

Wollongong Local Planning Panel Assessment Report | 12 December 2018

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| WLPP No. | Item No. 1 |
| DA No. | DA-2018/1099 |
| Proposal | Residential - alterations and additions to existing dwelling and tree removals |
| Property | 56 Princes Highway, BULLI NSW 2516 |
| Applicant | Wollongong Drafting |
| Responsible Team | Development Assessment and Certification – City Wide Planning Team (RT) |

ASSESSMENT REPORT AND RECOMMENDATION

Executive Summary

Reason for consideration by Wollongong Local Planning Panel (WLPP) - Determination

The proposal has been referred to the WLPP **for determination** pursuant to part 1(e) of Schedule 2 of the Local Planning Panels Direction, as the land owner is a relative of a member of Council staff who is principally involved in the exercise of Council's functions under the Environmental Planning and Assessment Act 1979.

Proposal

The proposal seeks consent for alterations and additions to the existing dwelling house and tree removals.

Permissibility

The subject site is zoned part E3 Environmental Management, part E2 Environmental Conservation and part SP2 Infrastructure pursuant to Wollongong Local Environmental Plan (WLEP) 2009. However submitted plans indicate that the proposed development is to be located entirely within the area of the site zoned E3 Environmental Management. Residential dwellings are permissible with consent in the E3 zone.

Consultation

The application in accordance with Appendix 1 of the Wollongong Development Control Plan (WDCP) 2009 did not require neighbour notification due to location.

Internal

Details of the proposal were referred to Council's Geotechnical, Development Engineering, Environment and Landscape Officers for assessment. Satisfactory referral advice, comments and/or recommended conditions were provided in each instance. Assessment considerations of internal groups as relates to relevant Chapters of the WDCP 2009 are presented at section 2.3.1 of this report.

External

Details of the application submission were referred to the NSW Rural Fire Service and NSW Roads and Maritime Services for comments. Satisfactory referral advice, comments and/or recommended conditions were provided in each instance.

Main Issues

There are no issues/concerns with the proposed development.

RECOMMENDATION

DA-2018/1099 be approved subject to the conditions provided in **Attachment 4**.

1.0 APPLICATION OVERVIEW

1.1 PLANNING CONTROLS

The following planning controls apply to the proposal:

State Environmental Planning Policies:

- SEPP No. 55 – Remediation of Land
- SEPP (Building Sustainability Index: BASIX) 2004

Local Environmental Planning Policies:

- Wollongong Local Environmental Plan (WLEP) 2009

Development Control Plans:

- Wollongong Development Control Plan (WDCP) 2009

Other policies

- Wollongong City Wide Development Contributions Plan 2018
- Planning for Bushfire Protection 2006 (PBP 2006)

1.2 DETAILED DESCRIPTION OF PROPOSAL

The application proposes single storey alterations and additions to the existing dwelling.

1.3 BACKGROUND

The development history of the site is as follows:

DA-1982/416, Dwelling - Approved

DA-1987/475, Construction Snooker Room, Store Room Complex - Approved

BC-2012/126, Residential - dwelling-house inground pool carport snooker room barbeque area and metal shed - Approved

DA-2015/781, Residential - alterations and additions - Rejected

DA-2015/998, Residential - convert existing dwelling to secondary dwelling and construction of new dwelling house - Withdrawn

DA-2017/365, Residential - construction of dwelling house with existing dwelling house to remain as the secondary dwelling - Approved

DA-2018/1099, Residential - alterations and additions – Current Application

No pre-lodgement meeting was held for the proposal.

Customer service actions:

There are no outstanding customer service requests of relevance to the properties.

1.4 SITE DESCRIPTION

The site is located at 56 Princes Highway, BULLI and the title reference is Lot 108 DP 264639.

Situated on the land is single storey brick dwelling with a pitched tile roof. There are several ancillary structures located on the site including a detached outbuilding, detached carport, shed and caravan. An in-ground swimming pool is located to the West of the dwelling. The subject site is benefitted by a Right of Carriage Way off the Princes Highway.

The land is an irregular shaped battle-axe allotment with an overall site area of 284400m² (28.44 ha). The site has a cross fall to the East.

The street scene in the immediate vicinity is characterised by low density residential dwellings of single and double storey construction. Adjoining development is not visible from the development site.



Figure 1: Aerial photograph (2018)

Property constraints

- Unstable
- Flood Risk Precinct- Uncategorised Flood Risk Precinct
- Bushfire Prone Land
- Illawarra Escarpment Land

There are no restrictions on the title.

1.5 SUBMISSIONS

The application in accordance with WDCP 2009 Appendix 1: Public Notification and Advertising did not require neighbour notification due to location.

1.6 CONSULTATION

1.6.1 INTERNAL CONSULTATION

Geotechnical Engineer

Council's Geotechnical Officer has assessed the application submission and considered it conditionally satisfactory.

Development Engineering Officer

Council's Development Engineering Officer has assessed the application submission and considered it conditionally satisfactory.

Landscape Officer

Council's Landscape Officer has assessed the application submission and considered it conditionally satisfactory.

Environment Officer

Council's Environment Officer has assessed the application submission and considered it conditionally satisfactory.

1.6.1 EXTERNAL CONSULTATION

NSW Rural Fire Service

Details of the application submission were referred to the NSW Rural Fire Service for comments. Advice received indicates the proposal is considered conditionally satisfactory.

NSW Roads and Maritime Services (RMS)

Details of the application submission were referred to the NSW RMS for comments. Advice received indicates that no part of the proposed development encroaches onto land zoned for a possible future alternative route for the escarpment crossing and is therefore considered satisfactory.

2 ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979 – 4.15 EVALUATION

2.1 SECTION 4.15(1)(A)(1) ANY ENVIRONMENTAL PLANNING INSTRUMENT

2.1.1 STATE ENVIRONMENTAL PLANNING POLICY NO. 55 – REMEDIATION OF LAND

7 Contamination and remediation to be considered in determining development application

- (1) *A consent authority must not consent to the carrying out of any development on land unless:*
- (a) *it has considered whether the land is contaminated, and*
 - (b) *if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and*
 - (c) *if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.*

A desktop audit of the subject site revealed there is no previous history of land uses that could be considered to present as a contamination risk. The earthworks are considered minor, reflective of normal residential construction and the proposal does not comprise a change of use. Council's Environmental Officer has reviewed the history of the site in conjunction with details of the application submission. Satisfactory referral advice was received indicating no concerns are raised in regard to contamination as relates to the intended use of the land and the requirements of clause 7.

The site is therefore considered suitable for the proposed development and consistent with the assessment considerations of SEPP 55.

2.1.2 STATE ENVIRONMENTAL PLANNING POLICY (BUILDING SUSTAINABILITY INDEX: BASIX) 2004

SEPP BASIX applies to the development. In accordance with Schedule 1 of the Regulations and the requirements of the SEPP, a BASIX Certificate has been submitted in support of the application demonstrating that the proposed development achieves the BASIX targets.

2.1.3 STATE ENVIRONMENTAL PLANNING POLICY (VEGETATION IN NON-RURAL AREAS) 2017

Under Clause 7 of *State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017* a person must not clear any vegetation in any non-rural area of the State to which Part 3 applies without the authority conferred by a permit granted by the council under that Part.

Clause 9 of Part 3 indicates that this Part applies to vegetation in any non-rural area of the State that is declared by a development control plan to be vegetation to which this Part applies.

The subject site is zoned R3 Medium Density Residential a non-rural area. It is considered that the vegetation proposed to be removed is vegetation declared by a development control plan, WDCP 2009 Chapter E17, to which Part 9 would apply.

Council's Landscape and Environment Officers have assessed the application submission, which included an Arborist Report. Conditionally satisfactory referral advice was received and draft conditions as at **Attachment 4** specify trees to be removed, trees to be retained, compensatory plantings and tree protection and management.

2.1.4 WOLLONGONG LOCAL ENVIRONMENTAL PLAN 2009

Part 1 Preliminary

Clause 1.4 Definitions

Part 1 Preliminary

Clause 1.4 Definitions

Demolition: In relation to a building means wholly or partly destroy, dismantle or deface the building.

Dwelling Houses are defined as a room or suite of rooms occupied or used or so constructed or adapted as to be capable of being occupied or used as separate domicile.

Part 2 Permitted or prohibited development

Clause 2.2 – zoning of land to which Plan applies

The zoning map identifies the land as being zoned part **E3 Environmental Management** part **E2 Environmental Conservation** and part **SP2 Infrastructure**. However, submitted plans indicate that the proposed development is to be located entirely within the area mapped as E3 Environmental Management on the subject site.

Clause 2.3 – Zone objectives and land use table

The objectives of the zone E3 Environmental Management are as follows:

- *To protect, manage and restore areas with special ecological, scientific, cultural or aesthetic values.*
- *To provide for a limited range of development that does not have an adverse effect on those values.*

The proposal is satisfactory with regards to the above objectives. It is considered that the proposed alterations and additions to the existing dwelling will provide a development that will have minimal impact on the special ecological, scientific or aesthetic values of the area.

The land use table permits the following uses in the zone.

ZONE E3 Environmental Management permitted uses:

*Animal boarding or training establishments; Bed and breakfast accommodation; Building identification signs; Business identification signs; Community facilities; **Dwelling houses**; Environmental facilities; Environmental protection works; Extensive agriculture; Farm buildings; Farm stay accommodation; Forestry; Home-based child care; Recreation areas; Roads; Secondary dwellings*

The proposal is categorised as a dwelling house as described above and is permissible in the zone with development consent.

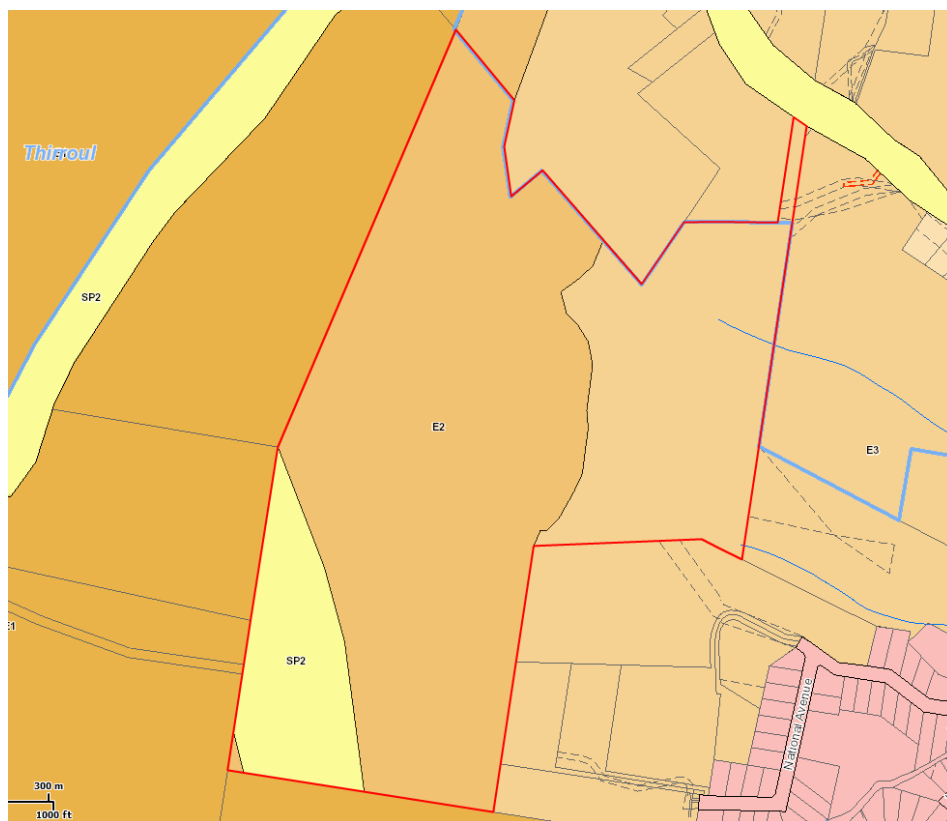


Figure 2: WLEP 2009 zoning map

Clause 2.7 Demolition requires development consent

Demolition of a building may be carried out only with development consent. The demolition of elements on the existing dwelling on the land is required to facilitate the development as proposed.

Part 4 Principal development standards

Clause 4.2A Erection of dwelling houses on land in certain rural and environmental protection zones

Clause 4.2A of the Wollongong Local Environmental Plan (WLEP) 2009 applies to the proposal as the subject site is zoned E3 Environmental Management. Clause 4.2A (2) stipulates that development consent must not be granted for the erection of a dwelling house on land to which this clause applies, and on which no dwelling house has been erected, unless the land is:

- (a) a lot created in accordance with clause 4.1, or
- (b) a lot created before this Plan commenced that met the minimum lot size specified to permit the erection of a dwelling house under Wollongong Local Environmental Plan 1990 in effect immediately before that commencement, or
- (c) a lot created before this Plan commenced that is at least the minimum lot size specified for that lot by the Lot Size Map, or

- (d) *land that will be a lot in a subdivisions for which development consent was granted or approval under Part 3A of the Act was given before this Plan commenced and on which the erection of a dwelling house would have been permissible immediately before that commencement, or*
- (e) *an existing holding with an area of not less than 10 hectares, or*
- (f) *a lot that was created after 30 April 1971 but before 23 February 1984 and which has an area of not less than 20 hectares, or*
- (g) *a lot that was created on or after 23 February 1984 but before the commencement of this Plan and which has an area of not less than 40 hectares, or*
- (h) *a lot that was created before the commencement of this Plan, but only if the subdivision requirements for the land, or number of dwelling houses to be erected on the land, were specified in Schedule 2 to the Wollongong Local Environmental Plan 1990 immediately before that commencement.*

Note. *A dwelling cannot be erected on a lot created under clause 9 of State Environmental Planning Policy (Rural Lands) 2008 or clause 4.2’.*

Notwithstanding, Clause 4.2A(4) further stipulates that ‘*despite any other provision of this clause, development consent may be granted for the erection of a dwelling house on land in a zone to which this clause applies if:*

- a) *there is a lawfully erected dwelling house on the land and the dwelling house to be erected is intended only to replace the existing dwelling house, or*
- b) *the land would have been a lot or a holding referred to in subclause (2) had it not been affected by:*
 - i. *a minor realignment of its boundaries that did not create an additional lot, or*
 - ii. *a subdivision creating or widening a public road or public reserve or for another public purpose’.*

The proposal is for alterations and additions to the existing dwelling house. The subject site is less than the minimum lot size specified for Zone E3 and was not created in accordance with Clause 4.1 of the WLEP 2009. A review of the history of the subject site revealed that the subject lot was registered in 1984. The subject site was previously Zoned 7(b) Environmental Protection Conservation Zone under WLEP 1990 with an area of approximately 28.44ha. Dwelling houses were permissible with consent on lots with an area of not less than 10ha in the 7(b) zone under Clause 14(1a) of WLEP 1990.

Therefore it is considered that the application submission satisfies Clause 4.2A(2)(b) which states that the dwelling house will be located on a lot created before this Plan commenced and on which the erection of a dwelling house was permissible immediately before that commencement.

Clause 4.3 Height of buildings

The proposed building height of 4.389m does not exceed the maximum of 9m permitted for the site.

The proposal does not alter the building height of the existing dwelling.

Clause 4.4 Floor space ratio

There is no maximum Floor Space Ratio requirement mapped for the subject site.

Part 5 Miscellaneous provisions

Clause 5.10 Heritage Conservation

Council's records indicate that the subject site is not mapped under WLEP2009 as being located on land identified as "Illawarra Escarpment Heritage Conservation Area".

Part 7 Local provisions – general

Clause 7.1 Public utility infrastructure

The proposal has been assessed against Clause 7.1 of WLEP2009 and it is considered that the subject site is already serviced by public utilities.

Clause 7.2 Natural resource sensitivity – biodiversity

The site is identified as "Natural Resource Sensitivity – Biodiversity" which generally coincides with the Illawarra Escarpment Land. Details of the application submission including the Arborist report, Bushfire report and the NSW Rural Fire Services referral response were referred to Council's Environment and Landscape Officers for comment. Further ecological assessment was carried out by way of a site inspection by Council's Environment Officer where each individual tree proposed for removal was inspected for signs of hollows/fauna. None were sighted.

Conditionally satisfactory referral advice was received and conditions are included at **Attachment 4** specifying trees to be removed, trees to be retained, compensatory plantings and tree protection and management.



Figure 3: WLEP 2009 "Natural Resource Sensitivity – Biodiversity" map

Clause 7.3 Flood planning area

The land is identified as being flood affected. Council's Development Engineering Officer has assessed the application submission in this regard and has not raised any objections subject to conditions.

Clause 7.4 Riparian lands

The Riparian Land Map indicates the site contains riparian land. However the submitted plans indicate that no physical works are proposed within the riparian corridor. The application submission was referred to Council's Environment Officer for comment. Advice received indicates there are no issues with the proposal.

Clause 7.6 Earthworks

Earthworks associated with the proposal are considered minor, reflective of normal residential construction and thus acceptable in this circumstance. Council's Geotechnical Officer has assessed the application submission and considered it satisfactory subject to conditions.

Clause 7.8 Illawarra Escarpment area conservation

The site is identified as being within the Illawarra Escarpment Area. It is considered that the proposed development will have minimal adverse impact on the natural features and environment of the Illawarra Escarpment. Details of the application submission including the Arborist report, Bushfire report and the NSW Rural Fire Services referral response were referred to Council's Environment and Landscape Officers for comment. Conditionally satisfactory referral advice was received and conditions are included at **Attachment 4** specifying trees to be removed, trees to be retained, compensatory plantings and tree protection and management.

2.2 SECTION 4.15(1)(A)(II) ANY PROPOSED INSTRUMENT

None applicable to the site or proposed development.

2.3 SECTION 4.15(1)(A)(III) ANY DEVELOPMENT CONTROL PLAN

2.3.1 WOLLONGONG DEVELOPMENT CONTROL PLAN 2009

The development has been assessed against the relevant chapters of WDCP 2009. Compliance tables can be found at **Attachment 3** to this report. It is noted that the development has no variations from the applicable development controls.

2.3.2 WOLLONGONG CITY WIDE DEVELOPMENT CONTRIBUTIONS PLAN 2018

The estimated cost of works is \$230,000 and a levy of 1% is applicable under this plan as the threshold value is \$100,000.

2.4 SECTION 4.15(1)(A)(IIIA) ANY PLANNING AGREEMENT THAT HAS BEEN ENTERED INTO UNDER SECTION 7.4, OR ANY DRAFT PLANNING AGREEMENT THAT A DEVELOPER HAS OFFERED TO ENTER INTO UNDER SECTION 7.4

There are no planning agreements entered into or any draft agreement offered to enter into under S7.4 which affect the development

2.5 SECTION 4.15(A)(IV) THE REGULATIONS (TO THE EXTENT THAT THEY PRESCRIBE MATTERS FOR THE PURPOSES OF THIS PARAGRAPH)

92 What additional matters must a consent authority take into consideration in determining a development application?

A condition at **Attachment 4** requires compliance with AS 2601.

