



vegetation management plan - 232 & 234 barrenjoey rd, newport

prepared by
Mark Couston - Ass. Dip. Env. Ctrl. (CSU), Grad. Dip. Env. Mgmt. (CSU), Cert. Soil & Water Mgmt. (UWS), MESA, MECA.
OEH Scientific Licence No. SL100777, DPI - Animal Research Authority 13-3260

21 May 2015



Background

Development consent N0015/09 was previously granted for the subdivision of the site known as 232 & 234 Barrenjoey Road, Newport creating 4 allotments. The development consent identified 4 building footprints based upon the Site Plan, Dwg. No. A01, Issue B, Sept. 2010 (Gartner Trovato Architects, Mona Vale, NSW).

This s.96 variation seeks approval to adjust the approved building footprints identified in the original consent. Whilst this s.96 proposal does not involve any significant works on the ground, this vegetation management plan provides a current assessment of the vegetation on the site and outlines the works required to maintain the site.

The report has been commissioned by Mr Gabriel Miller who has also provided site instructions. Site inspections and field work were originally conducted in September 2010, updated on 9th October 2013 and more recent site inspections carried out on 19th May 2015.

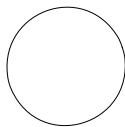
The site is located on the eastern side of Barrenjoey Road at Newport and covers part of the knoll known as Bushrangers Hill. The site is moderately to steeply sloping and is undeveloped. Some initial subdivision infrastructure has been completed and includes excavation and construction of the concrete car parking area, upgrades to the access driveways and installation of boundary fences. The vegetation on the lower slopes of the site consists of individual trees, mulched soil cover and scattered ground cover plantings. The vegetation on the upper slopes consists of open forest in relatively undisturbed habitats and comprises of indigenous vegetation with varying levels of environmental weed species.

The aim of the plan is to retain and maintain the indigenous vegetation on the site until subsequent development of the subdivided allotments occurs with exception of the removal of 5 trees that are either: dead, unstable or in poor condition located towards the site frontage. This plan should be read in conjunction with

- Site Plan, Dated 07/05/15, Revision O, (Inscape);
- Landscape Plan, Dwg.No.14-048/LO1, Revision O, Dated 07/05/15 (Ramsay, 2015), and
- Arboricultural Impact Assessment, s.96 variation N0015/09 - 232 & 234 Barrenjoey Rd, Newport, 18/10/13 (Footprint Green)

Contents

- sheet 1 - this cover page
- sheet 2 - existing site - vegetation structure
- sheet 3 - existing site - extent of exotic & indigenous vegetation
- sheet 4 - existing site floristics
- sheet 5 – subdivision - proposed amended building footprints
- sheet 6 – vegetation management - subdivision
- sheet 7 - vegetation management - specifications



