217A Beach Road Denhams Beach NSW 2536

Arboriculture Assessment & Report

Prepared for Natalie Colbert

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Disclaimer
I do not assume responsibility for liability associated with the tree on/or adjacent to this project site, the future demise and/or any damage which may result therefrom. They take care to obtain all information from reliable sources. All data has been verified insofar as possible; however, the consultant can neither guarantee nor be responsible for the accuracy of information provided by others. I cannot be held responsible for any consequences as result of work carried out outside specifications, not in compliance with Australian Standards or by inappropriately qualified staff. If further investigations such as, aerial, drill and root tests are recommended, the report shall not be considered final until all investigations have been completed as further defects may be found. I have made every effort to accurately identify the current tree health and hazards. Results may or may not correlate to actual tree structural integrity. There are many factors that may contribute to limb or total tree failure, not all these symptoms are visible. There can be hidden defects that may result in a failure even though it would seem that other, more obvious defects would be the likely cause of failure. All standing trees have an element of unpredictable risk. The inspection was limited to a visual ground examination of the tree, without aerial inspections and below ground excavations. The assessments are limited and do not include specialized analysis. No internal diagnostics, aerial inspection and pathology test were conducted. Sketches, diagrams, graphs and photographs in this report, being intended as visual aids, are not necessarily to scale.

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Abbreviations

Abbreviation	Description
AE	Arbor Express
AIA	Arboricultural Impact Assessment
AQF	Australian Qualifications Framework
AS	Australian Standards
C	Canopy
DAB	Diameter Above Buttress
DBH	Diameter at Breast Height
H	Height
m	Metre
mm	Millimetre
NDE	Non-Destructive Excavation
NO	Number
NSW	New South Wales
SRZ	Structural Root Zone
TPP	Tree Protection Plan
TPZ	Tree Protection Zone
VTA	Visual Tree Assessment

1. Introduction

Overview

- Natalie Colbert commissioned an Arboricultural Assessment and Report for 7 trees at 217A Beach Road Denhams Beach NSW 2536.

- The report will provide an overview of the tree dimensions, health, structure, safe useful life expectancy (SULE), provide a risk assessment, tree retention value, recommend appropriate tree pruning and removal works with time frames and provide general advice for managing the trees to maintain an appropriate level of risk in the landscape.

- The site visit was undertaken on 25 February 2025.

- The key aspects of the report will include:
  - Assess the risk that the trees present in the landscape.
  - Provide an assessment of the health and structure of the trees.
  - Identify and record the dimensions of the trees within the site.
  - Recommend appropriate pruning/removal work in accordance with Australian Standards AS 4373-2007 Pruning of amenity trees.
  - Provide specific recommendations for managing the trees to maintain health and structure and ensure long-term viability with an acceptable level of risk.

Scope

- Tree management measures are regulated by Eurobodalla Shire Council.

- 7 trees were assessed at 217A Beach Road Denhams Beach NSW 2536.

- The inspection does not include below ground root excavation, expert laboratory analyses, internal diagnostic testing, inaccessible trunk locations and aerial inspections. No pathology tests or soil analyses were conducted. Sketches, diagrams, graphs, and photographs in this report, being intended as visual aids, are not necessarily to scale.

- The owner or manager of this Property has not provided other documentation relating to the trees. Apart from post-site research and comparisons of similar sites, our observations are the only details analysed.

2. Method

Visual Tree Assessment

The subject trees were assessed in accordance with a stage one visual tree assessment (VTA) as formulated by Mattheck and Breloer (1994)[1], and practices consistent with modern arboriculture.

During the assessment the following information was collected or identified:

- Tree species – botanical and common name.
- Approximate Height and Canopy.
- Trunk Diameter – measured at 1.4 metres from ground level.
- Health and vigour; using foliage size, colour, extension growth, presence of disease or pest infestation, canopy density, presence of deadwood, dieback and epicormic growth as indicators.
- Condition using visible evidence of structural defects, instability, evidence of previous pruning and physical damage as indicators.
- Suitability of the tree to the site and its existing location, in consideration of damage or potential damage to services or structures, available space for future development and nuisance issues.
- Safe Useful Life Expectancy (SULE)
- Retention Value Rating

[1] VTA is an internationally recognised practice in the visual assessment of trees as formulated by Mattheck & Breloer (1994). Principle explanations and illustrations are contained within the publication, Field Guide for Visual Tree Assessment by Mattheck, C., and Breloer, H. Arboricultural Journa1, Vol 18 pp 1-23 (1994).