93 Fire safety and other considerations

Not applicable.

94 Consent authority may require buildings to be upgraded

Not applicable

2.6 SECTION 4.15(1)(B) THE LIKELY IMPACTS OF DEVELOPMENT

Context and Setting:

It is considered that the proposed development is appropriate given the nature and characteristics of the site and is unlikely to result in significant adverse impacts on the character or amenity of the surrounding area.

Access, Transport and Traffic:

Access to the site will be via an approved right of carriageway to Council's formed roadway which adjoins Council's Local Road. The development is considered not to result in an adverse impact on the traffic movement and access to the site.

Public Domain:

The development is considered to be consistent with the amenity of the locality, the development is not considered to result in significant impact on the public domain.

Utilities:

The proposal is not envisaged to place an unreasonable demand on utilities supply. Existing utilities are adequate to service the proposal.

Heritage:

No heritage items will be impacted by the proposal. Council's records indicate that the subject site is not mapped under WLEP2009 as being located on land identified as "Illawarra Escarpment Heritage Conservation Area".

Other land resources:

The proposal is considered to contribute to orderly development of the site and is not envisaged to impact upon any valuable land resources.

Water:

The site is presently serviced by Sydney Water, and the proposal is not envisaged to have unreasonable water consumption. A BASIX certificate has been provided for the proposal.

Soils:

It is expected that, with the use of appropriate erosion and sedimentation controls during construction, soil impacts will not be unreasonably adverse.

The soil profile is considered to be acceptable for the construction of the proposed development. Council's Geotechnical, Development Engineering and Environment Officers have assessed the application submission and considered it satisfactory subject to conditions.

Air and Microclimate:

The proposal is not expected to have a negative impact on air or microclimate.

Flora and Fauna:

Trees are proposed to be removed as part of this proposal to make way for the proposed development and satisfy the NSW Rural Fire Services Asset Protection Zone (APZ) recommendations so as to facilitate improved bushfire protection measures on the site. It is considered that the

proposal will have minimal impact on significant native vegetation or fauna. Council's Environment and Landscape Officers have reviewed the application submission including an inspection of each individual tree proposed for removal for signs of hollows/fauna and raised no issues with the proposed removal of the trees subject to conditions. For Council's Environment and Landscape Officers response please see Section 1.6.1 of the report.

Waste:

Waste management during construction can be managed through proper arrangements. A condition should be imposed if consent is granted requiring the use of an appropriate receptacle for any waste generated during the construction and compliance with the Site Waste Management and Minimisation Plan provided with the DA.

Energy:

The proposal is not envisaged to have unreasonable energy consumption.

Noise and vibration:

Noise and vibration impacts during demolition, excavation and construction are unavoidable. If the development is approved, a suite of conditions are recommended for imposition (see **Attachment 4**) to minimise nuisance during demolition and construction.

Natural hazards:

There are no natural hazards affecting the site that would prevent the proposal.

Council records list the site as bushfire affected. The application has been assessed by the NSW RFS having regard to the provisions of Planning for Bushfire Protection (PBP) 2006. The NSW RFS considered the application acceptable in this circumstance subject to draft consent conditions as at **Attachment 4**. For details of the NSW RFS response please see section 1.6.2 External Consultation of this report.

Council records list the site as being flood affected. Council's Development Engineering Officer has assessed the application submission in this regard and has not raised any objections subject to conditions.

Technological hazards:

There are no technological hazards affecting the site that would prevent the proposal.

Council records list the site as being potentially unstable land. The application submission has been assessed by Council's Geotechnical Officer who considered the application conditionally satisfactory.

Safety, Security and Crime Prevention:

This application does not result in greater opportunities for criminal or antisocial behaviour.

Social Impact:

The proposal is not expected to create negative social impacts.

Economic Impact:

The proposal is not expected to create negative economic impacts.

Site Design and Internal Design:

The application does not result in any departures from development standards or variations to Council's development control plans as outlined above.

Construction:

Conditions of consent are recommended in relation to construction impacts such as hours of work, erosion and sedimentation controls, works in the road reserve, excavation, demolition and use of

any crane, hoist, plant or scaffolding.

A condition will be attached to any consent granted that all works are to be in compliance with the Building Code of Australia.

Cumulative Impacts:

The development is considered consistent with the amenity of the neighbourhood and to be consistent with the surrounding development.

2.8 SECTION 4.15(1)(C) THE SUITABILITY OF THE SITE FOR DEVELOPMENT

Does the proposal fit in the locality?

The proposal is considered appropriate with regard to the zoning of the site and is not expected to result in negative impacts on the amenity of the locality or adjoining developments.

Are the site attributes conducive to development?

There are no site constraints that would prevent the proposal.

2.9 SECTION 4.15(1)(D) ANY SUBMISSIONS MADE IN ACCORDANCE WITH THIS ACT OR THE REGULATIONS

See section 1.5 of this report.

2.10 SECTION 4.15(1)(E) THE PUBLIC INTEREST

The proposal is not expected to result in unreasonable impacts on the environment or the amenity of the locality. It is considered appropriate with consideration to the zoning and the character of the area and is therefore considered to be in the public interest.

3 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 provisions of Wollongong Local Environmental Plan 2009 and all relevant Council DCPs, Codes and Policies and found to be satisfactory.

The proposed development is permissible in the E3 Environmental Management zone with development consent pursuant to the WLEP 2009.

The proposal does not result in exceptions to development standards or variations to Council's development control plans.

The design of the development is appropriate with regard to the controls outlined in the Wollongong DCP 2009.

All internal and external referrals are satisfactory and there are no outstanding issues.

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.

4 RECOMMENDATION

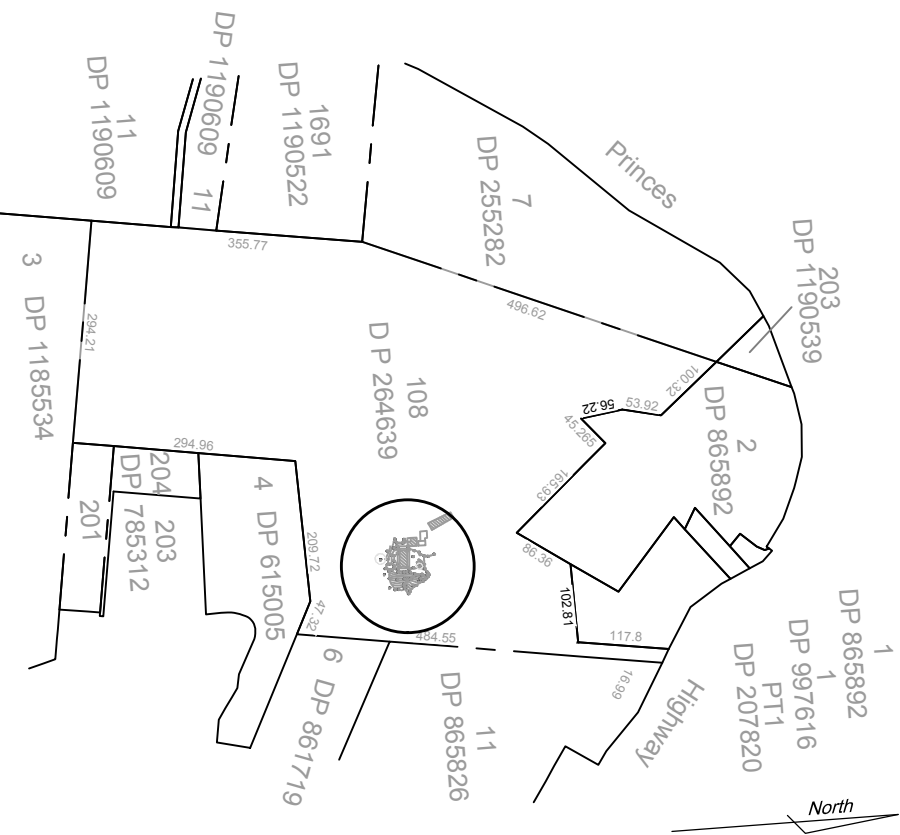
DA-2018/1099 be approved pursuant to Section 4.16(1) of the Environmental Planning and Assessment Act 1979 subject to the conditions provided at **Attachment 4**.

5 ATTACHMENTS

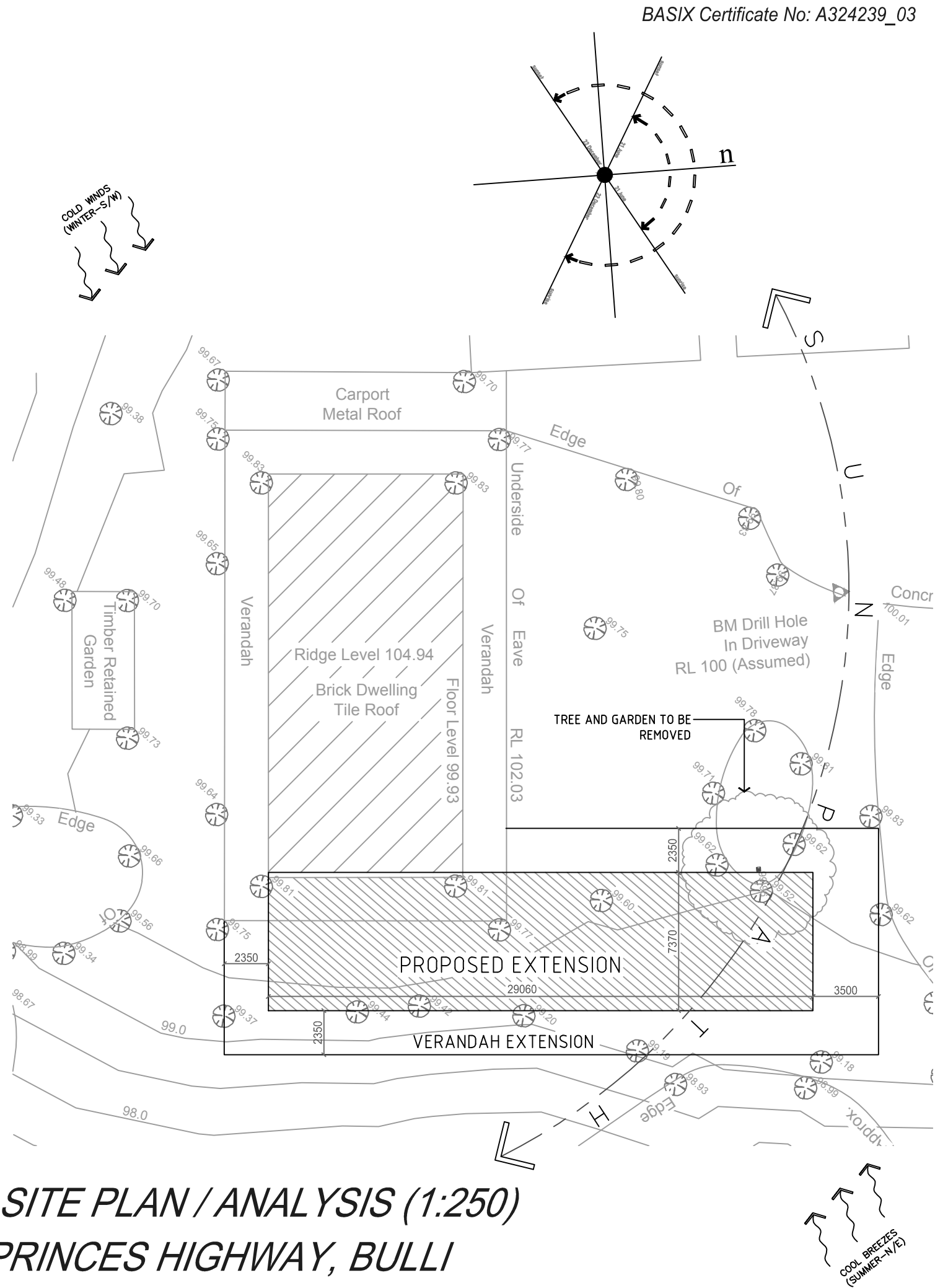
- 1 Plans and Arborist Report
- 2 Site Inspection Photos
- 3 Compliance table for Wollongong Development Control Plan 2009
- 4 Draft Conditions



LOCATION (NTS)



LOCALITY PLAN (1:10000)
PROPOSED EXTENSION, LOT 108 PRINCES HIGHWAY, BULLI



BASIX Certificate No: A324239_03

- 1. TIMBER FRAMING AND WIND BRACING TO COMPLY WITH AS1684 AND TO NSW TIMBER FRAMING MANUAL AMENDED TO SUIT WIND TERRAIN CATEGORY.
- 2. SELECTED WINDOWS AND DOORS TO SUIT DESIGNATED WIND TERRAIN CATEGORY.
- 3. ALL SITE CONDITIONS INCLUDING LEVELS TO BE CONFIRMED, AND ANY DISCREPANCIES TO BE REFERRED TO DESIGN PROFESSIONAL PRIOR TO COMMENCEMENT.
- 4. DO NOT SCALE THE DRAWING, USE FIGURED DIMENSIONS.
- 5. CHECK ALL DIMENSIONS ON SITE BEFORE FABRICATING ANY ITEM.
- 6. DRAWINGS TO BE CHECKED AND CERTIFIED BY A PRACTISING STRUCTURAL ENGINEER PRIOR TO CONSTRUCTION.
- 7. THESE DRAWINGS ARE SUBJECT TO COPYRIGHT.
- 8. PROVIDE CERTIFIED TERMITE BARRIER SYSTEM TO AS 3660.1
- 9. OTHER SITE WORK UNDER COMPLYING DEVELOPMENT APPLICATION.

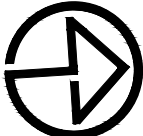
| TOTAL SQUARE METERS | |
|--------------------------------------|----------|
| SITE AREA | 284400.0 |
| EXISTING RESIDENCE | 222.1 |
| EXISTING RESIDENCE [INS. EXT. WALLS] | 206.2 |
| PROPOSED EXTENSION [INS. EXT. WALLS] | 196.2 |
| PROP. TOTAL FLOOR AREA | 402.4 |
| PROPOSED FSR | 0.001:1 |

| REVISION | | |
|----------|--------------------------|----------|
| A | ISSUED FOR COMMENT | 10/07/18 |
| B | ISSUED FOR COMMENT | 12/07/18 |
| C | ISSUED FOR COMMENT | 31/07/18 |
| D | ISSUED FOR COMMENT | 08/08/18 |
| E | ISSUED FOR DA SUBMISSION | 21/08/18 |

PROPOSED EXTENSION

LOT 108, DP 264639
56 PRINCES HWY, BULLI NSW 2516

CLIENT: ADAMS



DATE 21/08/18
SCALE 1/100
SHEET 1 OF 4
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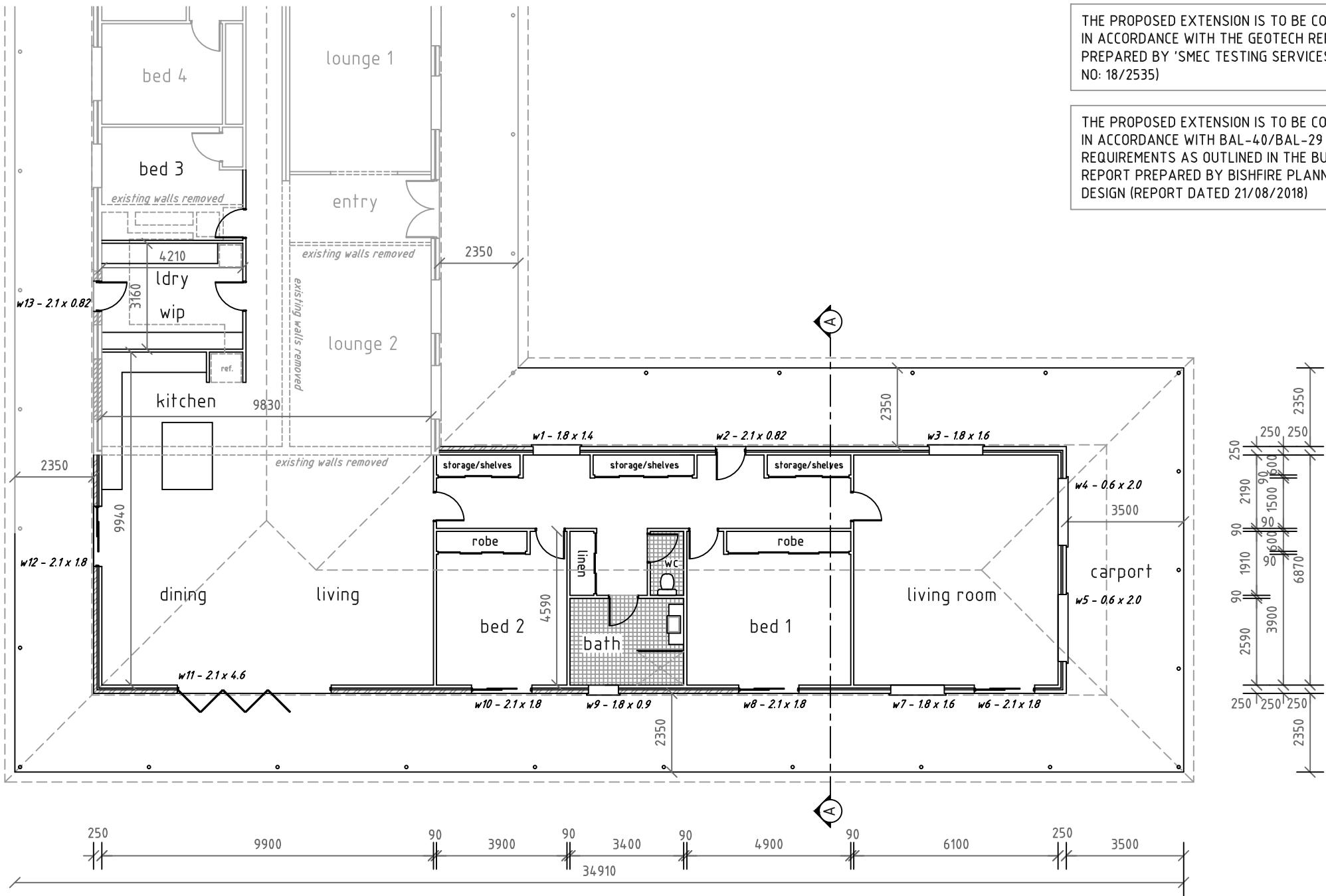
WOLLONGONG DRAFTING

e wollongongdrafting@gmail.com
m 0416 025 684
wollongongdrafting.com

ALL WASTEWATER TO BE DISPOSED OF ACCORDING TO THE WASTEWATER MANAGEMENT REPORT PREPARED BY EARTHWISE ENVIRONMENTAL CONSULTANTS (PROJECT NO: EW-AR-45)

THE PROPOSED EXTENSION IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE GEOTECH REPORT PREPARED BY 'SMEC TESTING SERVICES' (REPORT NO: 18/2535)

THE PROPOSED EXTENSION IS TO BE CONSTRUCTED IN ACCORDANCE WITH BAL-40/BAL-29 REQUIREMENTS AS OUTLINED IN THE BUSHFIRE REPORT PREPARED BY BISHFIRE PLANNING AND DESIGN (REPORT DATED 21/08/2018)



1. TIMBER FRAMING AND WIND BRACING TO COMPLY WITH AS1684 AND TO NSW TIMBER FRAMING MANUAL AMENDED TO SUIT WIND TERRAIN CATEGORY.
2. SELECTED WINDOWS AND DOORS TO SUIT DESIGNATED WIND TERRAIN CATEGORY.
3. ALL SITE CONDITIONS INCLUDING LEVELS TO BE CONFIRMED, AND ANY DISCREPANCIES TO BE REFERRED TO DESIGN PROFESSIONAL PRIOR TO COMMENCEMENT.
4. DO NOT SCALE THE DRAWING, USE FIGURED DIMENSIONS.
5. CHECK ALL DIMENSIONS ON SITE BEFORE FABRICATING ANY ITEM.
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9. OTHER SITE WORK UNDER COMPLYING DEVELOPMENT APPLICATION.

