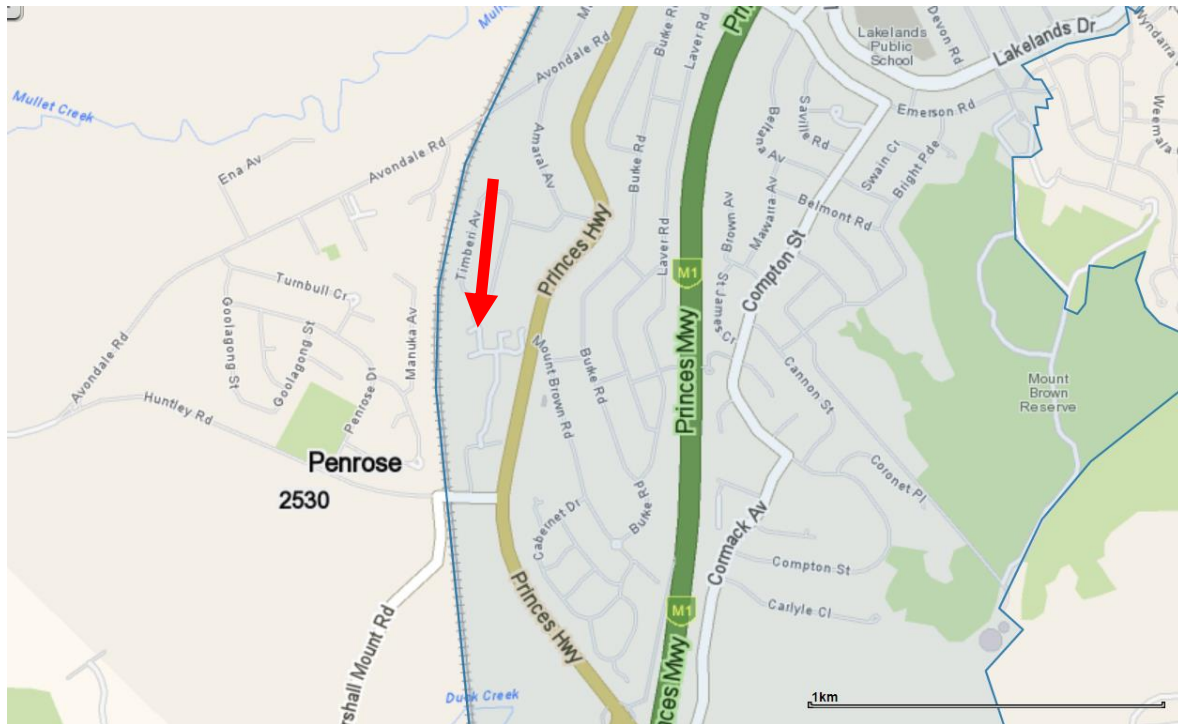


Diagram 1: Image showing the site location. (Where is 2019)

2. Methodology: A Visual Tree Assessment (VTA) was performed on these trees on 19th November 2018 by Paul Vezgoff. The VTA consists of a detailed inspection of the subject trees from ground level to the upper canopy. This method of tree evaluation is adapted from Matheny and Clark, 1994 and is recognised by The International Society of Arboriculture, Arboriculture Australia and The Institute Australian of Consulting Arborists (IACA). It is also known as a Level 1: Limited Visual Assessment Process as per the International Society of Arboriculture best management practices titled '*Tree Risk Assessment*'. All inspections were undertaken from the ground. No diagnostic devices were used on these trees

3. Height: The heights and distances within this report have been measured with a Bosch DLE 50 laser measure.

4. Tree Protection Zones (TPZ): The TPZ is the principal means of protecting trees on development sites. The TPZ is a combination of the root area and crown area requiring protection. It is an area isolated from construction disturbance, so that the tree remains viable. TPZ's have been calculated for each tree to determine construction impacts. The TPZ calculation is based on the Australian Standard *Protection of trees on development sites*, AS 4970, 2009. The Tree Protection Zones are shown in the Tree Protection Plan (Appendix 1, Plan 1).

5. Structural Root Zone (SRZ): The SRZ is a specified distance measured from the trunk that is set aside for the protection of tree roots, both structural and fibrous. The woody root growth and soil cohesion in this area are necessary to hold the tree upright. The TPZ and SRZ are measured as a radial measurement from the trunk. No roots should be severed within this area. A detailed methodology on the TPZ and SRZ calculations can be found in Appendix 4.

6. Safe Useful Life Expectancy (SULE): The subject trees were assessed for a Safe Useful Life Expectancy (SULE). The SULE rating for each tree can be seen the Tree Assessment Schedule (Appendix 1). A detailed explanation of SULE can be found in Appendix 3.