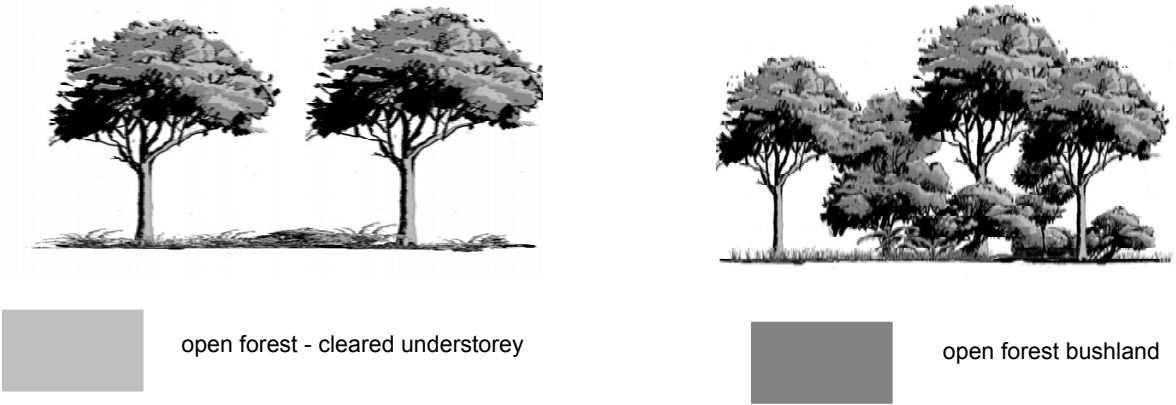
scale at A3
nts

dwg no. rev.
vmpec2.01 0.2

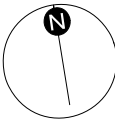
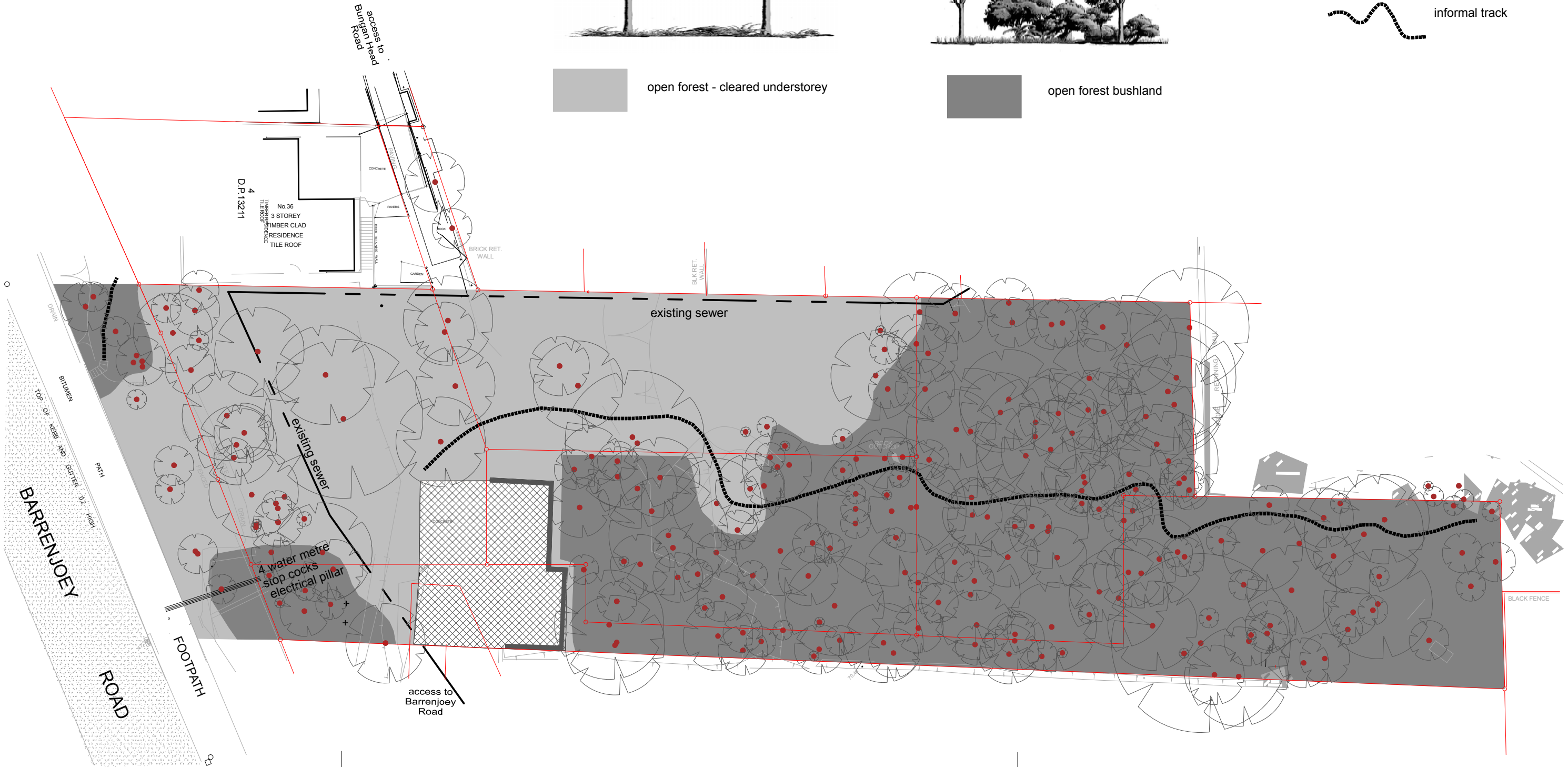
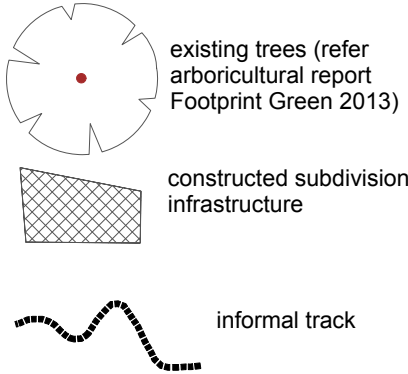
sheet of
1 7