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| PROPOSED FSR | 0.001:1 |

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PROPOSED EXTENSION

LOT 108, DP 264639
56 PRINCES HWY, BULLI NSW 2516

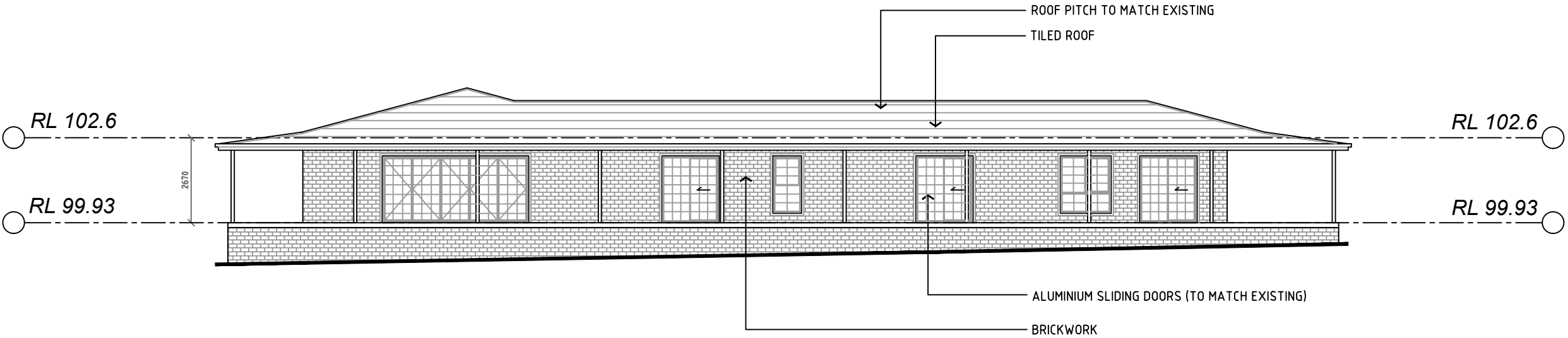
CLIENT: ADAMS

DATE 21/08/18
SCALE 1/100
SHEET 2 OF 4
DRAWN ST

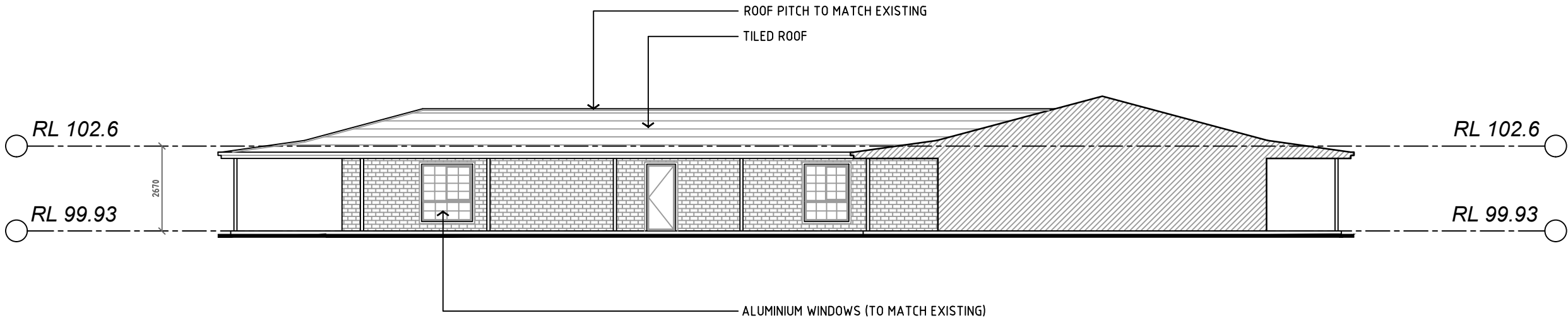
GROUND FLOOR PLAN (1:150)
PROPOSED EXTENSION, LOT 108 PRINCES HIGHWAY, BULLI

WOLLONGONG DRAFTING

e wollongongdrafting@gmail.com
m 0416 025 684
wollongongdrafting.com



EAST ELEVATION (1:150)



WEST ELEVATION (1:150)

PROPOSED EXTENSION, LOT 108 PRINCES HIGHWAY, BULLI

1. TIMBER FRAMING AND WIND BRACING TO COMPLY WITH AS1684 AND TO NSW TIMBER FRAMING MANUAL AMENDED TO SUIT WIND TERRAIN CATEGORY.
2. SELECTED WINDOWS AND DOORS TO SUIT DESIGNATED WIND TERRAIN CATEGORY.
3. ALL SITE CONDITIONS INCLUDING LEVELS TO BE CONFIRMED, AND ANY DISCREPANCIES TO BE REFERRED TO DESIGN PROFESSIONAL PRIOR TO COMMENCEMENT.
4. DO NOT SCALE THE DRAWING, USE FIGURED DIMENSIONS.
5. CHECK ALL DIMENSIONS ON SITE BEFORE FABRICATING ANY ITEM.
6. DRAWINGS TO BE CHECKED AND CERTIFIED BY A PRACTISING STRUCTURAL ENGINEER PRIOR TO CONSTRUCTION.
7. THESE DRAWINGS ARE SUBJECT TO COPYRIGHT.
8. PROVIDE CERTIFIED TERMITE BARRIER SYSTEM TO AS 3660.1
9. OTHER SITE WORK UNDER COMPLYING DEVELOPMENT APPLICATION.

| TOTAL SQUARE METERS | |
|---|----------|
| SITE AREA | 284400.0 |
| EXISTING RESIDENCE | 222.1 |
| EXISTING RESIDENCE [INS. EXT. WALLS] | 206.2 |
| PROPOSED EXTENSION [INS. EXT. WALLS] | 196.2 |
| PROP. TOTAL FLOOR AREA | 402.4 |
| PROPOSED FSR | 0.001:1 |

| REVISION | | |
|----------|--------------------------|----------|
| A | ISSUED FOR COMMENT | 10/07/18 |
| B | ISSUED FOR COMMENT | 12/07/18 |
| C | ISSUED FOR COMMENT | 31/07/18 |
| D | ISSUED FOR COMMENT | 08/08/18 |
| E | ISSUED FOR DA SUBMISSION | 21/08/18 |

PROPOSED EXTENSION

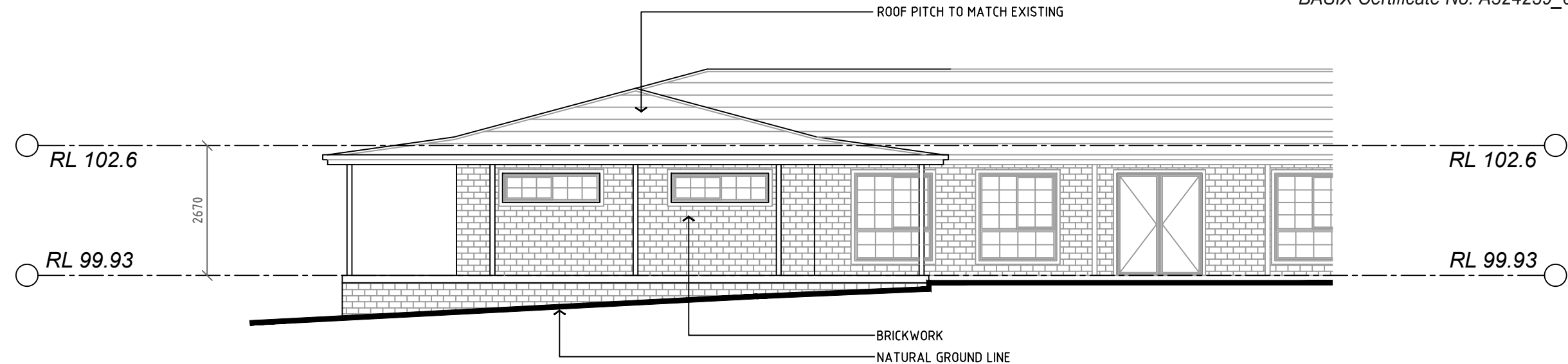
LOT 108, DP 264639
56 PRINCES HWY, BULLI NSW 2516

CLIENT: ADAMS

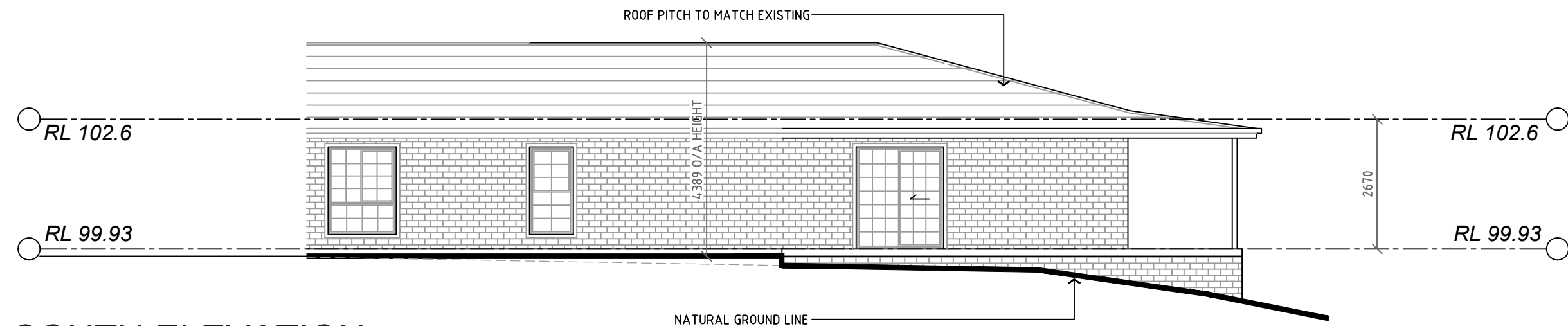
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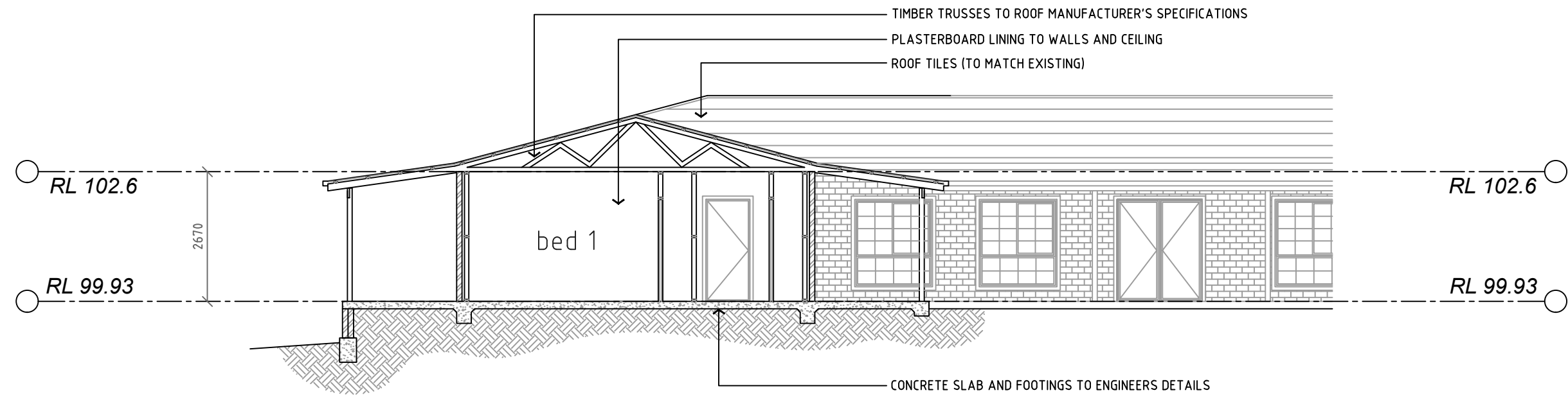
e wollongongdrafting@gmail.com
m 0416 025 684
wollongongdrafting.com



NORTH ELEVATION



SOUTH ELEVATION



SECTION A-A

PROPOSED EXTENSION, LOT 108 PRINCES HIGHWAY, BULLI

1. TIMBER FRAMING AND WIND BRACING TO COMPLY WITH AS1684 AND TO NSW TIMBER FRAMING MANUAL AMENDED TO SUIT WIND TERRAIN CATEGORY.
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| TOTAL SQUARE METERS | |
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| SITE AREA | 284400.0 |
| EXISTING RESIDENCE | 222.1 |
| EXISTING RESIDENCE [INS. EXT. WALLS] | 206.2 |
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PROPOSED EXTENSION

LOT 108, DP 264639
56 PRINCES HWY, BULLI NSW 2516

CLIENT: ADAMS

DATE 21/08/18
SCALE 1/100
SHEET 4 OF 4
DRAWN ST

WOLLONGONG DRAFTING

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Moore Trees
Arboricultural Services

ABN 90887347745

Arboricultural Development Assessment Report

56 Princes Highway
Bulli NSW 2516
October 2018
Final



Member 2018



Prepared for: Wollongong Drafting

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Consulting Arborist
ISA, AA
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Summary

This report has been compiled for Wollongong Drafting. The report concerns a proposed Development Application for 56 Princes Highway, Bulli NSW 2516. This Arborist Report refers to eighty (80) trees.

This report contains the following information required in Wollongong City Council Development guidelines:-

- 1) All trees were assessed for Safe Useful Life Expectancy (SULE).
- 2) Genus and species of each tree.
- 3) Impact of the proposed development on each tree.
- 4) Impact of retaining tree on the proposed development.
- 5) The Tree Protection Zone (TPZ) for each tree to be retained.
- 6) Any branch or root pruning that may be required for trees.

The subject Lot 108 is located in partly cleared wet sclerophyll forest in the lower foothills of Bulli Pass. The proposed building site adjoins an existing residence owned by the applicant and is open land, grassed with an array of remnant forest trees on the north perimeter of the proposed building site. The remnant forest trees are “signature” examples of the Bulli foothills forest, characterised by Blackbutt, Turpentine, Maidens Wattle, Sydney Blue Gum.

Trees have been selected for removal so as to conform the RFS requirements. Where possible trees with structural defects, sapling regrowth and declining trees have been selected within the study area shown in Diagram 1 to be removed.

If approved, removal of Trees 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 18, 19, 20, 23, 32, 69 and 77 for reasons of SULE ratings and/or root zone attrition should result in an acceptable APZ on that side of the residence, subject to confirmation by the clients’ bushfire consultant. The tree-by-tree canvassing resulted in selective paint-marking of trees with defects as first choice for attrition to thin out the canopy density. Again, this may be subject to confirmation by the Project Bushfire Consultant and ultimately approval by the Principal Certifying Authority.

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|----------------------|----------------|
| 7 November 2018 | Draft 1 issued |
| 15 November 2018 | Final issued |
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1 INTRODUCTION

- 1.1** This report has been conducted to assess the health and condition of eighty (80) individual trees located at 56 Princes Highway, Bulli NSW 2516. This report has been prepared for Wollongong Drafting of 41 Belfast Avenue, Warilla NSW 2528, as required for a Development Application with Wollongong City Council (WCC) at this site.

This report has been required due to updated plans and also following a site assessment by the NSW Rural Fire Service (RFS). The requirements from the RFS being detailed in a letter to WCC dated 25th September 2018, author Martha Dotter.

The subject trees were assessed for their health and condition. Also included in this report are tree protection measures that will help retain and ensure that the long term health of the trees to be retained are not adversely affected by the proposed development in the future.

As specified in the Wollongong City Council Development Application guidelines the following data was collected for each tree:

- 1) A site plan locating all trees over three (3) metres in height, including all street trees.
- 2) All trees were assessed for Safe Useful Life Expectancy (SULE), health and amenity value.
- 3) Genus and species identification of each tree.
- 4) Impact of the proposed development on each tree.
- 5) The Tree Protection Zone (TPZ) for each tree to be retained.
- 6) Any branch or root pruning that may be required for trees.

Also noted for the purpose of this report were:

- Health and Vigour; using foliage colour and size, extension growth, presence of deadwood, dieback and epicormic growth throughout the tree.
- Structural condition using visible evidence of bulges, cracks, leans and previous pruning.
- The suitability of the tree taking into consideration the proposed development.

- Age rating; Over-mature (>80% life expectancy), Mature (20-80% life expectancy), Young, Sapling (<20% life expectancy).

1.2 Documents and information provided: For this Arborist Report I was given a site plan of the location, undertaken by Wollongong Drafting Rev E dated 21/08/18. The plan showed the proposed building and existing trees on the site. I have not been provided any plans for engineering specifications or service diagrams for the site. The requirements from the RFS being detailed in a letter to WCC dated 25th September 2018 require an Asset Protection Zone (APZ) of fifty (50) metres to the north and north east, thirty nine (39) metres to the south and twenty five (25) metres to the west. This area can be seen in Diagram 1. The site trees detailed in this report have not been surveyed, the locations are approximate only.

1.3 Location: The proposed development site is located at 56 Princes Highway, Bulli NSW 2516, known as Lot 108 DP 264639. The proposed development site from herein will be referred to as "the Site".