7. Impact Assessment: An impact assessment was conducted on the site trees. This was conducted by assessing the proposed site plan provided by Merrin & Cranston marked project A220 SD.S.107 dated 23/11/18. The plans provided were assessed for the following:

- Reduced Level (R.L.) at base of tree.
- Incursions into the Tree Protection Zone (TPZ).
- Assessment of the likely impact of the works.

8. Observations - The Subject Trees: To record the health and condition of the trees, a Visual Tree Assessment (VTA) was undertaken on the subject trees on 19th November 2018. The assessment of sixty nine (69) trees has occurred due to design variations that are proposed to increase the number of trees to be retained for this project. The subject trees assessed for this report are numbered as 101, 102-110, 204, 241-243, 246, 247, 248, 249, 250, 345, 351, 352, 354, 355, 356, 357, 358, 359, 361-365, 369, 371-380, 381, 385-389, 391, 393, 395-398, 400-412.

Several trees have incursions to the TPZ areas. Provided the following recommendations in this report are implemented, it should be possible to retain these trees, with minor impacts to their health and condition.

Table 1

Tree No.	Anticipated Impacts	Image
351, 352, 354, 355, 356	Between Trees 352 and 354 (Red line) a distance of 4.8 metres is currently used. This existing trail could be used for the fire trail.	
Trees 356-359.	If Tree 359 (Blue arrow) could be removed this would provide a distance of 5.2 metres (Red line) for the fire trail to thread between these trees.	

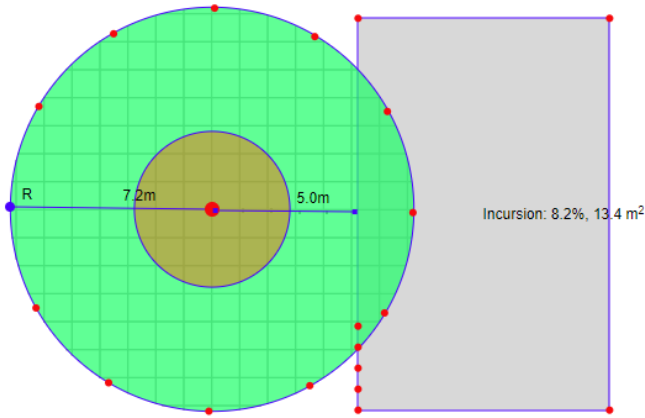
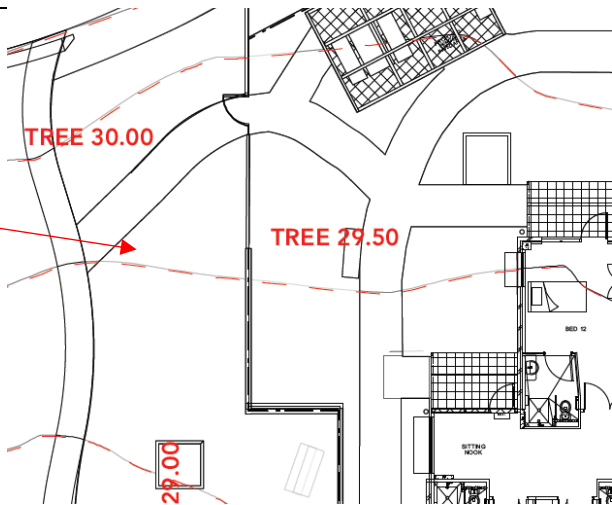
Tree No.	Anticipated Impacts	Image
Tree 359	Image showing the base of Tree 359 (Blue arrow) showing the stem wound.	
Tree 248	Existing concrete foot paths can be removed with care. New footpaths can be installed with minimal impacts. Minor incursions from new retaining wall (See Table 2).	
Tree 249	Tree 249 has a low retaining wall near it however this is to enable the gradient to increase to the west. It will be important that soil does not build up around the trunk due to the level changes required. Existing concrete foot paths can be removed with care. New footpaths can be installed with minimal impacts.	

Tree No.	Anticipated Impacts	Image
Tree 101	Tree 101 requires no level changes within the TPZ area. Existing concrete foot paths can be removed with care. New footpaths can be installed with minimal impacts. No subsurface drains shall breach the TPZ of this tree, being six (6) metres. See Table 2 for impacts.	
Tree 102	Tree 102 is required to be removed due to the incursions to the TPZ to the west of this tree.	
	Image showing the hard surfaces below Tree 102.	

Tree No.	Anticipated Impacts	Image
Tree 361 and 362	The smaller Tree 362 will be retained.	
Tree 385	Tree 385 that has been nominated for removal in the previous Report by Asplundh. It is possible to retain this tree with the current designs. It is not structurally dangerous or in poor health.	
Tree 385	Stem wound on Tree 385	

Tree No.	Anticipated Impacts	Image
Tree 381	This species is considered a weed species of palm however this group is currently proposed to be retained.	