drawing title
cover sheet

existing site management zones



legend



prepared by
mark couston

scale at A3
1: 400

date
21/05/15

dwg no. rev.
vmpsc2.01 0.3

sheet of
2 7

project
**vegetation management plan -
232 & 234 barrenjoey rd, newport**

drawing title
existing site - vegetation structure



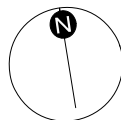
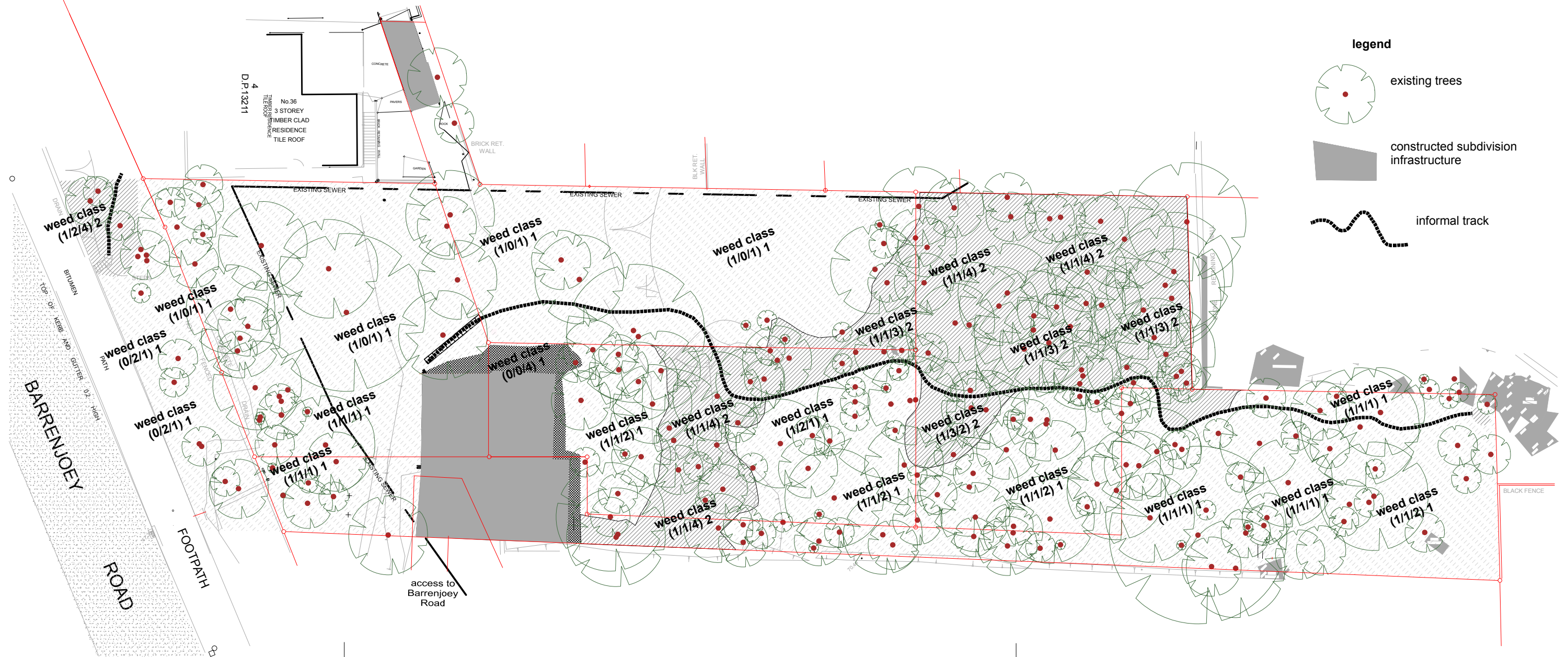
Vegetation Structure	Exotic Biomass %	Weed Scale	Calculated Weed Class	
canopy	< 10%	1	canopy weed scale x 0.5 = **	note; where the canopy is absent use understorey Weed Scale
	10% - 30%	2		
	31% - 60%	3		
	> 60%	4		
understorey	< 10%	1	understorey weed scale x 0.2 = **	note; where the understorey is absent use ground cover Weed Scale
	10% - 30%	2		
	31% - 60%	3		
	> 60%	4		
ground cover	< 10%	1	ground cover weed scale x 0.3 = **	
	10% - 30%	2		
	31% - 60%	3		
	> 60%	4		
			Weed Class	sum of ** (above)
Reporting (* / * / *) **				