Diagram 1: Location of the APZ area and study area of this report (Red area) (Google earth, 2018)

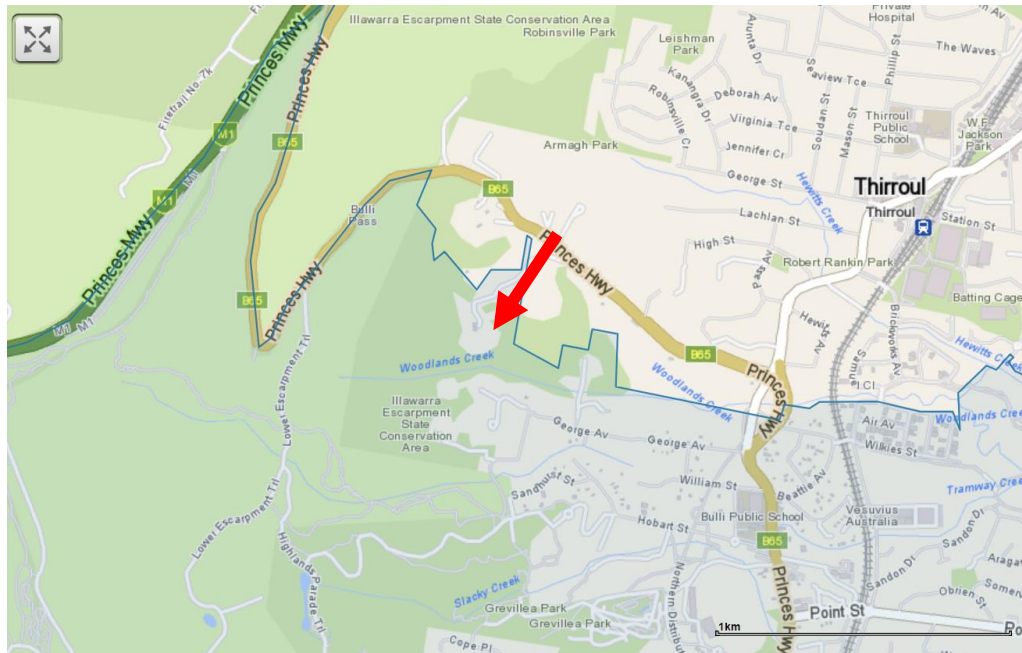


Diagram 2: Location of subject site, 56 Princes Highway, Bulli NSW 2516 (Red arrow)
(whereis.com.au, 2018)

2 METHODOLOGY

2.1 To record the health and condition of the trees, a Visual Tree Assessment (VTA) was undertaken on the subject trees on 1st November 2018. This method of tree evaluation is adapted from Matheny and Clark, 1994 and is recognised by The International Society of Arboriculture. Individual tree assessments are listed in Appendix 2 of this report. All inspections were undertaken from the ground. No diagnostic devices were used on these trees.

2.2 This report is only concerned with trees on the site that come under the Tree management permit policy that is part of the Wollongong City Council Development Control Plan, 2009 (Chapter E17 Preservation and management of Trees and vegetation). Under this Chapter (E17), a person must not ringbark, cut down, top, lop, remove, injure or wilfully destroy any prescribed tree or other vegetation, without development consent or a permit being granted by Council. Refer to Part 3 (Chapter E17) Definitions for the meaning of ‘prescribed tree’ and ‘prescribed other vegetation’. Two application processes have been established to deal with the assessment and approval for prescribed trees:

a) Tree Management Permit (generally for individual/small scale tree removal and pruning in urban areas) - refer to Council’s website for the Tree Management Permit Policy;

b) Development consent via either Complying Development or Development Application. This Chapter of the DCP should be read in conjunction with clauses 5.10 Heritage conservation, 5.11 Bush fire hazard reduction work and 7.2 Natural resource sensitivity – biodiversity of Wollongong Local Environmental Plan 2009.

This Report is required as per clause (b) via a Development Application for the site. This report takes no account of any tree or shrub under three (3) metres in height.

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

- 2.4 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 be retained. The TPZ calculation is based on the Australian Standard *Protection of trees on development sites*, AS 4970, 2009.
- 2.5 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.
- 2.6 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 2). A detailed explanation of SULE can be found in Appendix 3.
- 2.7 Impact Assessment:** An impact assessment was conducted on the site trees. This was conducted by assessing the site survey and plans provided by Wollongong Drafting. 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.

3 RELEVANT BACKGROUND INFORMATION

3.1 The subject Lot 108 is located in partly cleared wet sclerophyll forest in the lower foothills of Bulli Pass. The proposed building site adjoins an existing residence owned by the applicant and is open land, grassed with an array of remnant forest trees on the north perimeter of the proposed building site. The remnant forest trees are “signature” examples of the Bulli foothills forest, characterised by Blackbutt, Turpentine, Maidens Wattle, Sydney Blue Gum. The Blackbutts are typically very tall specimens and numerous in the tree survey area.

3.2 Environmental Significance: All trees in the Wollongong Local Government Area are protected and cannot be removed without the adequate requirements being met. Specifications relating to what can and cannot be removed are detailed in the Wollongong City Council Development Control Plan (DCP), 2009 in Chapter E17 ‘*Preservation of trees & management of trees and vegetation*’. This DCP protects all trees above three (3) metres in height with a girth of twenty (20) centimetres or more, measured at a distance of one hundred (100) centimetres above the ground.

3.3 Illegal tree removal: Damaging or removing trees can result in heavy fines. Local Government does have the authority to issue on the spot fines known as penalty infringement notices (PINS) starting from \$3,000 or can elect to have a potential tree damaging incident addressed in the Local Court. Recent cases, for example, include two (2) mature trees removed for development (Sutherland Shire Council (SSC) v Palamara, 2008) costing \$4,500 in fines and \$5,000 in court costs. SSC v El-Hage, 2010 concerning illegal tree removal of a single tree costing \$31,500 in fines and \$5,000 in costs. Poisoning trees can also incur substantial fines (SSC v Hill) resulted in a single tree fine that totalled \$14,000 plus a \$10,000 bond for a replacement tree. All of the above cases resulted in a criminal conviction for the guilty parties.

3.4 OEH Native vegetation Mapping: The online Native Vegetation Regulatory (NVR) Map was prepared by OEH under Part 5A of the amended *Local Land Services Act 2013* (LLS Act) and supporting regulation.

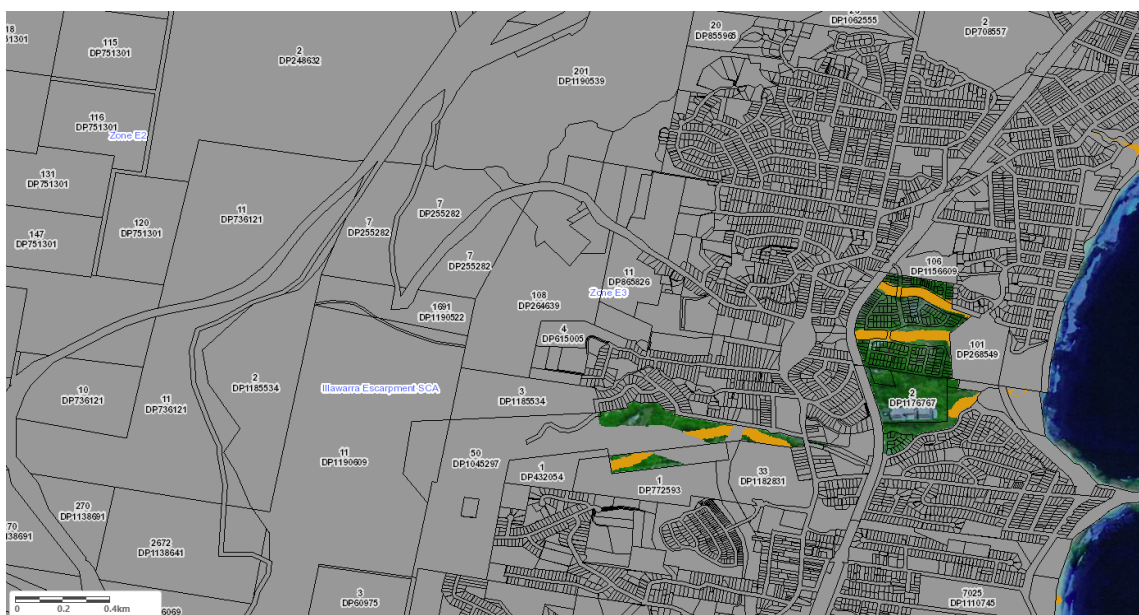
The Native Vegetation Regulatory Map is a tool to give landholders certainty when planning future management of their land. The Map is a regulatory requirement. Part 5A of the Local Land Services Act 2013 (LLS Act), requires the Chief Executive of the

Office of Environment and Heritage (OEH) to prepare and maintain a Native Vegetation Regulatory (NVR) Map.

The NVR Map generally covers rural land in NSW. It categorises land where management of native vegetation can occur without approval or where management of native vegetation may be carried out in accordance with Part 5A of the LLS Act. A summary of categories used in the NVR Map is shown below (Table 1). The site is mapped as *Excluded land*.

| Colour | Category | Definition |
|--------|--|---|
| Blue | Category 1 Unregulated Land | Rural lands where clearing is not regulated by the Part 5A of the LLS Act. Other legislation may apply. |
| Yellow | Category 2 Regulated Land | Rural lands where clearing is regulated and can be carried out in accordance with the Part 5A of the LLS Act or other legislation. This includes complying with the Codes and Allowable activities. |
| Orange | Category 2 Vulnerable Regulated Land | Rural land where clearing of native vegetation is more restricted than on other Category 2 land. This includes steep and highly erodible lands and riparian land and special category land (as declared). |
| Pink | Category 2 Sensitive Regulated Land | Rural lands where clearing of native vegetation is more restricted than other Category 2 land. This includes lands that are Sensitive Lands due to factors such as the presence of coastal wetlands, littoral rainforests, rainforest, or land that is subject to protection covenants such as conservation or incentive property vegetation plans. |
| Grey | Excluded Land | Land not regulated by the Part 5A of the LLS Act. This land includes urban zones, environmental conservation zones and R5 large lot residential as gazetted under a Local Environment Plan (LEP). It also includes public conservation lands such as National Parks and State Forests. |

Table 1: Categories used in the NVR Map (OEH 2018)



- 3.5 Zoning:** The site is zoned as E3 based on the Wollongong Local Environmental Plan 2009 (LEP 2009) being E2 *Environmental Conservation*.

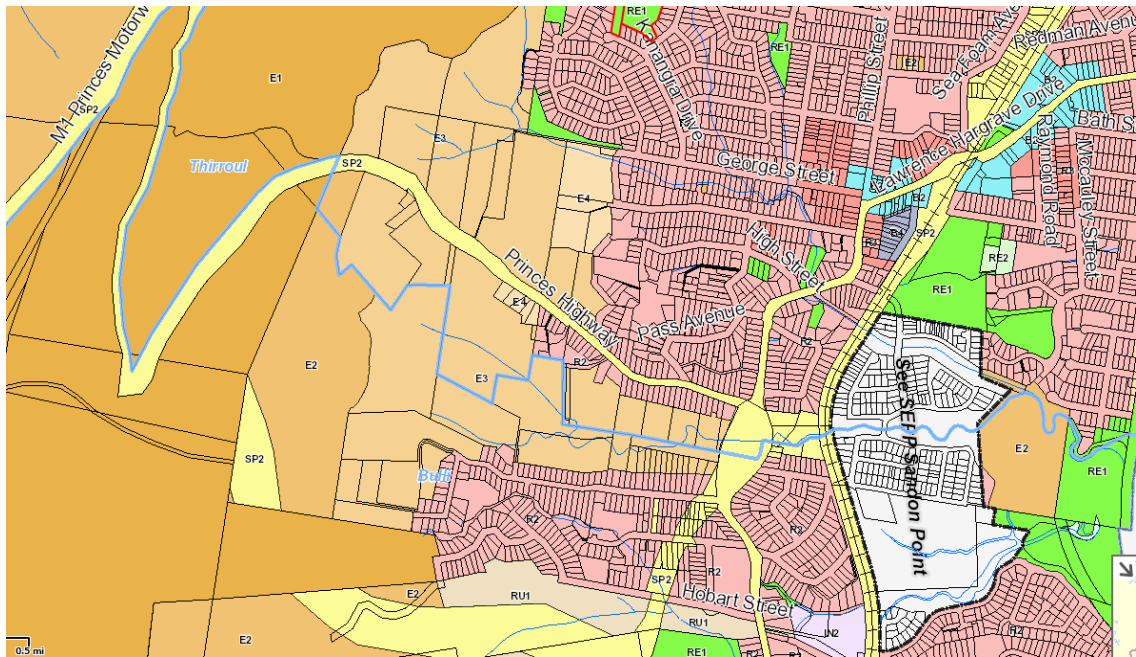


Diagram 4: WCC LGA zoning map (WCC Dekho 2018)

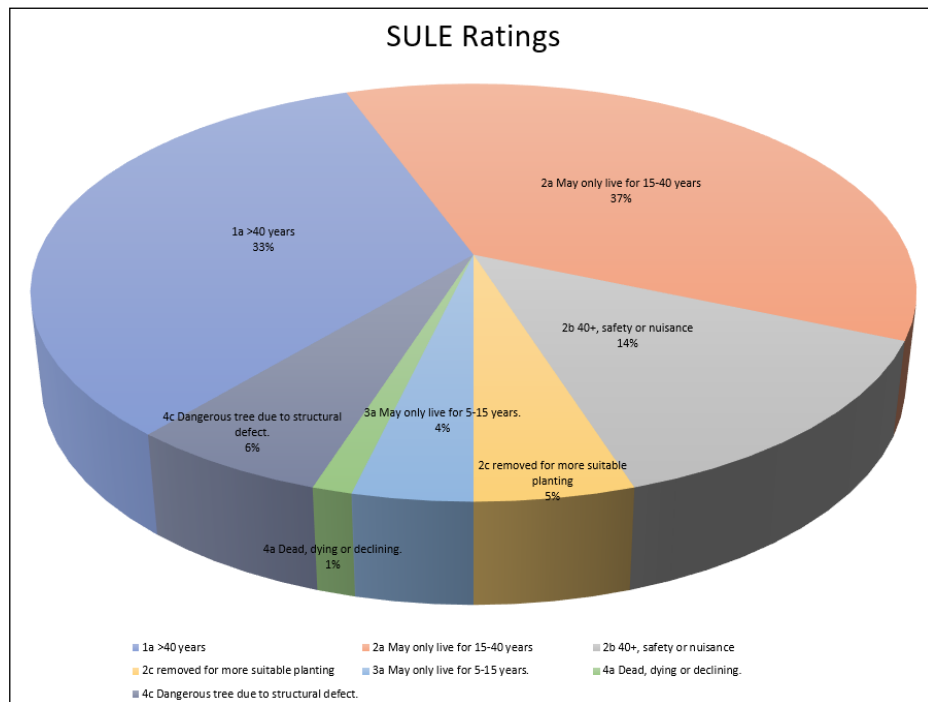
- 3.6 The Site Trees:** The site was inspected on 1st November 2018. Each tree has been given a unique number for this site and can be viewed on the Tree Protection Plan (Appendix 1). This plan is based on the plan provided by Wollongong Drafting. All site trees have been tagged to correspond with the Tree Protection Plan.
- 3.7** All of the site trees are typical of the indigenous species that grow across the Illawarra Escarpment area. Some very large specimens are present however most of the ground level weeds and shrubs have been removed and well maintained over time. The proposed building area to the east of the existing house is cleared land (Plate 1). Near the building area is a large Turpentine that will be retained (Plate 2).
- 3.8** Tree 1 is in good health and condition. The main trunk, first and second order branches are free of any cracks, splits or fruiting bodies. Old pruning wounds are showing good occlusion, a sign that the tree is photosynthesizing effectively. New extension growth was noted with leaf colour showing good vitality. The tree would be considered to have a 95% live canopy. The basal area and woody root zone were free of any ground heaving, or lifting.

- 3.9** Most of the vegetation is to the north of the site and contains Trees 4-65. Tree 14 (Plate 5) has developed codominant stems and may potentially split. Removal of this tree is recommended and this will also help reduce canopy cover within the Outer Protection Zone (OPZ). Plate 4 shows that a large portion of this area is already cleared. There are many saplings with a DBH of less than one hundred and twenty (120) millimetres that could readily be removed in order to reduce these from becoming future forest trees adding to the canopy cover within the OPZ.
- 3.10** To the east of the site has several large specimens however these would appear to be reasonably spaced in order to conform with the APZ requirements (Plate 6).
- 3.11** To the south, for a distance of thirty nine (39) metres, are scattered specimens of *Eucalyptus* specimens and *Acacia species*. Tree 69 has a structural defect and could be removed. *Acacia maidenii* are growing in this area and not a long lived species. As these begin to die they should be removed.
- 3.12** **The Rural Fire Service (RFS) 10/50 Vegetation Clearing Code of Practice (The Code)** has been prepared in accordance with section 100Q of the Rural Fires Amendment (Vegetation Clearing) Act 2014.

The online assessment tool ("Tool") is provided by the NSW Rural Fire Service ("the NSW RFS") to help assess whether the 10/50 Code will allow you to clear vegetation on your property. A search of the site address does show that the property is a designated 10/50 vegetation entitlement clearing area. Clearing can only occur in accordance with the Code.

- 3.13** Safe Useful Life Expectancy (SULE) is a method of evaluating individual trees. The evaluation is a subjective assessment, not an absolute judgement, because the nature of trees and opinions on trees can vary greatly. SULE assessments are made only by those who are experienced and knowledgeable in tree management. SULE is generally accepted and used world-wide as a method of evaluating trees. Each category has a number of sub-categories. These sub-categories should always be recorded to help future users of the information appreciate the reason for each allocation decision. It is normal to have instances where trees will not fit neatly into a single SULE category. The assessment of the site trees can be seen in Graph 1. In general, the trees were mostly

assessed as being in good health. These ratings were used to help considerations for potential removal candidates.



Graph 1: SULE ratings for the site.

3.14 Potential habitat: For the purpose of this report, WCC defines a “Habitat tree” as follows;

Habitat tree means any tree which is a nectar feeding tree, roost and nest tree or a hollow-bearing tree which is suitable for nesting birds, arboreal marsupials (possums), micro-bats or which support the growth of locally indigenous epiphytic plants such as orchids. (DCP, 2009, Chapter E17 ‘Preservation of trees & management of trees and vegetation’).

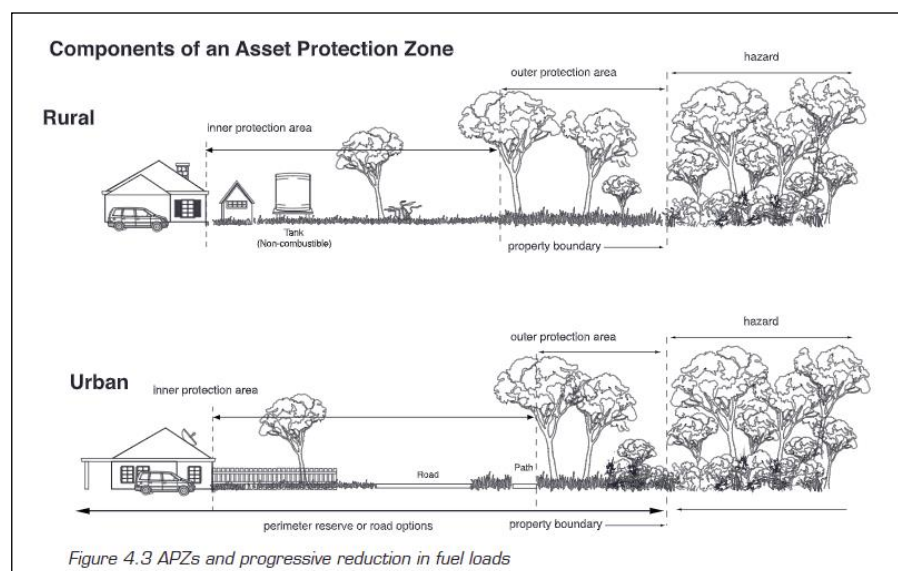
None of the trees proposed to be removed have hollows that could contain any habitat.