Table 2: Impacts to TPZ incursion assessment of Trees 101, 248, 249 and 355

Tree #	TPZ SRZ	Issue	% breach of TPZ	Recommendations
101	TPZ: 7.2m SRZ: 2.8m	Incursion of 8.2% of TPZ due to structure.	 Incursion: 8.2%, 13.4 m²	Incursion less than 10% So considered minimal Based on AS 4970
248	TPZ: 7.2m SRZ: 2.8m	Incursion of TPZ due to level changes. Tree 248 has RL of 29.50. Retaining wall near this tree tapers to ground level.		RL at base of tree 248 almost at level of the nearest courtyard. Provided soil/fill is not mounded against the trunk the tree will tolerate this level increase within the TPZ. Fill over the TPZ to be free draining and not compacted.

249	TPZ: 8.4m SRZ: 2.9m	Incursion of TPZ due to level changes. Tree 249 has RL of 29. Retaining wall near this tree will be block work. Incursion of 19.7% to TPZ due to wall footing.		Footings across the TPZ of Tree 249 to be pier and beam construction. Beam to be ABOVE grade. No soil level changes at base of Tree 249.
355	TPZ: 6m SRZ: 2.6m	Total incursion of TPZ is 25.7%. This is a large incursion however landscaping at the base of the tree by way of lawn removal and providing a mulched garden area with regular watering will help the tree cope with these construction impacts. The blue incursion is a paved courtyard so excavations will be minimal in this area of the TPZ.		Area to be mulched as part of the tree protection zone. Regular watering to occur once construction commences.

9. Recommendations:

Based on the proposed designs trees numbered as 102-110, 204, 241-243, 246, 247, 250, 356, 357, 359, 376-380, 386-389, 391, 393, 396-398, 400-404, 406-412 are proposed to be removed for the purpose of the project.

Trees that appear possible to retain are numbered as 101, 248, 249, 345, 351, 352, 354, 355, 358, 361-365, 369, 371-375, 381, 385, 395 and 405.

Removal of hard surfaces below Tree 101 shall be undertaken with a flat bucket excavator, with surfaces removed pulling away from the trees. A spotter should be used to ensure that the bucket attachment does not contact the main stem and damage the trunks. Tree 101 has a stormwater pipe located within the respective TPZ distance. It is recommended that this pipe be left in place, if possible. In terms of design there should be no level increases within the TPZ distances of this tree that require strip footings. A retaining wall could be built across the TPZ of Tree 101, provided the existing grade could be bridged via the use of pier and beam type construction.

Removal of hard surfaces below Trees 248, 249 shall be undertaken with a flat bucket excavator, with surfaces removed pulling away from the trees. A spotter should be used to ensure that the bucket attachment does not contact the main stem and damage the trunks. The proposed retaining wall near Tree 248 will increase soil levels up to one (1) metre around this tree. Ideally a retaining wall could be installed so as to keep the trunk clear of soil. This type of design should not be closer than two (2) metres to the main stem. Strip footings to be avoided vis the use of pier and beam type construction with the beam above grade.



Plate 1: Image showing a design concept that allows an increase in levels over the TPZ.

The proposed new fire trail running along the western side of the proposed development will impact Trees 354, 355, 357-359, 362, 365. If Tree 359 could be removed, this would allow a distance of 5.2 metres between Tree 358 and the side boundary fence to allow the fire trail to weave through these trees. It is possible the existing distance may be acceptable. This would ensure that Trees 356, 357 and 358 can be retained. Between Trees 352 and 354 is a distance of 4.8 metres and it should be possible to keep these two trees and weave the fire trail between these two trees.

Tree group 381 are a group of five (5) Cocos palms planted around a substation. Potentially these trees could be relocated however they are listed as a weed species and could be replaced with an indigenous species of palm such as Bangalow or Cabbage tree palm. At present they are proposed to be retained.

Tree 248: RL at base of tree 248 almost at level of the nearest courtyard. Provided soil/fill is not mounded against the trunk the tree will tolerate this level increase within the TPZ. Fill over the TPZ to be free draining and not compacted.

Tree 249: Footing across the TPZ of Tree 249 to be pier and beam construction. Beam to be ABOVE grade. No soil level changes at base of Tree 249.

Tree 355: Area to be mulched as part of the tree protection zone. Regular watering to occur once construction commences. Mulch to extend to the fencing area.

Prior to the commencing of demolition and construction all trees are to be tagged with numbered tags so that these numbers correspond with the trees numbered on the plans. This shall be undertaken by the project arborist.