3. Tree Schedule

Tree #	*Botanical Name* (Common Name)	Height (m)	Canopy (m)	DBH (mm)	DAB (mm)	TPZ SRZ (m)	SULE	Retention Value	Action	Notes
1	*Corymbia maculata* (Spotted Gum)	14	4	200	230	2.40 1.79	3A	Moderate	Retain	DBH & DAB are approximate due to access
2	*Corymbia maculata* (Spotted Gum)	14	1	200	210	2.40 1.72	3A	Moderate	Retain	DBH & DAB are approximate due to access
3	*Corymbia maculata* (Spotted Gum)	15	1	200	240	2.40 1.82	3A	Moderate	Retain	DBH & DAB are approximate due to access
4	*Corymbia maculata* (Spotted Gum)	14	2	230	250	2.76 1.85	3A	Moderate	Retain	DBH & DAB are approximate due to access
5	*Corymbia maculata* (Spotted Gum)	14	2	300	380	3.60 2.20	3A	Moderate	Retain	DBH & DAB are approximate due to access
6	*Corymbia maculata* (Spotted Gum)	14	4	200	230	2.40 1.79	2A	Moderate	Retain	DBH & DAB are approximate due to access
7	*Corymbia maculata* (Spotted Gum)	13	4	180	200	2.16 1.68	4B	Low	Remove	DBH & DAB are approximate due to access

4. Site Photos

Photo 1: Trees 1-5

Photo 2: Trees 1-6

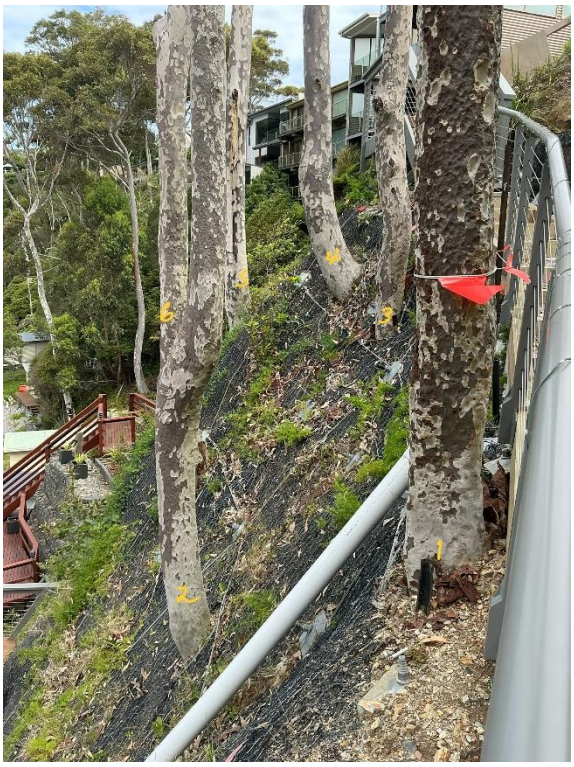

Photo 3: Trees 3-6

Photo 4: Trees 2-7

Photo 5: Area Around Base of Trees showing Adequate Room for Growth

Photo 6: Wound 1 meter up

Photo 7: Old Stump with Epicormic Growth

Photo 8: Old Stump showing Severe Termite Damage

Photo 9: Tree 7

5. Discussion and Recommendations

Overview of 7 Spotty Gums on the Steep Cliff Face:

The six Spotty Gums growing close together are in good condition following the completion of the work to lay steel mesh to stabilise the area. There is a seventh gum at the bottom of the cliff.
As the photos illustrate, the installation of the steel mesh around the six trees was completed without any noticeable damage. There are no visible wounds on their trunks, and their canopies are intact and healthy. The large steel cables surrounding the base of each tree are sufficiently sized to allow for future growth. The seventh tree has a cut in the trunk, and its canopy has been pruned in the past, resulting in epicormic growth with poor structure.