3.15 Impacts: As recommended in the RFS Report:

At the commencement of building works and in perpetuity the property around the building shall be managed as follows 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':

- *north, northeast and east for a distance of 50 metres as an asset protection zone;*
- *south for a distance of 39 metres as an asset protection zone; and*
- *west for a distance of 25 metres as an asset protection zone;*

(Note: in forested areas a portion of the APZ may be maintained as an outer protection zone)



Trees 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 19, 20, 23, 32, 69 and 77 have been nominated for removal. Where possible trees with structural defects, sapling regrowth and declining trees have been selected within the study area shown in Diagram 1.

4 RECOMMENDATIONS

- 4.1** A Project Arborist should be appointed to oversee the arboricultural related works for the project. The Project Arborist should be used for arboricultural certification services and also used as a point of contact should any questions arise during the project. As specified in AS 4970, 2009, a Project Arborist is a person with a minimum Australian Qualification Framework (AQF) level 5 Diploma of Arboriculture or Horticulture qualification.
- 4.2** If approved, removal of Trees 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 18, 19, 20, 23, 32, 69 and 77 for reasons of SULE ratings and/or root zone attrition should result in an acceptable APZ on that side of the residence, subject to confirmation by the clients' bushfire consultant. The tree-by-tree canvassing resulted in selective paint-marking of trees with defects as first choice for attrition to thin out the canopy density. Again, this may be subject to confirmation by the project bushfire consultant and ultimately approval by the Principal Certifying Authority.
- 4.3** Tree 1 will require tree protection fencing as specified in Section 5.2 of this report. This fencing will be located at the Tree Protection Zones (TPZ) listed in the Tree Schedule (Appendix 2). The specifications for a TPZ are in Section 5.4 of this report.
- 4.4** **Tree removal:** All tree work shall be carried out by a qualified Arborist and work shall be completed following AS 4373 (Pruning of Amenity Trees, 2007). Tree removal required for the Bush Fire regulations should be undertaken in a controlled manor. Larger trees near trees to be retained shall not be felled, but be blocked down so as not to damage adjoining trees.

5 TREE PROTECTION

5.1 Trees to be protected: Tree 1 to the east of the development is required to be fenced for protection. All fencing shall be installed as specified in Section 5.2 (Tree Protection – Implementation of Tree Protection Zone). Indicative locations of the fencing are shown in the Tree Protection Plan (Appendix 1).

5.2 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). Specifications for this fencing are shown in Tree Protection Fencing Specifications (Appendix 5).

5.3 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 giving a visual aid to protect trees on your development.

Film #1, Trunk Protection

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

Film #2, Tree Protection Fencing

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

5.4 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.

5.5 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.

5.6 Signage: Wollongong City Council requires signage is attached to the tree protection fencing. A sample sign has been attached in Appendix 6. This sign may be copied and laminated then attached to any TPZ fencing.

5.7 Arborist Certification: Wollongong City Council requires the developer to supply Council or the Principal Certifying Authority with certification from the Project Arborist three (3) times during the construction phase of the development (as outlined in Council's Development Control Plan, 2009), in order to verify that retained trees have been correctly retained and protected as per the conditions of consent and Arborist's recommendations. The certification is to be conducted by a Qualified Consulting Arborist with AQF level 5 qualifications that has current membership with either Arboriculture Australia (AA) or Institute of Australian Consulting Arboriculturists (IACA).

Arborist certification is recommended:

- (1) Before the commencement of demolition or construction to confirm the fencing has been installed;
- (2) At mid-point of the construction phase;
- (3) At completion of the construction phase.

If you have any questions in relation to this report please contact me.



Paul Vezgoff

Consulting Arborist

Dip Arb (Dist), Arb III, Hort cert, AA, ISA

15th November 2018



www.mooretrees.com.au

6 IMAGES



Plate 1: Image showing the proposed extension area. P. Vezgoff.



Plate 2: Tree 1 (Red arrow) to be retained. 2 and 3 to be removed (Blue arrow) P. Vezgoff.



Plate 3: Area to the north of the proposed building area. Several saplings could be removed from this area (Red arrow). P. Vezgoff.



Plate 4: North east the area is generally clear of ground vegetation. P. Vezgoff.



Plate 5: Tree 14 showing codominant stems that could potentially fail. P. Vezgoff.



Plate 6: Area to the east of the proposed building area showing little to no ground fuel. P. Vezgoff.

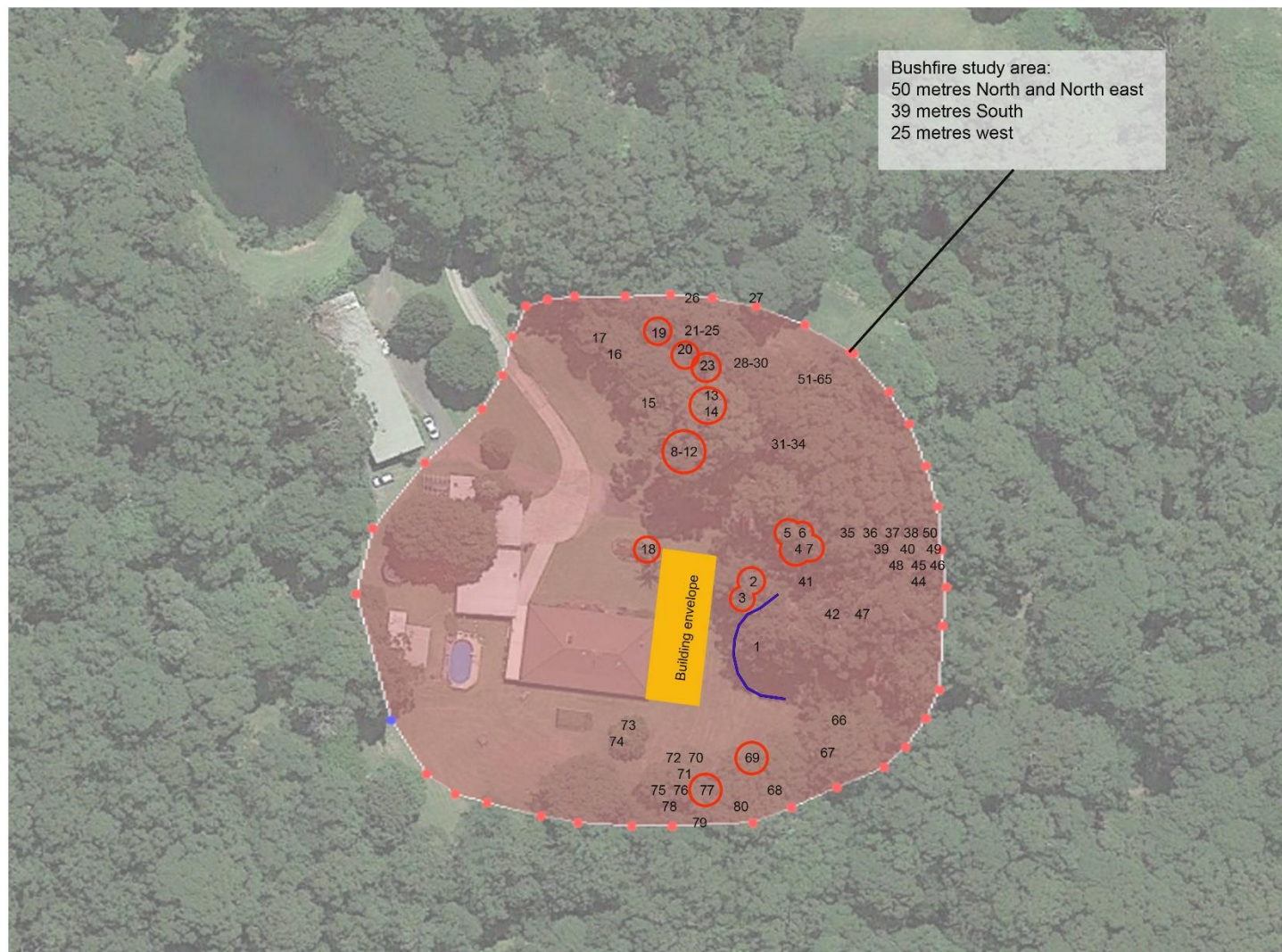
Appendix 1

Plan 1

Tree Protection Plan



Tree protection plan



This Tree Protection Plan is based on a Google Earth Image and is not survey accurate.



Date: 15.11.18
Drawn: P.Vezgoff
Site Address: 56 Princes Highway
Bulli NSW 2516

Appendix 2

Tree health & condition **assessment schedule**

TREE HEALTH AND CONDITION ASSESSMENT SCHEDULE – 56 Princes Hwy, Bulli

| Tree | Species | Height (m) | Spread (m) | DBH (m) | Live canopy % | Defects | SULE | Condition | Age | Comments | TPZ (m) | SRZ (m) |
|------|---|------------|------------|---------|---------------|-------------------|---|-----------|--------|--------------------------|---------|---------|
| 1 | Turpentine (Syncarpia glomulifera) | 25 | 10 | 1.2 | 95 | No visual defects | 2a May only live for 15-40 years | Good | Mature | | 13.2 | 3.5 |
| 2 | Acacia maidenii | 13 | 3 | 0.3 | 95 | No visual defects | 4c Dangerous tree due to structural defect. | Poor | Mature | decay in stems | 6 | 2.6 |
| 3 | Blue Gum Hybrid (Eucalyptus saligna x botryoides) | 20 | 9 | 0.4 | 95 | No visual defects | 4c Dangerous tree due to structural defect. | Poor | Mature | | 5.4 | 2.5 |
| 4 | Blackbutt (Eucalyptus pilularis) | 35 | 6 | 0.4 | 95 | No visual defects | 1a >40 years | Good | Mature | | 5.4 | 2.5 |
| 5 | Blackbutt (Eucalyptus pilularis) | 30 | 7 | 0.8 | 95 | No visual defects | 1a >40 years | Good | Mature | | 6 | 2.6 |
| 6 | Blackbutt (Eucalyptus pilularis) | 19 | 5 | 0.3 | 95 | No visual defects | 1a >40 years | Good | Mature | | 6 | 2.6 |
| 7 | Blackbutt (Eucalyptus pilularis) | 35 | 7 | 0.4 | 95 | No visual defects | 4c Dangerous tree due to structural defect. | Poor | Mature | | 5.4 | 2.5 |
| 8 | Blackbutt (Eucalyptus pilularis) | 13 | 9 | 0.2 | 95 | No visual defects | 1a >40 years | Good | Mature | | 6 | 2.6 |
| 9 | Blackbutt (Eucalyptus pilularis) | 20 | 13 | 0.5 | 95 | No visual defects | 1a >40 years | Good | Mature | | 6 | 2.6 |
| 10 | Blackbutt (Eucalyptus pilularis) | 30 | 8 | 0.6 | 95 | No visual defects | 1a >40 years | Good | Mature | | 6 | 2.6 |
| 11 | Blackbutt (Eucalyptus pilularis) | 30 | 10 | 0.6 | 95 | No visual defects | 1a >40 years | Good | Mature | | 6 | 2.6 |
| 12 | Blackbutt (Eucalyptus pilularis) | 35 | 20 | 1.1 | 95 | No visual defects | 1a >40 years | Fair | Mature | | 6 | 2.6 |
| 13 | Acacia maidenii | 18 | 4 | 0.55 | 95 | No visual defects | 1a >40 years | Good | Mature | | 6 | 2.6 |
| 14 | Blackbutt (Eucalyptus pilularis) | 29 | 7 | 0.68 | 95 | Co dom stems | 4c Dangerous tree due to structural defect. | Fair | Mature | May split | 10 | 4 |
| 15 | Acacia maidenii | 16 | 5 | 0.28 | 80 | Stem wounds | 2a May only live for 15-40 years | Fair | Mature | | 3.4 | 2.1 |
| 16 | Red Ash (Alphitona excelsa) | 16 | 5 | 0.45 | 80 | Stem wounds | 2a May only live for 15-40 years | Fair | Mature | | 5.4 | 2.5 |
| 17 | Red Ash (Alphitona excelsa) | 16 | 5 | 0.45 | 80 | Stem wounds | 2a May only live for 15-40 years | Fair | Mature | | 5.4 | 2.5 |
| 18 | Bangalow palm (Archontophoenix cunninghamiana) | 12 | 3 | 0.2 | 100 | No visual defects | 1a >40 years | Good | Mature | Within building envelope | 2.4 | 1.9 |

| Tree | Species | Height (m) | Spread (m) | DBH (m) | Live canopy % | Defects | SULE | Condition | Age | Comments | TPZ (m) | SRZ (m) |
|------|---|------------|------------|---------|---------------|-------------------|---------------------------------------|-----------|---------|---|---------|---------|
| 19 | Turpentine (Syncarpia glomulifera) | 7 | 1.5 | 0.15 | 90 | No visual defects | 2c removed for more suitable planting | Good | Sapling | Potential to remove for bushfire management | 1.8 | 1.4 |
| 20 | Turpentine (Syncarpia glomulifera) | 7 | 1.5 | 0.15 | 90 | No visual defects | 2c removed for more suitable planting | Good | Sapling | Potential to remove for bushfire management | 1.8 | 1.4 |
| 21 | Bangalay (Eucalyptus botryoides) | 18 | 6 | 0.5 | 88 | No visual defects | 1a >40 years | Fair | Mature | | 6 | 2.6 |
| 22 | Turpentine (Syncarpia glomulifera) | 14 | 4 | 0.25 | 90 | No visual defects | 2a May only live for 15-40 years | Good | Mature | | 3 | 2.1 |
| 23 | Turpentine (Syncarpia glomulifera) | 7 | 1.5 | 0.15 | 90 | No visual defects | 2c removed for more suitable planting | Good | Sapling | Potential to remove for bushfire management | 1.8 | 1.4 |
| 24 | Turpentine (Syncarpia glomulifera) | 13 | 5 | 0.5 | 95 | No visual defects | 1a >40 years | Good | Mature | | 6 | 2.6 |
| 25 | Acacia maidenii | 14 | 5 | 0.28 | 80 | Stem wounds | 2a May only live for 15-40 years | Fair | Mature | | 3.4 | 2.1 |
| 26 | Turpentine (Syncarpia glomulifera) | 18 | 6 | 0.9 | 90 | No visual defects | 2a May only live for 15-40 years | Good | Mature | Multi stemmed specimen | 10.8 | 3.3 |
| 27 | Acacia maidenii | 14 | 5 | 0.28 | 80 | No visual defects | 2a May only live for 15-40 years | Fair | Mature | | 3.4 | 2.1 |
| 28 | Red Ash (Alphitona excelsa) | 9 | 2.5 | 0.2 | 90 | Stem wounds | 2b 40+, safety or nuisance | Good | Mature | | 2.4 | 1.9 |
| 29 | Red Ash (Alphitona excelsa) | 9 | 2.5 | 0.2 | 90 | No visual defects | 2b 40+, safety or nuisance | Good | Mature | | 2.4 | 1.9 |
| 30 | Blackbutt (Eucalyptus pilularis) | 25 | 15 | 1.1 | 95 | No visual defects | 2a May only live for 15-40 years | Good | Mature | Large remnant tree | 13.2 | 3.5 |
| 31 | Blackbutt (Eucalyptus pilularis) | 25 | 15 | 1.1 | 95 | No visual defects | 2a May only live for 15-40 years | Good | Mature | Large remnant tree | 13.2 | 3.5 |
| 32 | Blue Gum Hybrid (Eucalyptus saligna x botryoides) | 13 | 4 | 0.2 | 95 | Stem wounds | 3a May only live for 5-15 years. | Poor | Mature | Hybrid. Possible decay in base. Potential to remove for bushfire management | 2.4 | 1.9 |
| 33 | Blackbutt (Eucalyptus pilularis) | 20 | 8 | 0.9 | 95 | No visual defects | 2a May only live for 15-40 years | Good | Mature | Large remnant tree | 10.8 | 3.1 |

| Tree | Species | Height (m) | Spread (m) | DBH (m) | Live canopy % | Defects | SULE | Condition | Age | Comments | TPZ (m) | SRZ (m) |
|------|---|------------|------------|---------|---------------|-------------------|---------------------------------------|-----------|--------|---|---------|---------|
| 34 | Blue Gum Hybrid (Eucalyptus saligna x botryoides) | 13 | 4 | 0.35 | 95 | Stem wounds | 3a May only live for 5-15 years. | Poor | Mature | Hybrid. Possible decay in base. Potential to remove for bushfire management | 4.2 | 2.3 |
| 35 | Blue Gum Hybrid (Eucalyptus saligna x botryoides) | 12 | 3 | 0.25 | 95 | No Value | 1a >40 years | Good | Mature | Hybrid. Potential to remove for bushfire management | 3 | 2.1 |
| 36 | Blue Gum Hybrid (Eucalyptus saligna x botryoides) | 19 | 6 | 0.8 | 95 | No visual defects | 1a >40 years | Good | Mature | | 9.6 | 3.1 |
| 37 | Blue Gum Hybrid (Eucalyptus saligna x botryoides) | 19 | 6 | 0.8 | 95 | No visual defects | 1a >40 years | Good | Mature | | 9.6 | 3.1 |
| 38 | Blackbutt (Eucalyptus pilularis) | 25 | 15 | 1.1 | 92 | No visual defects | 1a >40 years | Good | Mature | Scattered dead wood | 13.2 | 3.5 |
| 39 | Blackbutt (Eucalyptus pilularis) | 14 | 5 | 0.28 | 95 | No visual defects | 1a >40 years | Good | Mature | | 3.4 | 2.1 |
| 40 | Blackbutt (Eucalyptus pilularis) | 19 | 7 | 0.8 | 95 | No visual defects | 1a >40 years | Good | Mature | | 9.6 | 3.1 |
| 41 | Blue Gum Hybrid (Eucalyptus saligna x botryoides) | 19 | 7 | 0.7 | 95 | No visual defects | 1a >40 years | Good | Mature | | 8.4 | 2.9 |
| 42 | Blackbutt (Eucalyptus pilularis) | 20 | 12 | 1.1 | 90 | No visual defects | 2a May only live for 15-40 years | Good | Mature | Large remnant tree. | 13.2 | 3.5 |
| 43 | Turpentine (Syncarpia glomulifera) | 17 | 5 | 0.45 | 95 | No visual defects | 1a >40 years | Good | Mature | | 5.4 | 2.5 |
| 44 | Murrogun (Cryptocarya microneura) | 7 | 2 | 0.15 | 100 | No visual defects | 2c removed for more suitable planting | Fair | Mature | | 1.8 | 1.6 |
| 45 | Blackbutt (Eucalyptus pilularis) | 19 | 8 | 0.7 | 90 | No visual defects | 2a May only live for 15-40 years | Good | Mature | | 8.4 | 2.9 |
| 46 | Blackbutt (Eucalyptus pilularis) | 17 | 4 | 0.9 | 0 | No visual defects | 4a Dead, dying or declining. | Dead | Mature | Large dead stag. Likely habitat hollows | 10.8 | 3.1 |
| 47 | Murrogun (Cryptocarya microneura) | 20 | 11 | 0.9 | 90 | No visual defects | 2a May only live for 15-40 years | Fair | Mature | Likely habitat hollows. Old remnant tree | 10.8 | 3.5 |
| 48 | Turpentine (Syncarpia glomulifera) | 12 | 5 | 0.25 | 100 | No visual defects | 1a >40 years | Good | Mature | | 3 | 2.1 |
| 49 | Blackbutt (Eucalyptus pilularis) | 19 | 6 | 0.45 | 95 | No visual defects | 1a >40 years | Good | Mature | | 5.4 | 2.5 |