10 TREE PROTECTION

- 10.1 Trees to be protected:** Trees to be retained will be required to be fenced for protection. All fencing shall be installed as specified in Section 5.5 (Tree Protection – Implementation of Tree Protection Zone). Indicative locations of the fencing are shown in the Tree Protection Plan (Appendix 1).
- 10.2 Implementation of Tree Protection Zone:** All tree protection works should be carried out before the start of demolition or building work. It is recommended that chain mesh fencing with a minimum height of 1.8 metres be erected as shown in the Tree Protection Plan (Appendix 1).
- 10.3 Individual trunk protection:** Trees 101, 248 and 249 will require trunk protection. This is achieved by attaching lengths of timber (75mm x 50mm x 2000mm) fastened around the trunk. Geotextile fabric or carpet underlay shall be wrapped around the trunk prior to the timbers being attached. These timbers are to be fastened with hoop iron strapping and not attached directly into the bark of the tree. These timbers are only to be removed when all construction is complete.
- 10.4 Instructional videos:** Alternatively, you can view the Moore Trees' short instructional films on the links below. These films are a quick onsite reference for builders, project managers and architects.

Film #1, Trunk Protection

<https://www.youtube.com/watch?v=ehcFre6bp74>

Film #2, Tree Protection Fencing

<https://www.youtube.com/watch?v=ffMabxLN9nU>

Film #3, TPZ Ground Protection

<https://www.youtube.com/watch?v=Se-VlLi-AGQ>

10.5 The Tree Protection Zone (TPZ) and Structural Root Zone (SRZ): The TPZ is implemented to ensure the protection of the trunk and branches of the subject tree. The TPZ is based on the Diameter at Breast Height (DBH) of the tree. The SRZ is also a radial measurement from the trunk used to protect and restrict damage to the roots of the tree.

The Tree Protection Zone (TPZ) and Structural Root Zone (SRZ) have been measured from the centre of the trunk. TPZ and SRZ distances are all listed in the Tree Schedule (Appendix 2). The following activities shall be avoided within the TPZ and SRZ of the trees to be retained;

- Erecting site sheds or portable toilets.
- Trenching, ripping or cultivation of soil (with the exception of approved foundations and underground services).
- Soil level changes or fill material (pier and beam or suspended slab construction are acceptable).
- Storage of building materials.
- Disposal of waste materials, solid or liquid.

10.6 Tree Damage: If the retained trees are damaged a qualified Arborist should be contacted as soon as possible. The Arborist will recommend remedial action so as to reduce any long term adverse effect on the tree's health.

10.7 Root Zone Protection: Ply sheeting or similar ground protection should be placed over the root zone areas shown in the Tree Protection Plan to reduce compaction over the root zone whilst works are occurring. It is likely that the existing fire trail will be used for construction purposes. Alternatively, where Council approves access across a TPZ mulch shall be placed on the access way for the duration of the construction period to a depth of three hundred and fifty (350) millimetres. This mulch is to help reduce soil compaction and retain moisture. Once construction is complete this mulch is to be reduced to a depth of no deeper than seventy five (75) millimetres or be replaced with the finish specified for the fire trail.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Paul Vezgoff'.

Paul Vezgoff
Consulting Arborist
Dip Arb (Dist), Arb III, Hort cert, AA, ISA

16th May 2019

Appendix 1

Tree Protection Plan



Tree protection plan

LEGEND

-  **Trees to be removed**
-  **Trees to be retained**
-  **Tree Protection Zone**

 **Ground Protection.** Ply sheeting or coarse gravel to be placed over the root zone to the extent of the drip line. Protection to remain until all construction works are completed.

 **Fence.** Implementation of tree protection zone (TPZ). All tree protection works should be carried out before the start of demolition or building works. It is recommended that chain mesh fencing with a minimum height of 1.8 metres be erected

 **Trunk protection.** Lengths of timber (75mm x 50mm x 2000) shall be fastened to the trunk or overhead branches that are greater than 80mm in diameter. These timbers are to be fastened with hoop iron strapping and not fixed directly onto the trunk of the tree.

 **Location of possible root pruning.** This area is to be excavated by hand to a depth of 400mm to expose any roots. If roots under 50mm are encountered they can be severed cleanly with a sharp saw. If roots over 50mm are encountered then a qualified arborist should be consulted for further advice.