Conclusion:

Trees 1, 2, 3, 4, 5, and 6 are showing strong vitality and good vigour. The care taken to stabilise the area under difficult conditions has enabled these trees to flourish. However, the seventh tree should be removed as it poses a danger to people.

Growing Conditions on a Steep Incline:

Spotty Gums are highly adaptable and resilient, thriving on steep cliffs. The six Spotty Gums in close proximity exhibit elongated growth with small canopies, reflecting their survival strategies in challenging conditions. They demonstrate a dynamic relationship with their environment. Their elongated forms, along with strong tension and compression root systems, enable them to adapt and stabilise effectively.

1. Root Anchorage

- ***Anchoring the Soil:*** The extensive root systems of Spotty Gums, comprising both tension roots (which grow laterally) and compression roots (which grow vertically), provide significant anchorage to the soil. This anchorage helps resist the downward forces exerted by gravity on the slope.
- ***Stabilisation Against Erosion:*** Well-developed root systems help bind soil particles together, effectively reducing soil erosion during heavy rainfall or high winds. The roots create a dense network that holds the soil in place, minimising the likelihood of landslides or slippage.

2. Water Absorption

- ***Reducing Soil Moisture:*** Spotty Gums absorb substantial amounts of water through their root systems. This water uptake helps manage soil moisture levels, mitigating the risks associated with saturated soil that can lead to stability issues. By reducing excess water in the soil, the trees help maintain a consistent soil structure and integrity.

6. References

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Appendix A: Glossary of Terms

Abiotic - Pertaining to non-living agents, e.g. environmental factors.

Anchorage - The system whereby a tree is fixed within the soil, involving cohesion between roots and soil and the development of a branched system of roots which withstands wind and gravitational forces transmitted from the aerial parts of the tree.

Branch:
- Primary. A first order branch arising from a stem.
- Lateral. A second order branch, subordinate to a primary branch or stem and bearing sub-lateral branches.
- Sub-lateral. A third order branch, subordinate to a lateral or primary branch, or stem and usually bearing only twigs.

Branch collar - A visible swelling formed at the base of a branch whose diameter growth has been disproportionately slow compared to that of the parent stem; a term sometimes applied also to the pattern of growth of the cells of the parent stem around the branch base.

Cambium - Layer of dividing cells producing xylem (woody) tissue internally and phloem (bark) tissue externally.

Canker - A persistent lesion formed by the death of bark and cambium due to colonisation by fungi or bacteria.

Compartmentalisation - The confinement of disease, decay or other dysfunction within an anatomically discrete region of plant tissue, due to passive and/or active defences operating at the boundaries of the affected region.

Condition - An indication of the physiological condition of the tree. Where the term 'condition' is used in a report, it should not be taken as an indication of the stability of the tree.

Crown/Canopy - The main foliage bearing section of the tree.

Crown lifting - The removal of limbs and small branches to a specified height above ground level.

Crown reduction/shaping - A specified reduction in crown size whilst preserving, as far as possible, the natural tree shape.

DAB (Diameter Above Buttress) - Trunk diameter measured above the root buttress.

Defect - In relation to tree hazards, any feature of a tree which detracts from the uniform distribution of mechanical stress, or which makes the tree mechanically unsuited to its environment.

Dieback - The death of parts of a woody plant, starting at shoot-tips or root-tips.

Disease - A malfunction in or destruction of tissues within a living organism, usually excluding mechanical damage; in trees, usually caused by pathogenic micro-organisms.

DBH (Diameter at Breast Height) - Stem diameter measured at a height of 1.4 metres or the nearest measurable point. Where measurement at a height of 1.4 metres is not possible, another height may be specified.

Deadwood - Branch or stem wood bearing no live tissues. Retention of deadwood provides valuable habitat for a wide range of species and seldom represents a threat to the health of the tree. Removal of deadwood can result in the ingress of decay to otherwise sound tissues and climbing operations to access deadwood can cause significant damage to a tree. Removal of deadwood is generally recommended only where it represents an unacceptable level of hazard.