| Tree | Species | Height (m) | Spread (m) | DBH (m) | Live canopy % | Defects | SULE | Condition | Age | Comments | TPZ (m) | SRZ (m) |
|------|---|------------|------------|---------|---------------|------------------------------------|---|-----------|--------|---|---------|---------|
| 50 | Blackbutt (Eucalyptus pilularis) | 19 | 6 | 0.45 | 95 | No visual defects | 1a >40 years | Good | Mature | | 5.4 | 2.5 |
| 51 | Murrogun (Cryptocarya microneura) | 8 | 2 | 0.12 | 95 | No visual defects | 2b 40+, safety or nuisance | Good | Mature | | 1.4 | 1.4 |
| 52 | Murrogun (Cryptocarya microneura) | 8 | 2 | 0.12 | 95 | No visual defects | 2b 40+, safety or nuisance | Good | Mature | | 1.4 | 1.4 |
| 53 | Red Ash (Alphitona excelsa) | 8 | 2 | 0.12 | 95 | No visual defects | 2b 40+, safety or nuisance | Good | Mature | | 1.4 | 1.4 |
| 54 | Red Ash (Alphitona excelsa) | 11 | 5 | 0.25 | 95 | No visual defects | 1a >40 years | Fair | Mature | | 3 | 2.1 |
| 55 | Red Ash (Alphitona excelsa) | 11 | 5 | 0.25 | 95 | No visual defects | 1a >40 years | Fair | Mature | | 3 | 2.1 |
| 56 | Red Ash (Alphitona excelsa) | 11 | 5 | 0.4 | 95 | No visual defects | 2b 40+, safety or nuisance | Fair | Mature | | 4.8 | 2.4 |
| 57 | Red Ash (Alphitona excelsa) | 11 | 5 | 0.25 | 95 | No visual defects | 2b 40+, safety or nuisance | Fair | Mature | | 3 | 2.1 |
| 58 | Red Ash (Alphitona excelsa) | 13 | 5 | 0.35 | 90 | No visual defects | 2b 40+, safety or nuisance | Good | Mature | | 4.2 | 2.3 |
| 59 | Acmena smithii | 8 | 3 | 0.3 | 100 | No visual defects | 1a >40 years | Good | Mature | Multi stemmed specimen | 3.6 | 1.9 |
| 60 | Red Ash (Alphitona excelsa) | 13 | 5 | 0.35 | 90 | No visual defects | 2b 40+, safety or nuisance | Good | Mature | | 4.2 | 2.3 |
| 61 | No Value | 9 | 5 | 0.25 | 95 | No visual defects | 2b 40+, safety or nuisance | Good | Mature | | 3 | 2.1 |
| 62 | Bangalay (Eucalyptus botryoides) | 17 | 6 | 0.35 | 90 | Fruiting body (Small) | 2a May only live for 15-40 years | Fair | Mature | | 4.2 | 2.3 |
| 63 | Blue Gum Hybrid (Eucalyptus saligna x botryoides) | 19 | 9 | 0.7 | 90 | No visual defects | 2a May only live for 15-40 years | Good | Mature | | 8.4 | 2.9 |
| 64 | Acacia maidenii | 9 | 4 | 0.25 | 90 | No visual defects | 2b 40+, safety or nuisance | Good | Mature | | 3 | 2.1 |
| 65 | Bangalay (Eucalyptus botryoides) | 17 | 6 | 0.35 | 90 | No visual defects | 2a May only live for 15-40 years | Good | Mature | | 4.2 | 2.3 |
| 66 | Blue Gum Hybrid (Eucalyptus saligna x botryoides) | 16 | 5 | 0.45 | 90 | No visual defects | 2a May only live for 15-40 years | Fair | Mature | | 5.4 | 2.5 |
| 67 | Blue Gum Hybrid (Eucalyptus saligna x botryoides) | 20 | 11 | 0.9 | 90 | No visual defects | 2a May only live for 15-40 years | Good | Mature | | 10.8 | 3.3 |
| 68 | Acacia maidenii | 16 | 4 | 0.3 | 90 | No visual defects | 2a May only live for 15-40 years | Good | Mature | | 3.6 | 2.2 |
| 69 | Acacia maidenii | 17 | 5 | 0.45 | 90 | Open cavity with evidence of decay | 4c Dangerous tree due to structural defect. | Poor | Mature | Potential to remove for bushfire management | 5.4 | 2.5 |

| Tree | Species | Height (m) | Spread (m) | DBH (m) | Live canopy % | Defects | SULE | Condition | Age | Comments | TPZ (m) | SRZ (m) |
|------|---|------------|------------|---------|---------------|-------------------|----------------------------------|-----------|--------|---|---------|---------|
| 70 | Turpentine (Syncarpia glomulifera) | 16 | 8 | 0.5 | 90 | No visual defects | 1a >40 years | Fair | Mature | Multi stemmed specimen | 6 | 2.6 |
| 71 | Turpentine (Syncarpia glomulifera) | 12 | 5 | 0.4 | 90 | No visual defects | 1a >40 years | Fair | Mature | | 4.8 | 2.4 |
| 72 | Bangalay (Eucalyptus botryoides) | 18 | 6 | 0.7 | 90 | No visual defects | 2a May only live for 15-40 years | Good | Mature | Multi stemmed specimen. Scattered dead wood . | 8.4 | 2.9 |
| 73 | Acacia maidenii | 17 | 5 | 0.55 | 90 | No visual defects | 2a May only live for 15-40 years | Fair | Mature | | 6.6 | 2.6 |
| 74 | Acacia maidenii | 17 | 5 | 0.55 | 60 | No visual defects | 2a May only live for 15-40 years | Poor | Mature | | 6.6 | 2.6 |
| 75 | Acacia maidenii | 16 | 4 | 0.3 | 90 | No visual defects | 2a May only live for 15-40 years | Good | Mature | | 3.6 | 2.2 |
| 76 | Bangalay (Eucalyptus botryoides) | 18 | 6 | 0.7 | 90 | No visual defects | 2a May only live for 15-40 years | Good | Mature | Multi stemmed specimen. Scattered dead wood . | 8.4 | 2.9 |
| 77 | Acacia maidenii | 11 | 5 | 0.45 | 70 | No visual defects | 2a May only live for 15-40 years | Fair | Mature | Potential to remove for bushfire management | 5.4 | 2.5 |
| 78 | Blue Gum Hybrid (Eucalyptus saligna x botryoides) | 16 | 5 | 0.45 | 90 | No visual defects | 2a May only live for 15-40 years | Fair | Mature | | 5.4 | 2.5 |
| 79 | Blue Gum Hybrid (Eucalyptus saligna x botryoides) | 16 | 5 | 0.45 | 90 | No visual defects | 2a May only live for 15-40 years | Fair | Mature | | 5.4 | 2.5 |
| 80 | Acacia maidenii | 17 | 5 | 0.45 | 90 | No visual defects | 2a May only live for 15-40 years | Good | Mature | | 5.4 | 2.5 |

KEY

Tree No: Relates to the number allocated to each tree for the Tree Protection Plan.

Height: Height of the tree to the nearest metre.

Spread: The average spread of the canopy measured from the trunk.

DBH: Diameter at breast height. An industry standard for measuring trees at 1.4 metres above ground level, this measurement is used to help calculate Tree Protection Zones.

Live Crown Ratio: Percentage of foliage cover for a particular species.

| | | |
|--------------------------|---------------------------|--------------------------------------|
| Age Class: Young: | Recently planted tree | Semi-mature:< 20% of life expectancy |
| Mature: | 20-90% of life expectancy | Over-mature:>90% of life expectancy |

SULE: See SULE methodology in the Appendix 3

Tree Protection Zone (TPZ): The minimum area set aside for the protection of the trees trunk, canopy and root system throughout the construction process. Breaches of the TPZ will be specified in the recommendations section of the report.

Structural Root Zone (SRZ): The SRZ is a specified distance measured from the trunk that is set aside for the protection of the trees roots both structural and fibrous.

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.

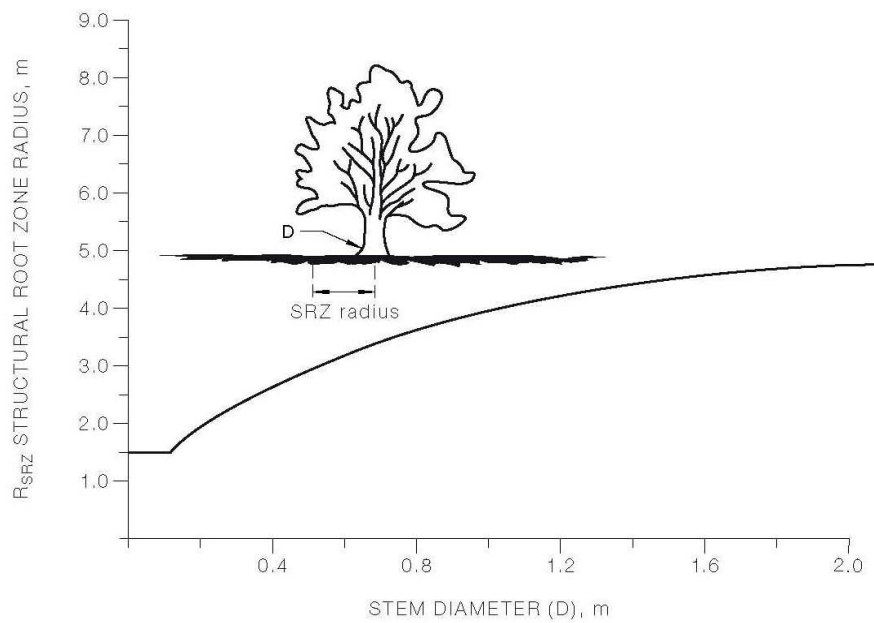
There are many factors that affect the size of the SRZ (e.g. tree height, crown area, soil type, soil moisture). The SRZ may also be influenced by natural or built structures, such as rocks and footings. An indicative SRZ radius can be determined from the trunk diameter measured immediately above the 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:
 $R_{SRZ} = (D \times 50)^{0.42} \times 0.64$

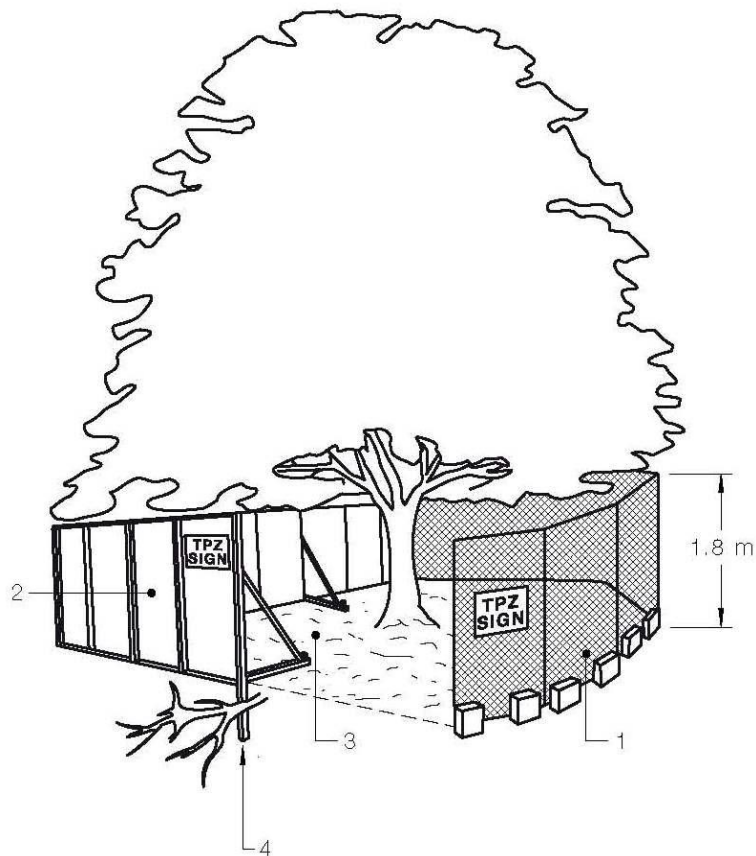
FIGURE 1 - STRUCTURAL ROOT ZONE

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

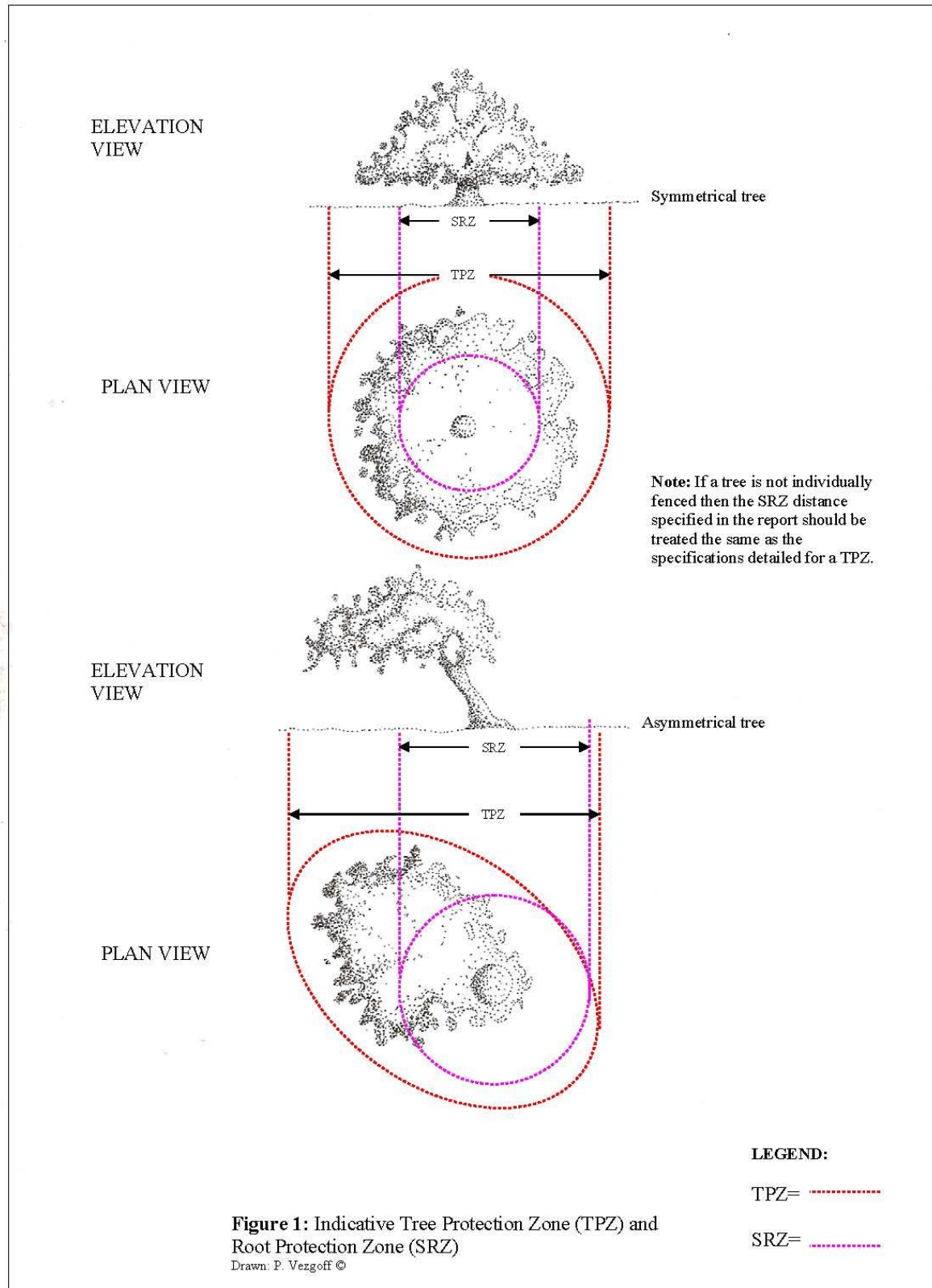
NO

Storage of materials

Trenching or excavation

Washing of tools or equipment

Appendix 7



Appendix 8

Tree structure information diagram

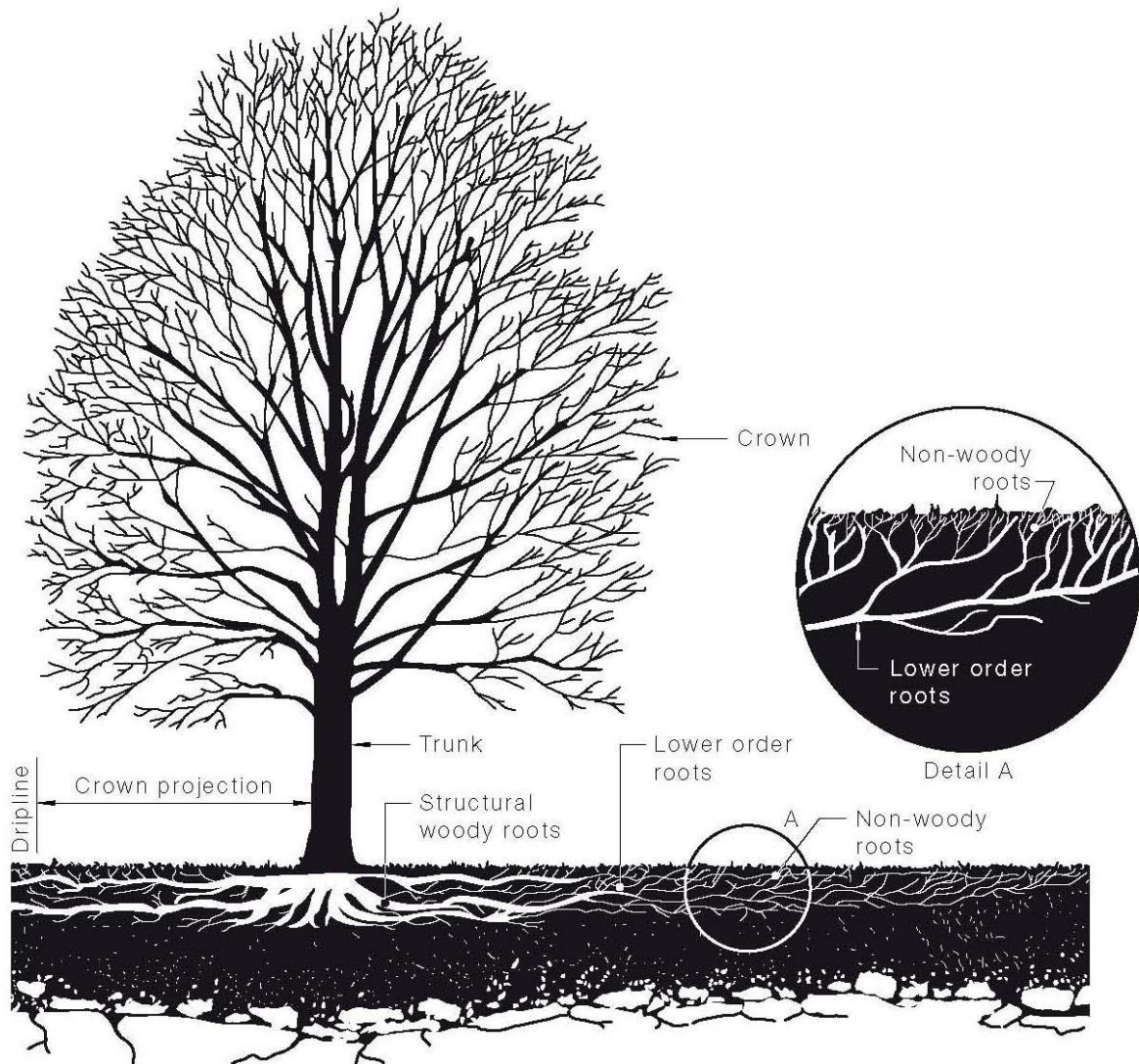


Figure 2: Structure of a tree in a normal growing environment (AS 4970, 2009.).