Date: 12.05.19
 Drawn: P.Vezgoff
 Site Address: St Lukes Dapto RAC Project
 Dapto NSW

Appendix 2

Tree schedule

PROPOSAL	Tree	Species	Height (m)	Spread (m)	DBH (m)	Live canopy %	Defects	SULE	Condition	Age	Comments	TPZ (m)	SRZ (m)
RETAIN	101	Melaleuca decora	14	5	0.6	95	No visual defects	1a >40 years	Good	Mature	Remnant	7.2	2.8
REMOVE	102	Melaleuca decora	14	5	0.6	95	No visual defects	1a >40 years	Good	Mature	Remnant	7.2	2.8
REMOVE	103	Melaleuca decora	12	8	0.7	95	Included union deadwood 50-100mm	1a >40 years	Good	Mature		8.4	2.8
REMOVE	104	Melaleuca decora	12	8	0.7	95	Included union deadwood 50-100mm	1a >40 years	Good	Mature		8.4	2.8
REMOVE	105	Corymbia maculata	17	8	0.35	95	Deadwood <50mm	1a >40 years	Good	Mature		4.2	2.4
REMOVE	106	Corymbia maculata	17	8	0.35	95	Deadwood <50mm	1a >40 years	Good	Mature		4.2	2.4
REMOVE	107	Robinia pseudoacacia	3	2	0.35	95	Deadwood <50mm	Dead	Poor	Dead	Tree has been lopped	4.2	2.4
REMOVE	108	Robinia pseudoacacia	3	2	0.35	95	Deadwood <50mm	Dead	Poor	Dead	Tree has been lopped	4.2	2.4
REMOVE	109	Syagrus romanzoffiana	7	3	0.3	95	Undesirable species	Short	Fair	Mature	Trees been spiked	3.8	2.1
REMOVE	110	Syagrus romanzoffiana	7	3	0.3	95	Undesirable species	Short	Fair	Mature	Trees been spiked	3.8	2.1
REMOVE	204	Melaleuca decora	10	7	0.65	95	Included union deadwood 50-100mm	1a >40 years	Good	Mature		7.5	2
REMOVE	241	Casuarina glauca	13	6	0.5	95	Wounds	2a May only live for 15-40 years	Good	Mature	Small wounds within upper canopy	6	2.6
REMOVE	242	Melaleuca decora	10	7	0.5	95	Included union deadwood 50-100mm	1a >40 years	Good	Mature		8	2.8
REMOVE	243	Melaleuca decora	10	7	0.5	95	Included union deadwood 50-100mm	1a >40 years	Good	Mature		8	2.8
REMOVE	246	Melaleuca decora	10	6	0.65	95	Included union deadwood 50-100mm. Poor pruning	1a >40 years	Good	Mature		7.5	2.8
REMOVE	247	Melaleuca decora	10	6	0.65	95	Included union deadwood 50-100mm. Poor pruning	1a >40 years	Good	Mature		7.5	2.8
RETAIN	248	Melaleuca decora	14	4	0.6	95	No visual defects	1a >40 years	Good	Mature	Remnant	7.2	2.8

RETAIN	249	Melaleuca decora	16	4	0.7	95	No visual defects	1a >40 years	Good	Mature	Remnant	8.4	2.9
REMOVE	250	Melaleuca decora	12	6	0.8	95	Included union deadwood 50-100mm	1a >40 years	Good	Mature		9.6	2.7
RETAIN	345	Casuarina glauca	17	8	0.7	40	Deadwood >100mm. General dieback	Short	Fair	Semi-mature		2.4	1.8
RETAIN	351	Forest red gum (Eucalyptus tereticornis)	11	5	0.4	80	No visual defects	2a May only live for 15-40 years	Good	Mature		4.8	2.4
RETAIN	352	Melaleuca styphelioides	8	4.5	0.6	90	No visual defects	1a >40 years	Fair	Mature		7.2	2.8
RETAIN	354	Forest red gum (Eucalyptus tereticornis)	17	6	0.45	90	Dead wood <50mm	2a May only live for 15-40 years	Fair	Mature	4.8m to tree352	5.4	2.5
RETAIN	355	Melaleuca decora	11	4	0.5	95	No visual defects	1a >40 years	Good	Mature	Fill over TPZ. Could be removed	6	2.6
REMOVE	356	River she oak (Casuarina cunninghamiana)	12	4.5	0.35	90	No visual defects	1a >40 years	Fair	Mature		4.2	2.3
REMOVE	357	River she oak (Casuarina cunninghamiana)	12	4.5	0.35	90	No visual defects	1a >40 years	Fair	Mature		4.2	2.3
RETAIN	358	River she oak (Casuarina cunninghamiana)	12	4.5	0.25	90	No visual defects	1a >40 years	Fair	Mature		3	2.1
REMOVE	359	Melaleuca styphelioides	9	4	0.5	98	Stem wounds	1a >40 years	Good	Mature		6	2.6
RETAIN	361	Sydney blue gum (Eucalyptus saligna)	17	7	0.9	95	No visual defects	1a >40 years	Good	Mature		10.8	3.3
RETAIN	362	Swamp mahogany (Eucalyptus robusta)	13	4.5	0.3	90	No visual defects	2c removed for more suitable planting	Fair	Mature	Multi stemmed specimen	3.6	2.2
RETAIN	363	Melaleuca decora	8	3.7	0.5	95	No visual defects	1a >40 years	Good	Mature	Fill over TPZ. Could be removed	6	2.6
RETAIN	364	River she oak (Casuarina cunninghamiana)	7	2.5	0.25	95	No visual defects	1a >40 years	Fair	Mature		3	2.1
RETAIN	365	Forest red gum (Eucalyptus tereticornis)	17	7	0.45	80	Dead wood >50mm	2a May only live for 15-40 years	Fair	Mature	Borer damage at base. Mech damage	5.4	2.5
RETAIN	369	Casuarina glauca	5	2	0.15	90		2a May only live for 15-40 years	Good	Mature		2	1.2