weed class

3,195 sq m	weed class 1 (little or no weed)
995 sq m	weed class 2 (low levels of weeds)
0 sq m	weed class 3 (moderate levels of weeds)
55 sq m	weed class 4 (high levels of weeds)

legend

- existing trees
- constructed subdivision infrastructure
- informal track



indigenous species

Genus species	Common Name
<i>Acacia floribunda</i>	White Sally Wattle
<i>Acacia implexa</i>	Hickory Wattle
<i>Actinotus helianthi</i>	Flannel Flower
<i>Adiantum aethiopicum</i>	Common Maidenhair Fern
<i>Allocasuarina littoralis</i>	Black She-oak
<i>Allocasuarina torulosa</i>	Forest Oak
<i>Angophora floribunda</i>	Rough-barked Apple
<i>Aphanopetalum resinosum</i>	Gum Vine
<i>Austrostipa</i> sp.	Spear Grass
<i>Backhousia myrtifolia</i>	Ironwood/Grey Myrtle Tree
<i>Banksia serrata</i>	Old Man Banksia
<i>Breynia oblongifolia</i>	Coffee Bush Shrub
<i>Bursaria spinosa</i>	Native Blackthorn
<i>Cayratia clematidea</i>	Slender Grape
<i>Centella asiatica</i>	Swamp Pennywort
<i>Cissus antarctica</i>	Water Vine
<i>Cissus hypoglauca</i>	Giant Water Vine
<i>Clematis aristata</i>	Old Man's Beard
<i>Commelina cyanea</i>	Scurvy Weed / Native Wandering
<i>Correa reflexa</i>	Native Fuchsia / Common Corre
<i>Desmodium varians</i>	Slender Tick-Trefoil
<i>Dianella caerulea</i>	Blue Flax Lily
<i>Dianella caerulea ssp producta</i>	Blue Flax Lily
<i>Dichondra repens</i>	Kidney Weed
<i>Diospyros australis</i>	Black Plum
<i>Dodonaea triquetra</i>	Hop Bush
<i>Doodia aspera</i>	Prickly Rasp-fern
<i>Elaeocarpus reticulatus</i>	Blueberry Ash
<i>Entolasia stricta</i>	Wiry Panic
<i>Eucalyptus botryoides</i>	Bangalay
<i>Eucalyptus paniculata</i>	Grey Ironbark
<i>Eucalyptus punctata</i>	Grey Gum
<i>Eucalyptus resinifera</i>	Red Mahogany
<i>Eucalyptus umbra</i>	Broad-leaved Magogany
<i>Eustrephus latifolius</i>	Wombat Berry
<i>Exocarpos cupressiformis</i>	Cherry Ballart / Native Cherry
<i>Ficus rubiginosa</i>	Port Jackson Fig / Rusty Fig
<i>Geitonoplesium cymosum</i>	Scrambling Lilly
<i>Geranium homeanum</i>	-
<i>Glochidion ferdinandi</i>	Cheese Tree
<i>Glycine clandestina</i>	Twining Glycine
<i>Hibbertia dentata</i>	Twining Guinea Flower
<i>Leptospermum trinervium</i>	Paperbark Tea-tree
<i>Macrozamia communis</i>	Burrawang
<i>Maytenus silvestris</i>	Narrow-leaved Orangebark
<i>Muehlenbeckia gracillima</i>	Slender Lignum
<i>Notelaea longifolia</i>	Large Mock-olive
<i>Oplismenus aemulus</i>	Basket Grass
<i>Ozothamnus diosmifolius</i>	White Dogwood
<i>Pandorea pandorana</i>	Wonga Wonga Vine
<i>Parsonsia straminea</i>	Common Silkpod
<i>Persoonia pinifolia</i>	Pine-Leaved Geebung
<i>Pittosporum revolutum</i>	Yellow / Rough Fruit Pittosporum
<i>Pittosporum undulatum</i>	Native Daphne
<i>Polymeria calycina</i>	-
<i>Polyscias sambucifolia</i>	Elderberry Panax
<i>Pteridium esculentum</i>	Bracken Common
<i>Rhodamnia rubescens</i>	Scrub Turpentine Tree
<i>Sambucus australasica</i>	Native Elderberry
<i>Scolopia braunii</i>	Flintwood
<i>Smilax australis</i>	Sarsaparilla
<i>Smilax glycyphylla</i>	Sweet Sarsaparilla
<i>Solanum pungetium</i>	Eastern Nightshade
<i>Stephania japonica</i>	Snake Vine
<i>Themeda australis</i>	Kangaroo Grass
<i>Trema tomentosa var. viridis</i>	Native Peach
<i>Tylophora barbata</i>	Bearded Tylophora
<i>Veronica plebeia</i>	Trailing Speedwell
<i>Viola hederacea</i>	Ivy-Leaved Violet