Appendix 9

Explanatory Notes

- **Mathematical abbreviations:** > = Greater than; < = Less than.
- **Measurements/estimates:** All dimensions are estimates unless otherwise indicated. Less reliable estimated dimensions are indicated with a '?'.
- **Species:** The species identification is based on visual observations and the common English name of what the tree appeared to be is listed first, with the botanical name after in brackets. In some instances, it may be difficult to quickly and accurately identify a particular tree without further detailed investigations. Where there is some doubt of the precise species of tree, it is indicated with a '?' after the name in order to avoid delay in the production of the report. The botanical name is followed by the abbreviation sp if only the genus is known. The species listed for groups and hedges represent the main component and there may be other minor species not listed.
- **Height:** Height is estimated to the nearest metre.
- **Spread:** The maximum crown spread is visually estimated to the nearest metre from the centre of the trunk to the tips of the live lateral branches.
- **Diameter:** These figures relate to 1.4m above ground level and are recorded in centimetres. If appropriate, diameter is measured with a diameter tape. 'M' indicates trees or shrubs with multiple stems.
- **Estimated Age:** Age is estimated from visual indicators and it should only be taken as a provisional guide. Age estimates often need to be modified based on further information such as historical records or local knowledge.
- **Distance to Structures:** This is estimated to the nearest metre and intended as an indication rather than a precise measurement.

Appendix 10

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Curriculum Vitae

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EDUCATION and QUALIFICATIONS

- 2013 – ISA TRAQ qualification
- 2007 – Diploma of Arboriculture (AQF Cert V) Ryde TAFE. (Distinction)
- 1997 – Completed Certificate in Crane and Plant Electrical Safety
- 1996 – Attained Tree Surgeon Certificate (AQF Cert II) at Ryde TAFE
- 1990 – Completed two month intensive course on garden design at the Inchbald School of Design, London, United Kingdom
- 1990 – Completed patio, window box and balcony garden design course at Brighton College of Technology, United Kingdom
- 1989 – Awarded the Big Brother Movement Award for Horticulture (a grant by Lady Peggy Pagan to enable horticulture training in the United Kingdom)
- 1989 – Attained Certificate of Horticulture (AQF Cert IV) at Wollongong TAFE

INDUSTRY EXPERIENCE

Moore Trees Arboricultural Services

January 2006 to date

Tree Consultancy and tree ultrasound. Tree hazard and risk assessment, Arborist development application reports
Tree management plans.

Woollahra Municipal Council

Oct 1995 to February 2008

ARBORICULTURE TECHNICAL OFFICER

August 2005 – February 2008

ACTING COORDINATOR OF TREES MAINTENANCE

June – July 2005, 2006

TEAM LEADER

January 2003 – June 2005

September 2000 – January 2003

HORTICULTURALIST

October 1995 – September 2000

Northern Landscape Services

July to Oct 1995

Tradesman for Landscape Construction business

Paul Vezgoff Garden Maintenance (London, UK)

Sept 1991 to April 1995

CONFERENCES AND WORKSHOPS ATTENDED

- International Society of Arboriculture Conference (Canberra May 2017)
- QTRA Conference, Sydney Australia (November 2016)
- TRAQ Conference, Auckland NZ (October 2013 / 2018)
- International Society of Arboriculture Conference (Brisbane 2008)
- Tree related hazards: recognition and assessment by Dr David Lonsdale (Brisbane 2008)
- Tree risk management: requirements for a defensible system by Dr David Lonsdale (Brisbane 2008)
- Tree dynamics and wind forces by Ken James (Brisbane 2008)
- Wood decay and fungal strategies by Dr F.W.M.R. Schwarze (Brisbane 2008)
- Tree Disputes in the Land & Environment Court – The Law Society (Sydney 2007)
- Barrell Tree Care Workshop- Trees on construction sites (Sydney 2005).
- Tree Logic Seminar- Urban tree risk management (Sydney 2005)
- Tree Pathology and Wood Decay Seminar presented by Dr F.W.M.R. Schwarze (Sydney 2004)
- Inaugural National Arborist Association of Australia (NAAA) tree management workshop- Assessing hazardous trees and their Safe Useful Life Expectancy (SULE) (Sydney 1997).

Attachment 2: Site Inspection Photos

Date: 25 September 2018

Description: Northern elevation of the existing dwelling.



Date: 25 September 2018

Description: Southern elevation of the existing dwelling.



Date: 25 September 2018

Description: Eastern elevation of the dwelling and site of proposed extension. Photo taken facing North.



Date: 25 September 2018

Description: Eastern elevation of the dwelling and site of proposed extension. Photo taken facing North west.



Date: 25 September 2018

Description: Site of proposed extension. Photo taken facing West.



Date: 25 September 2018

Description: Outbuildings on the subject site. Photo taken from site of proposed extension facing West.



Date: 25 September 2018

Description: Site of proposed extension. Existing dwelling to the left of photo. Photo taken facing West.



Date: 25 September 2018

Description: View to the South west from site of proposed extension.



Date: 25 September 2018

Description: Site of proposed extension. Photo taken facing South east.



Date: 25 September 2018

Description: View to the East from site of proposed extension.



Date: 25 September 2018

Description: View to the North from site of proposed extension.



Date: 25 September 2018

Description: Site of proposed extension.. Photo taken facing East.



Date: 25 September 2018

Description: Sheds on the subject site to the North west of the dwelling.



Date: 25 September 2018

Description: Outbuildings to West of the dwelling.



Date: 25 September 2018

Description: Forest vegetation to the West of the dwelling.



Date: 25 September 2018

Description: Vegetation and outbuildings to the West of the dwelling.



Date: 25 September 2018

Description: View to the South east of the dwelling.



Attachment 3: WDCP 2009 compliance table

CHAPTER A2: ECOLOGICALLY SUSTAINABLE DEVELOPMENT

Development controls to improve the sustainability of development throughout Wollongong are integrated into the relevant chapters of this DCP.

Generally speaking, the proposal could be considered to be consistent with the principles of Ecologically Sustainable Development.

CHAPTER B1 – RESIDENTIAL DEVELOPMENT

Chapter B1 contains residential development controls for dwelling houses and secondary dwellings and applies to all residential zoned lands including E4 Environmental Living. The subject site is located within an E3 Zone and therefore Chapter B1 is not strictly applicable to the subject site.

However as the proposal is for alterations and additions to the existing dwelling, development covered by Chapter B1, a review of the proposal has been undertaken against the provisions of Chapter B1 of WDCP 2009.

Overall, the proposed development has been considered against the provisions and found to be acceptable in this case.

CHAPTER B6: DEVELOPMENT IN THE ILLAWARRA ESCARPMENT

This chapter of the DCP provides guidelines for the subdivision of land and the siting and design of buildings within the Illawarra Escarpment.

Under Part 4 of Chapter B6, the area of subject site zoned E3 lies within Precinct 8 – Cliff Coast Precinct of the Illawarra Escarpment area.

| <i>Controls/objectives</i> | <i>Comment</i> | <i>Compliance</i> |
|--|----------------|-------------------|
| <u>5 Visual impact assessment</u> | | |
| The visual impact of the proposed development is considered acceptable in this circumstance for the following reasons: | | Yes |
| <ul style="list-style-type: none">- The proposed development is to be built over a cleared portion of the subject site. Clearing of vegetation is proposed to achieve the bushfire protection measures recommended by the NSW Rural Fire Service. Council's Landscape and Environment Officers have assessed the application submission, which included an Arborist Report. Conditionally satisfactory referral advice was received and conditions as at Attachment 4 specify trees to be removed, trees to be retained, compensatory plantings and tree protection and management.- It is considered that the proposed alterations and additions will have minimal visual impact. There is significant mature forest vegetation situated in all directions of the dwelling. It is considered that this mature vegetation heavily screens and thus softens the visual impact of the proposed development when viewed from key viewpoints.- It is considered that the dense forest vegetation surrounding the proposed development has the absorption capacity to completely absorb the development, both the alterations and additions and tree removal, as proposed.- There are similar developments within the vicinity of the subject site. | | |

9 Geotechnical / land instability issues

Council's Geotechnical Officer has assessed the application submission and considered it conditionally satisfactory.

Yes

11 Dwelling and outbuilding design requirements

11.1 Dwelling siting & orientation

The footprint shall be restricted to the approved subdivision building envelope for the subject site.

In cases of any existing allotment where building envelopes have not been identified, proposed buildings shall be restricted to existing legally cleared areas of the site only

The allotment of land has not been provided with an identified building envelope.

The proposed development is located on a cleared portion of the subject site, with minimal clearing required for to achieve the NSW Rural Fire Services recommended bushfire protection measures.

Council's Environment and Landscape officers have assessed the application submission and considered it conditionally satisfactory. The proposal will have minimal impact on the scenic environmental quality of the surrounding locality.

Yes

11.2 Maximum FSR

The subject site is Zoned E3. There is no maximum floor space ratio requirement mapped for the subject site under WLEP2009.

Yes

11.3 Maximum Building Height

The proposed development has a maximum building height 4.389m. The proposed height does not exceed the maximum 9.0m height limit for the subject site as identified in WLEP 2009.

The proposal does not alter the building height of the existing dwelling.

Yes

11.4 Minimum Building Separation Distance

Buildings must be sited in a manner that provides spatial separation between neighbouring properties, in order to provide privacy, avoid overshadowing and enable vegetative buffers between dwellings.

The proposed dwelling will not have an unreasonable impact in terms of privacy or overshadowing on neighbouring properties for the following reasons:

- Reasonable building heights have been maintained. The proposed alterations and additions are single storey with a maximum height of 4.389m not

Yes

11.5 Building Form and Construction

- exceeding the maximum 9.0m height limit for the subject site as identified in WLEP 2009.
- Reasonable separation distances to the site boundaries have been maintained.
- The existing mature vegetation will screen and/or soften the visual impacts of the proposed alterations and additions to the existing dwellings on the adjoining properties. The adjoining dwellings are not visible from the development site.
- The shadow cast from the proposed dwelling is considered satisfactory when the effects of the Illawarra Escarpment and existing mature vegetation in the immediate locality are taken into account.

The proposed building form and construction are considered satisfactory for the subject site.

Yes

The existing vegetation it is considered softens the visual impact of the proposed developments building form on the street scape with dwelling not visible from the street or key viewing points for the Illawarra Escarpment due to the extent of the existing vegetation.

The location of the proposed dwellings allows for vehicles to be parked onsite without encroachment on Council's road reserve.

Therefore It is considered that the proposed dwellings building form, construction and location will have minimal adverse impact on the street scape.

11.6 External Building Materials and Finishes

1. Dwelling-houses should be constructed with external building materials which reinforce the coastal woodland / rainforest character of the Illawarra Escarpment.
2. Highly reflective untreated

The proposed building materials are to match that of the existing dwelling will not unreasonably detract from the character of the Illawarra Escarpment.

Yes

A condition as at **Attachment 4** is recommended to ensure that muted bushland tones are to be used with no

wall or roof materials will not be supported.

3. All external building materials must comply with the requirements of NSW Rural Fire Service *Planning for Bush Fire Protection 2006* guidelines and *Australian Standard AS 3559 – 1999 Construction of Buildings in Bush fire Prone Areas*.

11.8 Dwelling Houses and other buildings on bushfire prone land

1. Any Development Application for a dwelling-house or any other buildings upon land classified as bush fire prone land (i.e. under the RFS Bush Fire Prone Land Map (BFPLM)) must conform to all of the requirements and specifications contained in the NSW Rural Fire Service publication titled “*Planning for Bush Fire Protection guidelines 2006*”.

13 Landscaping

14 Stormwater drainage / flooding

15 Water supply

white, light or bright colours.

Details of the application submission were referred to the NSW Rural Fire Service for comment regarding Planning for Bush Fire Protection 2006. Advice received indicates the proposal is considered conditionally satisfactory.

Details of the application submission were referred to the NSW Rural Fire Service for comment regarding Planning for Bush Fire Protection 2006. Advice received indicates the proposal is considered satisfactory subject to conditions at **Attachment 4**.

Council is satisfied that the application is conditionally satisfactory with the aims and objectives of PBP 2006 in this circumstance.

The proposed development satisfies the objectives of Council’s Landscaping controls and policies for development within the Illawarra Escarpment. The application submission including an arborist was referred to Council’s Landscape and Environment Officers for comment. Advice received indicates there are no issues with the proposal subject to conditions as at **Attachment 4**.

Stormwater runoff for the proposed development shall be directed to the existing stormwater management system. Council’s Development Engineering Officer has assessed the application submission and considered it satisfactory subject to conditions as at **Attachment 4**.

Water is available to the site

Yes

Yes

Yes

Yes

| | | |
|--|--|-----|
| <u>16 Waste water management / treatment systems</u> | The application submission proposes an on-site waste water management system. The application submission including the proposed on-site waste water management system has been reviewed by Council's Environment Officer and considered satisfactory subject to conditions as at Attachment 4 . | Yes |
| <u>17 Waste management</u> | It is considered that the proposed development satisfies the objectives of WDCP2009 Chapter E7 Waste Management. The applicant has submitted a Site Waste Minimisation and Management Plan with the application submission. Conditions shall be imposed on the consent to ensure that Waste Management is carried out to Council's Waste Management specification during construction. | Yes |
| <u>18 BASIX (energy and water smart homes)</u> | A BASIX Certificate has been submitted in support of the application demonstrating that the proposed scheme achieves the BASIX targets. | Yes |

CHAPTER D1 – CHARACTER STATEMENTS

Bulli

The proposal is considered to be consistent with the existing and desired future character for the locality. The proposed development it is considered will have minimal impact on the desired low density residential character of Bulli.

CHAPTER E3: CAR PARKING, ACCESS, SERVICING/LOADING FACILITIES AND TRAFFIC MANAGEMENT

It is considered that the proposed development satisfies the objectives of Council's requirements for car parking and access for dwelling houses. There are four covered car parking spaces on the site. It is considered that there is sufficient space on the subject for car parking.

CHAPTER E6: LANDSCAPING

It is considered that the proposed development satisfies the objectives of WDCP2009 Chapter E6 Landscaping.

CHAPTER E7: WASTE MANAGEMENT

It is considered that the proposed development satisfies the objectives of WDCP2009 Chapter E7 Waste Management. Conditions will be imposed on the consent to ensure that Waste Management is carried out to Council's Waste Management specification during construction.

CHAPTER E8 ONSITE SEWAGE MANAGEMENT SYSTEMS

The application submission proposes an on-site waste water management system. The application submission including the proposed on-site waste water management system has been reviewed by Council's Environment Officer and considered satisfactory subject to conditions as at **Attachment 4**.

CHAPTER E12 GEOTECHNICAL ASSESSMENT

The application has been reviewed by Council's Geotechnical Officer in relation to site stability and the suitability of the site for the development. Appropriate conditions have been recommended and are included at **Attachment 4**.

CHAPTER E13 FLOODPLAIN MANAGEMENT

Council's Development Engineering Officer has reviewed the proposal providing conditionally satisfactory referral advice.

CHAPTER E14 STORMWATER MANAGEMENT

Council's Development Engineering Officer has reviewed the proposal providing conditionally satisfactory referral advice.

CHAPTER E16 BUSHFIRE MANAGEMENT

Council records indicate that the subject site is located within a bushfire prone area therefore the proposal has been assessed having regard to the provisions of Planning for Bushfire Protection (PBP) 2006.

The applicant has submitted a bushfire assessment report prepared by Bush Fire Planning Services a FPAA accredited consultant with the application that explains the likely impact of the proposal and how it proposes to minimise these impacts. The applicant's Bushfire Risk Assessment indicates that the proposed development is reliant upon the establishment on the recommended APZ's to achieve the proposed Bushfire Attack Level of BAL 40. Council mapping would appear to indicate that the proposed development is in the *Flame Zone*.

As such the application was referred to the NSW RFS for comments with conditionally satisfactory referral advice received.

CHAPTER E17 PRESERVATION AND MANAGEMENT OF TREES AND VEGETATION

The application proposes the removal of several trees to facilitate the proposal. Council's Landscape and Environment Officers have assessed the application submission, which included an Arborist Report. Conditionally satisfactory referral advice was received and draft conditions as at **Attachment 4** specify trees to be removed, trees to be retained, compensatory plantings and tree protection and management.

CHAPTER E18 THREATENED SPECIES

Further ecological assessment was carried out by way of a site inspection by Council's Environment Officer where each individual tree proposed for removal was inspected for signs of hollows/fauna. None were sighted. Therefore the application submission has been assessed in regards to threatened species and is considered satisfactory.

CHAPTER E19 EARTHWORKS (LAND RESHAPING WORKS)

The proposal involves earthworks to facilitate the proposed development. A geotechnical report and information regarding the earthworks to reshape the land were submitted with the application.

The application was referred to Council's Geotechnical, Development Engineering and Environment Officers for comment and no objections were raised in relation to this matter subject to conditions of consent included at **Attachment 4**. Therefore it is considered that the earthworks will not have a detrimental impact on environmental functions and processes, neighbouring uses and features of the surrounding land.

CHAPTER E20 CONTAMINATED LAND MANAGEMENT

Not Applicable.

CHAPTER E21 DEMOLITION AND ASBESTOS MANAGEMENT

The proposal includes demolition works. Conditions are included in **Attachment 4** of this report to minimise impacts and ensure that demolition is carried out to Council's and Work Safe's requirements and AS 2601- Demolition of Structures.