RETAIN	371	Tallowood (Eucalyptus microcorys)	14	6	0.5	95	No visual defects	1a >40 years	Good	Mature		6	2.6
RETAIN	372	Swamp mahogany (Eucalyptus robusta)	13	4.5	0.45	90	No visual defects	2c removed for more suitable planting	Fair	Mature	Multi stemmed specimen	5.4	2.5
RETAIN	373	Casuarina cunninghamiana	5	2	0.1	90	No visual defects	2c removed for more suitable planting	Fair	Semi mature		2	1.2
RETAIN	374	Casuarina cunninghamiana	5	2	0.1	90	No visual defects	2c removed for more suitable planting	Fair	Semi mature		2	1.2
RETAIN	375	Casuarina cunninghamiana	5	2	0.1	90	No visual defects	2c removed for more suitable planting	Fair	Semi mature		2	1.2
REMOVE	376	Melaleuca decora	10	6	0.5	90	Included union deadwood 50-100mm	1a >40 years	Good	Mature		8	2.5
REMOVE	377	Melaleuca styphelioides	14	10	0.6	90	Included union wounds	1a >40 years	Good	Mature	Small wound on trunk	7.2	2.8
REMOVE	378	Casuarina glauca	16	8	0.55	90	Deadwood 50-100mm	1a >40 years	Good	Mature		8.8	2.8
REMOVE	379	Casuarina glauca	16	8	0.55	90	Deadwood 50-100mm	1a >40 years	Good	Mature		8.8	2.8
REMOVE	380	Melaleuca decora	10	6	0.5	90	Included union	1a >40 years	Good	Mature		8	2.8
RETAIN	381	Cocos palm (Syagrus romanzoffiana)	9	2.5	0.2	100	No visual defects	2c removed for more suitable planting	Good	Mature	Group of 5 around substation	2.4	1.6
RETAIN	385	Melaleuca styphelioides	9	4.5	0.55	90	No visual defects	2a May only live for 15-40 years	Good	Mature	Small wound at base	6.6	2.6
REMOVE	386	Lophostemon confertus	8	7	0.3	90	Dead wood <50mm	1a >40 years	Good	Mature		3.6	2.8
REMOVE	387	Lophostemon confertus	8	7	0.3	90	Dead wood <50mm	1a >40 years	Good	Mature		3.6	2.8
REMOVE	388	Casuarina glauca	12	7	0.5	90	Abdominal lean, deadwood <50mm	2a May only live for 15-40 years	Good	Mature		6	2.7
REMOVE	389	Melaleuca decora	5	5	0.25	90	Cross conflicting branches, deadwood <50mm	2a May only live for 15-40 years	Good	Mature	Remove branch conflicting with adjacent tree	3	2
REMOVE	391	Melia azedarach	9	7	0.35	95	No visual defects	2a May only live for 15-40 years	Fair	Mature		4.7	2.3
REMOVE	393	Melaleuca styphelioides	12	13	0.7	95	Wounds. Deadwood 50-100mm. Hangers and previous failures	1a >40 years	Good	Mature	Severe trunk wound	8.4	3.2

RETAIN	395	Casuarina cunninghamiana	17	4	0.7	95	No visual defects	2a May only live for 15-40 years	Good	Mature		8.4	3.2
REMOVE	396	Casuarina glauca	3	3	0.2	60	Suckers, decay.	Short	Poor	Semi-mature	Too stems suckering from old stump	2.4	2
REMOVE	397	Casuarina glauca	14	8	0.55	90	Deadwood 50-100mm	1a >40 years	Good	Mature		6.6	2.8
REMOVE	398	Melaleuca decora	12	8	0.45	80	Included union deadwood 5-10cm	1a >40 years	Good	Mature		5.4	2.5
REMOVE	400	Melaleuca styphelioides	14	10	0.6	90	Included union	1a >40 years	Good	Mature		7.2	2.5
REMOVE	401	Ulmus parvifolia	4	2	.15	70		Short	fair	Semi mature		2	1.2
REMOVE	402	Melaleuca decora	12	4	0.5	90		Long	Good	Mature		6	2.7
REMOVE	403	Olea europeus	3	2	0.1	90	Weed	Short	Good	Mature	Weed	2	1.2
REMOVE	404	Melaleuca decora	10	3	0.6	80		long	Good	Mature		7.5	2.5
RETAIN	405	Casuarina glauca	12	4	0.5	90		2a May only live for 15-40 years	Good	Mature			
REMOVE	406	Melaleuca decora	13	3	0.5	90	Some inclusions	Medium	Good	Mature		6	2.7
REMOVE	407	Cupressus sempervirens	5	1	0.1	80		Medium	Fair	Mature		2	1.2
REMOVE	408	Melaleuca decora	12	3.5	0.4	90		2a May only live for 15-40 years	Good	Mature		6	2.7
REMOVE	409	Melaleuca decora	12	3.5	0.4	90		2a May only live for 15-40 years	Good	Mature		6	2.7
REMOVE	410	Melaleuca decora	12	3.5	0.4	90		2a May only live for 15-40 years	Good	Mature		6	2.7
REMOVE	411	Yucca gloriosa	5	2	0.2	100	Weed	1a >40 years	Good	Mature	Weed	2	1.2
REMOVE	412	Jacarand mimosifolia	6	2	0.2	95		2a May only live for 15-40 years	Fair	Semi mature		2	1.2