Epicormic shoot - A shoot having developed from a dormant or adventitious bud and not having developed from a first year shoot.

Heartwood/false-heartwood - The dead central wood that has become dysfunctional as part of the aging processes and being distinct from the sapwood.

Included bark (ingrown bark) - Bark of adjacent parts of a tree (usually forks, acutely joined branches or basal flutes) which is in face-to-face contact.

Lions tailing - A term applied to a branch of a tree that has few if any side-branches except at its end and is thus liable to snap due to end- loading.

Occlusion - The process whereby a wound is progressively closed by the formation of new wood and bark around it.

Pruning - The removal or cutting back of twigs or branches, sometimes applied to twigs or small branches only, but often used to describe most activities involving the cutting of trees or shrubs.

Reactive Growth/Reaction Wood - Production of woody tissue in response to altered mechanical loading; often in response to internal defect or decay and associated strength loss (cf. adaptive growth).

Ring-barking - The removal of a ring of bark and phloem around the circumference of a stem or branch, normally resulting in an inability to transport photosynthetic assimilates below the area of damage. Almost inevitably results in the eventual death of the affected stem or branch above the damage.

Stress - In plant physiology, a condition under which one or more physiological functions are not operating within their optimum range, for example due to lack of water, inadequate nutrition or extremes of temperature.

SRZ (Structural Root Zone) - The area around the base of the tree required for the tree's stability in the ground.

Topping - In arboriculture, the removal of the crown of a tree, or of a major proportion of it.

TPZ (Tree Protection Zone) - A specified area above and below ground and at a given distance from the trunk set aside for the protection of a tree's roots and crown to provide for the viability and stability of a tree to be retained where it is potentially subject to damage by development.

Veteran tree - Tree that, by recognised criteria, shows features of biological, cultural or aesthetic value that are characteristic of, but not exclusive to, individuals surviving beyond the typical age range for the species concerned. These characteristics might typically include a large girth, signs of crown retrenchment and hollowing of the stem.

Vigour - The expression of carbohydrate expenditure to growth (in trees).

Appendix B: Retention Value

Evaluating Sustainability and Landscape Significance to Determine Retention Value	
Retention Value	**Criteria and Categories**
High	These trees are considered to be worthy of preservation. As such, careful consideration should be given to their retention as a priority. Proposed site design and placement of buildings and infrastructure should consider the TPZ to minimize any adverse impact. In addition to TPZs, the extent of the canopy should also be considered, particularly in relation to a high-rise development. Significant pruning of the trees to accommodate the building envelope or temporary scaffolding is generally not acceptable.
Moderate	The retention of these trees is desirable. These trees should be retained as part of any proposed development, if possible; however, these trees are considered to be less critical for retention. If these trees must be removed, replacement planting should be considered in accordance with Council's Tree Replacement Policy to compensate for loss of amenity.
Low	These trees are not considered to be worthy of any special measures to ensure their preservation, due to current health, condition or suitability. They do not have any special ecological, heritage or amenity value, or these values are substantially diminished due to their SULE. These trees should not be considered as a constraint to future development of the site.
Very Low	These trees are considered to be potentially hazardous or very poor specimens or may be environmental or noxious weeds. The removal of these trees is therefore recommended regardless of the implications of any proposed development.

Appendix C: Safe Useful Life Expectancy (SULE)

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

	1 LONG SULE	2 MEDIUM SULE	3 SHORT SULE	4 REMOVALS	5 MOVED OR REPLACED
				provide space for new planting.	
F				Trees that are damaging or may cause damage to existing structures within 5 years.	
G				Trees that will become dangerous after removal of other trees for the reasons given in A) to F).	

Locations

- Sydney
- NSW South Coast (Wollongong to Bega)
- NSW Central Coast (Gosford to Newcastle)
- Southern Highlands
- Blue Mountains
- Canberra and Queanbeyan
- Regional NSW

Services

- Arborist Reports for Developments
- Tree Root Mapping
- Project Arborist
- Tree Health and Safety Assessments
- Tree Structural Testing (Resistograph)
- Flora & Fauna Assessments and Project Ecologist
- Vegetation Management Plans

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