CHAPTER E22 SOIL EROSION AND SEDIMENT CONTROL

Conditions are included in Attachment 3 in this regard so as to minimise the impacts of the proposed works on the environment.

CHAPTER E23: RIPARIAN LAND MANAGEMENT

The Riparian Land Map indicates the site contains riparian land. However the submitted plans indicate that no physical works are proposed within the riparian corridor. The application submission was referred to Council's Environment Officer for comment. Advice received indicates there are no issues with the proposal.

Attachment 4: Conditions

Approved Plans and Specifications

- 1 The development shall be implemented substantially in accordance with the details and specifications set out on Drawing sheet 1-E to 4-E dated 21 August 2018 prepared by Wollongong Drafting 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 Geotechnical

- 2.1 All work is to be in accordance with the geotechnical recommendations contained in the report dated August 2018 by SMEC Testing Services and any subsequent geotechnical report required to address unanticipated conditions encountered during construction.
- 2.2 All stormwater and wastewater is to be taken away from the building envelope by means as recommended by the geotechnical consultant. There is to be no in-ground absorption.
- 2.3 Foundation systems are to be designed for Class P soils with all footings for the additions to be founded within the underlying stiff natural clay as recommended by the geotechnical consultant.
- 2.4 Articulation jointing is to be provided between new and existing development as recommended by the geotechnical consultant.
- 2.5 All excavations for foundations are to be inspected by the geotechnical consultant and certified that the ground has been suitably prepared for the placement of footings.

3 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 25 September 2018 as attached shall form part of this Notice of Determination.

4 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.

5 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 submission to Council of two (2) copies of all stamped Construction Certificate plans and supporting documentation is required within **two (2)** days from the date of issue of the Construction Certificate, in the event that the Construction Certificate is not issued by Council.

6 Occupation Certificate

An Occupation Certificate must be issued by the Principal Certifying Authority prior to occupation 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.

7 Tree Management

The developer shall retain existing trees indicated on Tree Protection Plan in Arborist Report by Moore Trees dated 15 October 2018 Author Paul Vezgoff consisting of tree numbered 1, 15, 16, 17, 21, 22, 25 -31, 33, 35 – 45, 47 – 68, 70 – 76 and 78 – 80. Total number: fifty-eight + (58 No.).

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).

All tree protection measures are to be installed in accordance with Australian standard AS4790-2009 Protection of Trees on development Sites.

Recommendations in arborist's report to be implemented including and not restricted to: project arborist being present during work within Structural Root Zone (SRZ) and supervising work within Tree Protection Zones (TPZ), site induction with reference to tree protection, referring relevant matters to project arborist, re-routing of sub surface utilities to avoid TPZ, hand excavation within TPZ near tree roots, pier and beam construction within TPZ, permeable paving within TPZ, maintaining grades within TPZ, remedial tree pruning, crown lifting, deadwooding, fencing and signage, sediment buffer, stem protection, establishing TPZs, mulching and watering and root hormone application if required.

The developer shall remove existing tree numbered 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 19, 20, 23, 24, 32, 34, 46, 69 and 77. Total number: twenty-two (22 No.).

The developer shall transplant tree numbered 18 Total number: one (1 No.) to an appropriate location on site by an experienced and qualified contractor.

Prior to the Issue of the Construction Certificate

8 Application to Install and Operate an On-site Sewage Management System

An Application to Install and Operate an On-site Sewage Management System shall be submitted to Council and the installation approved prior to the issue of the Construction Certificate.

Note: The applicant is advised to contact Council's Senior Environmental Health Officer Nicole Diatloff (phone 4227 7111) to discuss the details required to be submitted with the application.

9 Structural Engineering Details

Structural engineering details prepared by a suitably qualified and experienced structural engineer (with appropriate insurance coverage) shall be submitted to the Principal Certifying Authority prior to the release of the Construction Certificate addressing the following matters:

- a Footings;
- b reinforced concrete slabs;
- c retaining walls;
- d structural steelwork;
- e wall bracing and tie-down requirements;
- f the structural engineer, in producing a design is to complement the Geotechnical Engineer's Stability Report (Project No.22153/9995C Report No. 18/2535 dated August 2018 prepared by SMEC Testing Services) to make a clear statement that "any structure designed and erected in accordance with the plans and specifications will achieve the performance requirements described in Clause 1.3 of AS2870 (1996) and any other relevant codes and standards."

10 Present Plans to Sydney Water

Approved plans must be submitted online using Sydney Water Tap, available through www.sydneywater.com.au 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 www.sydneywater.com.au or telephone 13 20 92 for further information.

11 Muted Bushland Tones – External Finishes

To ensure the development is compatible with the surrounding environment, colours and finishes are to be muted bushland tones. In this regard white, light or bright colours are not permissible.

12 **Landscaping**

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 typical of the Illawarra Region such as: *Syzygium smithii* (formerly *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, *Brachychiton acerifolius* Illawarra Flame Tree. 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 location of all proposed and existing overhead and underground service lines. The location of such service lines shall be clear of the dripline of existing and proposed trees;
- d any proposed hard surface under the canopy of an 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;
- e The developer shall ensure that proposed planting is child friendly and must **not** include any of the types of plants listed below: **i)** plants known to produce toxins; **ii)** plant with high allergen properties; **vi)** any weed or potential weed species; and;
- f Landscaping to the site is to comply with the principles in Appendix 5 of Planning for Bush Fire Protection 2006 and Standards for Asset Protection Zones (NSW Rural Fire Service) and recommendations included in Bushfire Risk Assessment and Protection Measures report by BPS Author Matthew Willis dated 21 August 2018.

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

- 13 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.

- 14 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.

15 **Compensatory Planting**

The developer must make compensatory provision for the trees required to be removed as a result of the development. In this regard, twenty-two (22 No.) 75 litre container advanced mature plant stock shall be placed within the property boundary of the site in appropriate locations. The suggested species are to be selected from the following list: *Elaeocarpus reticulatus* Blueberry ash, *Livistona australis* Cabbage palm tree, or *Brachychiton acerifolius* Illawarra Flame Tree. A further list of suitable suggested species may be found in Wollongong Development Control Plan 2009 – Chapter E6: Landscaping.

16 **Tree Protection Measures**

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.

- b Mulch Tree Protection Zone: Areas within a Tree Protection Zone are to be mulched with minimum 75 mm thick 100% recycled hardwood chip/leaf litter mulch.
- c Irrigate: Areas within the Tree Protection Zone are to be regularly watered in accordance with the arborist's recommendations.

The submission of a final Site Plan to the Principal Certifying Authority indicating required tree protection fencing is required, prior to the release of the Construction Certificate.

17 **Bushfire Attack Level (BAL)**

- 17.1 New construction on the Western elevation shall comply with Sections 3 and 7 (BAL 29) 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'.

The construction requirements for BAL 29 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' for new construction on the Western elevation 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.

- 17.2 New construction on the Northern, Eastern and Southern elevations shall comply with Sections 3 and 8 (BAL 40) 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'.

The construction requirements for BAL 40 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' for new construction on the Northern, Eastern and Southern elevations 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.

18 **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:

- 18.1 A plan of the wall showing location and proximity to property boundaries;
- 18.2 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;
- 18.3 Details of fencing or handrails to be erected on top of the wall;
- 18.4 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;
- 18.5 The proposed method of subsurface and surface drainage, including water disposal;
- 18.6 Reinforcing and joining details of any bend in the wall at the passing bay of the accessway;
- 18.7 The assumed loading used by the engineer for the wall design.
- 18.8 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.

19 **Smoke Alarms**

Smoke alarms designed to ensure the occupants are given adequate warning so they can evacuate the building in an emergency shall be installed in the building in accordance with Part 3.7.2 of the Building Code of Australia (Housing Provisions). The location of smoke alarms shall be shown on plan prior to the issue of the construction certificate.

20 **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 design is to form part of the construction certificate drawings. 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.
- b include details of the method of stormwater disposal.
- 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.

21 **Development Contributions**

Pursuant to Section 4.17 of the Environmental Planning and Assessment Act 1979 and the Wollongong City-Wide Development Contributions Plan (2018), a monetary contribution of \$2,300.00 (subject to indexation) must be paid to Council towards the provision of public amenities and services, prior to the release of any associated Construction Certificate.

This amount has been calculated based on the estimated cost of development and the applicable percentage rate.

The contribution amount will be subject to indexation until the date of payment. The formula for indexing the contribution is:

$$\text{Contribution at time of payment} = \$C \times (CP2/CP1)$$

Where:

\$C is the original contribution as set out in the Consent

CP1 is the Consumer Price Index; All Groups CPI; Sydney at the time the consent was issued

CP2 is the Consumer Price Index; All Groups CPI; Sydney at the time of payment

Details of CP1 and CP2 can be found in the Australian Bureau of Statistics website – Catalogue No. 6401.0 - Consumer Price Index, Australia.

The following payment methods are available:

| METHOD | HOW | PAYMENT TYPE |
|---|--|--|
| Online | http://www.wollongong.nsw.gov.au/applicationpayments Your Payment Reference: 1028076 | <ul style="list-style-type: none"> • Credit Card |
| In Person | Wollongong City Council Administration Building - Customer Service Centre Ground Floor 41 Burelli Street, WOLLONGONG | <ul style="list-style-type: none"> • Cash • Credit Card • Bank Cheque |
| PLEASE MAKE BANK CHEQUE PAYABLE TO: Wollongong City Council (Personal or company cheques are not accepted) | | |

A copy of the Wollongong City-Wide Development Contributions Plan (2018) and accompanying Fact Sheet may be inspected or obtained from the Wollongong City Council Administration Building, 41 Burelli Street, Wollongong during business hours or on Council's web site at www.wollongong.nsw.gov.au

Prior to the Commencement of Works

22 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.

23 Residential Building Work – Compliance with the Requirements of the Home Building Act 1989

Building work involving residential building work within the meaning of the Home Building Act 1989 must not be carried out unless the Principal Certifying Authority for the development to which the work relates

- a in the case of work to be done by a licensee under that Act:
 - i has been informed in writing of the licensee's name, contractor license number and contact address details (in the case of building work undertaken by a contractor under the Home Building Act 1989); and
 - ii is satisfied that the licensee has complied with the requirements of Part 6 of the Home Building Act 1989; or
- b in the case of work to be done by any other person:
 - i has been informed in writing of the persons name, contact address details and owner-builder permit number; and
 - ii has been given a declaration signed by the property owner(s) of the land that states that the reasonable market cost of the labour and materials involved in the work is less than the amount prescribed for the purposes of the definition of owner-builder work in Section 29 of the Home Building Act 1989 and is given appropriate information and declarations under paragraphs (a) and (b) whenever arrangements for the doing of the work are changed in such a manner as to render out of date any information or declaration previously given under either of those paragraphs.

Note: A certificate issued by an approved insurer under Part 6 of the Home Building Act 1989 that states that the specific person or licensed contractor is the holder of an insurance policy issued for the purposes of that Part of the Act is, for the purposes of this condition, sufficient evidence that the person has complied with the requirements of that Part of the Act.

24 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.

25 **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.

26 **Demolition Notification to Surrounding Residents**

Demolition must not commence unless at least 2 days written notice has been given to adjoining residents of the date on which demolition works will commence.

27 **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.

28 **Contaminated Roof Dust**

Any existing accumulations of dust in ceiling voids and wall cavities must be removed prior to any demolition work commencing. Removal must take place by the use of an industrial vacuum fitted with a high efficiency particulate air (HEPA) filter.

29 **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.

30 **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.

31 **Tree Protection Implementation**

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 m cyclone chainmesh fence, with posts and portable concrete footings;
- b mulch Tree Protection Zone: Areas within a Tree Protection Zone are to be mulched with minimum 75 mm thick 100% recycled hardwood chip/leaf litter mulch;
- c irrigate: Areas within the Tree Protection Zone are to be regularly watered in accordance with the arborist's recommendations.

The tree protection fencing shall be installed prior to the commencement of any demolition, excavation or construction works and shall be maintained throughout the entire construction phases of the development.

32 **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.

33 **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.

34 **Asset Protection Zones**

In perpetuity, the property around the dwelling shall be managed as an Asset Protection Zone (APZ) 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' for the following distances:

- As an Asset Protection Zone for a distance of 50 metres to the North, North east and East;
- As an Asset Protection Zone for a distance of 39 metres to the South; and
- As an Asset Protection Zone for a distance of 25 metres to the West.

Please note that in forested areas a portion of the APZ may be maintained as an Outer Protection Area (OPA) as specified in Table A2.7 of 'Planning for Bushfire Protection 2006'.

35 **Protection of Public Infrastructure**

Council must be notified in the event of any existing damage to any of its infrastructure such as the road, kerb and gutter, road shoulder, footpath, drainage structures and street trees fronting the development site, prior to commencement of any work.

Adequate protection must be provided for Council infrastructure prior to work commencing and during building operations.

Any damage to Council's assets shall be made good, prior to the issue of any Occupation Certificate or commencement of the operation.

During Demolition, Excavation or Construction

36 **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.

37 **Copy of Consent to be in Possession of Person carrying out Tree Removal**

The applicant must ensure that any person carrying out tree removal is in possession of this development consent and the approved landscape plan, in respect to the vegetation which has been given approval to be removed in accordance with this consent.

38 **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.

39 **Excavation/Filling/Retaining Wall Structures**

Any proposed filling on the site must not:

- a encroach onto the adjoining properties, and
- b adversely affect the adjoining properties with surface run-off.

40 All proposed cut and filling works must be adequately retained with all battered slopes being no steeper than 2H: 1V and comply with Council's Development Control Plan.

41 **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 (<http://www.safework.nsw.gov.au>).

42 **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.

43 **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.

44 **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."

Prior to the Issue of the Occupation Certificate

45 **Approval to Operate On-site Sewage Management System**

Prior to the issue of the Occupation Certificate, the installed approved On-site Sewage Management System shall have a current Approval to Operate issued in accordance with Section 68 of the Local Government Act 1993.

46 **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.

47 **Occupation Certificate**

A Occupation Certificate must be issued by the Principal Certifying Authority prior to occupation 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.

48 **BASIX**

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.

49 **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.

50 **Completion of Landscape Works**

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

Operational Phases of the Development/Use of the Site

51 **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.

52 **Maintenance of Inner Protection Area**

The Inner Protection Area must be maintained at all times as follows:

- There shall be minimal fine fuel at ground level which could be set alight by a bushfire.
- Use of non combustible ground surfaces such as gravel roads, paved areas, in-ground pools, etc is acceptable.
- Lawn areas shall be maintained low cut and clear.
- Areas under fences, fence posts, gates and trees shall be raked and kept clear of fine fuel.
- Gutters, roofs and roof gullies shall be kept free of leaves and other debris.
- Verandahs, decks, carports, etc shall not be used to store combustible materials and shall be kept free of leaves and other debris.
- Areas within courtyards shall be maintained free of leaves and other debris.
- Reticulated or bottle gas services shall be installed and maintained in accordance with AS 1596.
- Gas cylinder relief valves shall be directed away from the building and away from any hazardous materials such as firewood, etc.
- Trees may be retained within the IPA where:
 - no part of the tree overhangs within two (2) metres of any building.
 - the canopy is discontinuous such that tree crowns are separated by a minimum of 10 metres where the APZ adjoins tall open forest, open forest or low open forest.
 - the canopy is discontinuous such that tree crowns are separated by a minimum of five (5) metres where the APZ adjoins woodland or other vegetation type.
 - they are smooth barked species or, if rough barked, shall be maintained free of decorticated bark and other ladder fuels (rough barked species are not encouraged).

- a well-watered and maintained vegetable garden may be located within the IPA.
- no part of a tree shall be closer to a power line than the distances set out in the current edition of “Planning for Bush Fire Protection”.
- the use of local native plants with features that minimise the extent to which they contribute to the spread of bush fires is encouraged within the above constraints.

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-2018/1099
Our Ref: D18/7273
DA18091715144 AJ

ATTENTION: Rodney Thew

25 September 2018

Dear Sir

Development Application - 56 Princes Highway Bulli 2516

I refer to your correspondence dated 10 September 2018 seeking advice regarding bush fire protection for the above Development Application in accordance with Section 4.14 of the 'Environmental Planning and Assessment Act 1979'.

The New South Wales Rural Fire Service (NSW RFS) has considered the information submitted and provides the following recommended 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. To allow for emergency service personnel and residents to undertake property protection activities, a defensible space that permits unobstructed pedestrian access is to be provided around the building.
2. At the commencement of building works and in perpetuity the property around the building shall be managed as follows 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':
 - north, northeast and east for a distance of 50 metres as an asset protection zone;
 - south for a distance of 39 metres as an asset protection zone; and
 - west for a distance of 25 metres as an asset protection zone;

(Note: in forested areas a portion of the APZ may be maintained as an outer protection zone as specified in Table A2.7 of 'Planning for Bush Fire Protection 2006'.)

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:

3. Water, electricity and gas are to comply with the following requirements of section 4.1.3 of 'Planning for Bush Fire Protection 2006'.
 - A 20,000 litre water supply shall be provided for fire fighting purposes.
 - The water source shall be made available or located within the inner protection area (IPA) and away from the structure.
 - A hardened ground surface for truck access is to be supplied up to and within 4 metres of the water source.
 - A 65mm metal Storz outlet with a gate or ball valve shall be provided.
 - Above ground tanks are manufactured of concrete or metal and raised tanks are to have their stands protected. Plastic tanks shall not be used.
 - The water tank if located above ground shall be of a noncombustible material.
 - Underground tanks shall have an access hole of 200mm to allow tankers to refill direct from the tank. A hardened ground surface for truck access is to be supplied within 4 metres of the access hole.
 - The gate or ball valve, pipes and tank penetration are adequate for full 50mm inner diameter water flow through the Storz fitting and are metal.
 - All associated fittings to the tank shall be non combustible.
 - A minimum 5hp or 3kW petrol or diesel powered pump shall be made available to the water supply. A 19mm (internal diameter) fire hose and reel shall be connected to the pump.
 - An 'SWS' marker shall be obtained from the local NSW Rural Fire Service and positioned for ease of identification by brigade personnel and other users of the SWS. In this regard: a) Markers must be fixed in a suitable location so as to be highly visible; and b) Markers should be positioned adjacent to the most appropriate access for the static water supply.

Access

The intent of measures for property access is to provide safe access to/from the public road system for fire fighters providing property protection during a bush fire and for occupants faced with evacuation. To achieve this, the following conditions shall apply:

4. The property access road shall be an all-weather surface with a minimum width of 4 metres and have a minimum vertical clearance of 4 metres to any overhanging obstruction, including tree branches.

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:

5. New construction on the northern, eastern and southern elevations shall comply with Sections 3 and 8 (BAL 40) 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'.
6. New construction on the western elevation shall comply with section 3 and section 7 (BAL 29) 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'.

Should you wish to discuss this matter please contact Anna Jones on 1300 NSW RFS.

Yours sincerely



Martha Dotter

A/Team Leader Development Assessment & Planning

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