Appendix 3

SULE categories (after Barrell, 2001)¹

SULE Category	Description
<i>Long</i>	<i>Trees that appeared to be retainable at the time of assessment for more than 40 years with an acceptable level of risk.</i>
1a	Structurally sound trees located in positions that can accommodate for future growth
1b	Trees that could be made suitable for retention in the long term by remedial tree care.
1c	Trees of special significance that would warrant extraordinary efforts to secure their long term retention.
<i>Medium</i>	<i>Trees that appeared to be retainable at the time of assessment for 15-40 years with an acceptable level of risk.</i>
2a	Trees that may only live for 15-40 years
2b	Trees that could live for more than 40 years but may be removed for safety or nuisance reasons
2c	Trees that could live for more than 40 years but may be removed to prevent interference with more suitable individuals or to provide for new planting.
2d	Trees that could be made suitable for retention in the medium term by remedial tree care.
<i>Short</i>	<i>Trees that appeared to be retainable at the time of assessment for 5-15 years with an acceptable level of risk.</i>
3a	Trees that may only live for another 5-15 years
3b	Trees that could live for more than 15 years but may be removed for safety or nuisance reasons.
3c	Trees that could live for more than 15 years but may be removed to prevent interference with more suitable individuals or to provide for a new planting.
3d	Trees that require substantial remedial tree care and are only suitable for retention in the short term.
<i>Remove</i>	<i>Trees that should be removed within the next five years.</i>
4a	Dead, dying, suppressed or declining trees because of disease or inhospitable conditions.
4b	Dangerous trees because of instability or loss of adjacent trees
4c	Dangerous trees because of structural defects including cavities, decay, included bark, wounds or poor form.
4d	Damaged trees that are clearly not safe to retain.
4e	Trees that could live for more than 5 years but may be removed to prevent interference with more suitable individuals or to provide for a new planting.
4f	Trees that are damaging or may cause damage to existing structures within 5 years.
4g	Trees that will become dangerous after removal of other trees for the reasons given in (a) to (f).
4h	Trees in categories (a) to (g) that have a high wildlife habitat value and, with appropriate treatment, could be retained subject to regular review.
<i>Small</i>	<i>Small or young trees that can be reliably moved or replaced.</i>
5a	Small trees less than 5m in height.
5b	Young trees less than 15 years old but over 5m in height.
5c	Formal hedges and trees intended for regular pruning to artificially control growth.

updated 01/04/01)

¹ (Barrell, J. (2001) "SULE: Its use and status into the new millennium" in *Management of mature trees*, Proceedings of the 4th NAAA Tree Management Seminar, NAAA, Sydney.

Appendix 4

TPZ and SRZ methodology

Determining the Tree Protection Zone (TPZ)

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

$$\text{TPZ} = \text{DBH} \times 12$$

Where

DBH = trunk diameter measured at 1.4 metres above ground

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

A TPZ should not be less than 2 metres no greater than 15 metres (except where crown protection is required.). Some instances may require variations to the TPZ.

The TPZ of palms, other monocots, cycads and tree ferns should not be less than 1 metre outside the crown projection.

Determining the Structural Root Zone (SRZ)

The SRZ is the area required for tree stability. A larger area is required to maintain a viable tree.

The SRZ only needs to be calculated when major encroachment into a TPZ is proposed.

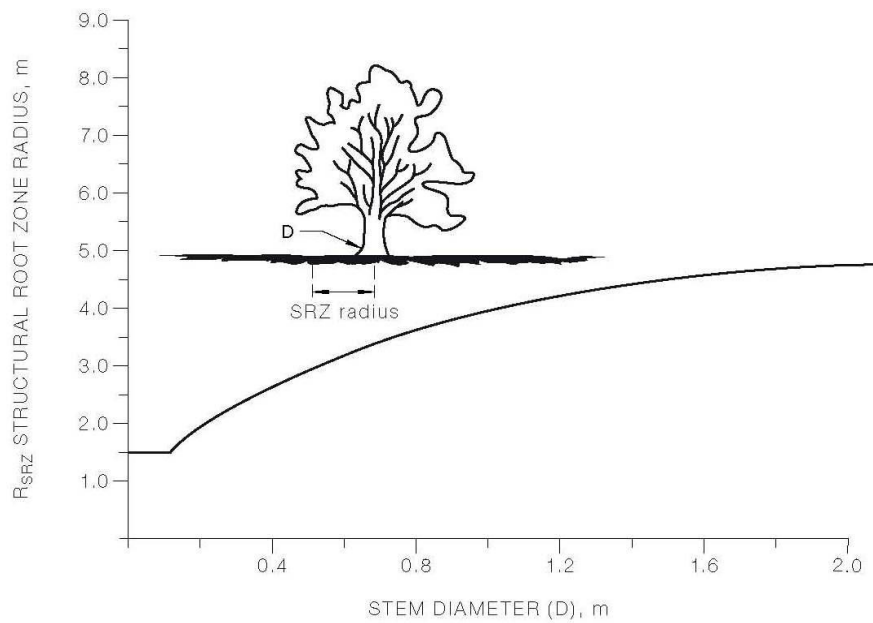
There are many factors that affect the size of the SRZ (e.g. tree height, crown area, soil type, soil moisture). The SRZ may also be influenced by natural or built structures, such as rocks and footings. An indicative SRZ radius can be determined from the trunk diameter measured immediately above the root buttress using the following formula or Figure 1. Root investigation may provide more information on the extent of these roots.

$$\text{SRZ radius} = (D \times 50)^{0.42} \times 0.64$$

Where

D = trunk diameter, in m, measured above the root buttress

NOTE: The SRZ for trees with trunk diameters less than 0.15m will be 1.5m (see Figure 1).



The curve can be expressed by the following formula:
 $R_{SRZ} = (D \times 50)^{0.42} \times 0.64$

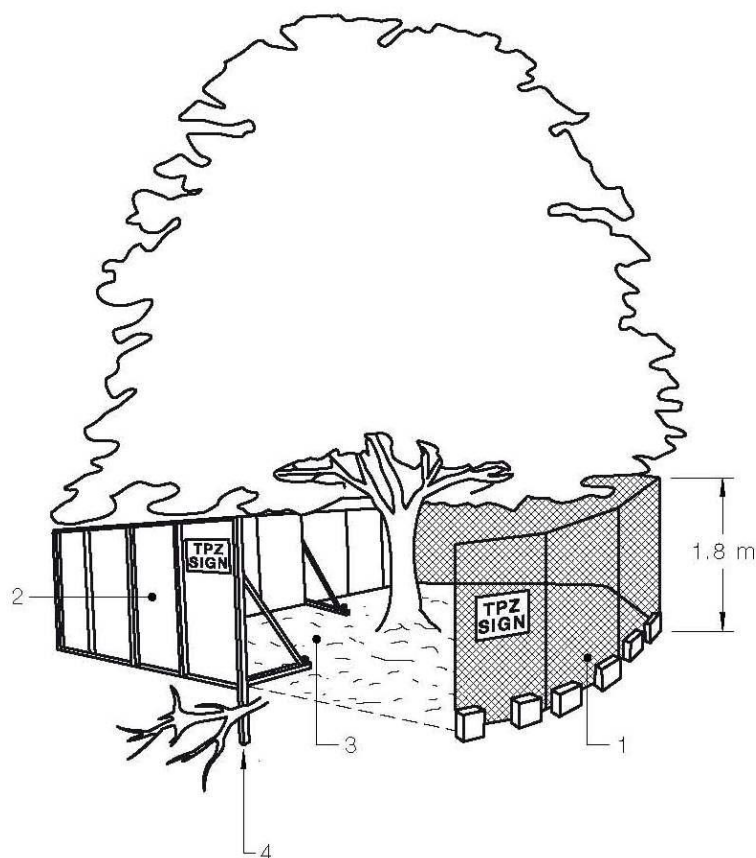
FIGURE 1 - STRUCTURAL ROOT ZONE

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 metres diameter is 1.5 metres.
- 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.

Appendix 5

Tree protection fencing **specifications**



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.

Figure 1: Protective fencing as specified in AS 4970, 2009.

Appendix 6

Tree protection sign **sign sample**

Tree Protection Zone

Fence not to be moved without approval from Arborist

Within this fence there is to be

NO

Storage of materials

Trenching or excavation

Washing of tools or equipment