non-indigenous native species

Genus species	Common Name
<i>Acacia saligna</i>	Golden Wreath Wattle
<i>Brachychiton acerifolius</i>	Illawarra Flame Tree
<i>Eucalyptus saligna</i>	Sydney Blue Gum

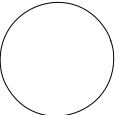
exotic species - environmental pest species

Genus species	Common Name
<i>Bidens pilosa</i>	Cobbler's Peg
<i>Cardiospermum grandiflorum</i>	Balloon Vine
<i>Conyza albida</i>	Fleabane
<i>Cotoneaster glaucophyllus</i>	Cotoneaster
<i>Cyperus tenellus</i>	-
<i>Ehrharta erecta</i>	Panic Veldtgrass
<i>Erythrina X sykesii</i>	Coral tree
<i>Ficus elastica</i>	Indian Rubber Tree
<i>Hydrocotyle bonariensis</i>	Pennywort
<i>Lonicera japonica</i>	Japanese Honeysuckle
<i>Monstera deliciosa</i>	Fruit-salad Plant
<i>Nephrolepis cordifolia</i>	Fishbone Fern
<i>Paspalum dilatatum</i>	Paspalum
<i>Passiflora edulis</i>	Common Passionfruit
<i>Plantago lanceolata</i>	Lambs Tongue
<i>Senna pendula</i>	Cassia
<i>Sida rhombifolia</i>	Paddy's Lucerne
<i>Solanum mauritianum</i>	Wild Tobacco Tree
<i>Sonchis oleraceus</i>	Common Sow Thistle
<i>Strelitzia</i> sp.	Bird of Paradise
<i>Thunbergia alata</i>	Black-eyed Susan

exotic species - noxious weeds

Genus species	Common Name
<i>Anredera cordifolia</i>	Maderia Vine
<i>Araujia sericiflora</i>	Moth Vine
<i>Asparagus aethiopicus</i>	Asparagus Fern
<i>Ipomoea indica</i>	Blue Morning Glory
<i>Lantana camara</i>	Lantana
<i>Ligustrum lucidum</i>	Large Leaf Privet
<i>Ligustrum sinense</i>	Small Leaf Privet
<i>Ochna serrulata</i>	Ochna
<i>Olea europaea subsp. cuspidata</i>	African Olive
<i>Tradescantia fluminernsis</i>	Wandering Jew

species list are based upon the Flora & Fauna Assessment (Enviro Ecology, 19/04/10) supplemented with additional species recorded on site as part of the field work associated with this plan.



prepared by
mark couston

scale at A3
nts

date
21/05/15

dwg no.
vmpef2.01

rev.
0.3

sheet of
4 7

project
**vegetation management plan -
232 & 234 barrenjoey rd, newport**

drawing title
existing site floristics

This plan is based upon:
- Detail & Level Survey Lot D in DP 367 601, No. 232 Barrenjoey Road, Newport, Ref No. 6427/07
Dated 03/04/07 (Stutchbury Jaques, Brookvale, NSW);
- 234 Barrenjoey Road, Newport Being Lot 5A in DP 399973 Plan Showing Detail & Levels,
Dwg No. 600.001, Dated 13/12/07, (Decon Surveying Pty Ltd, Eastwood, NSW);

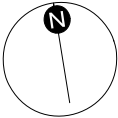
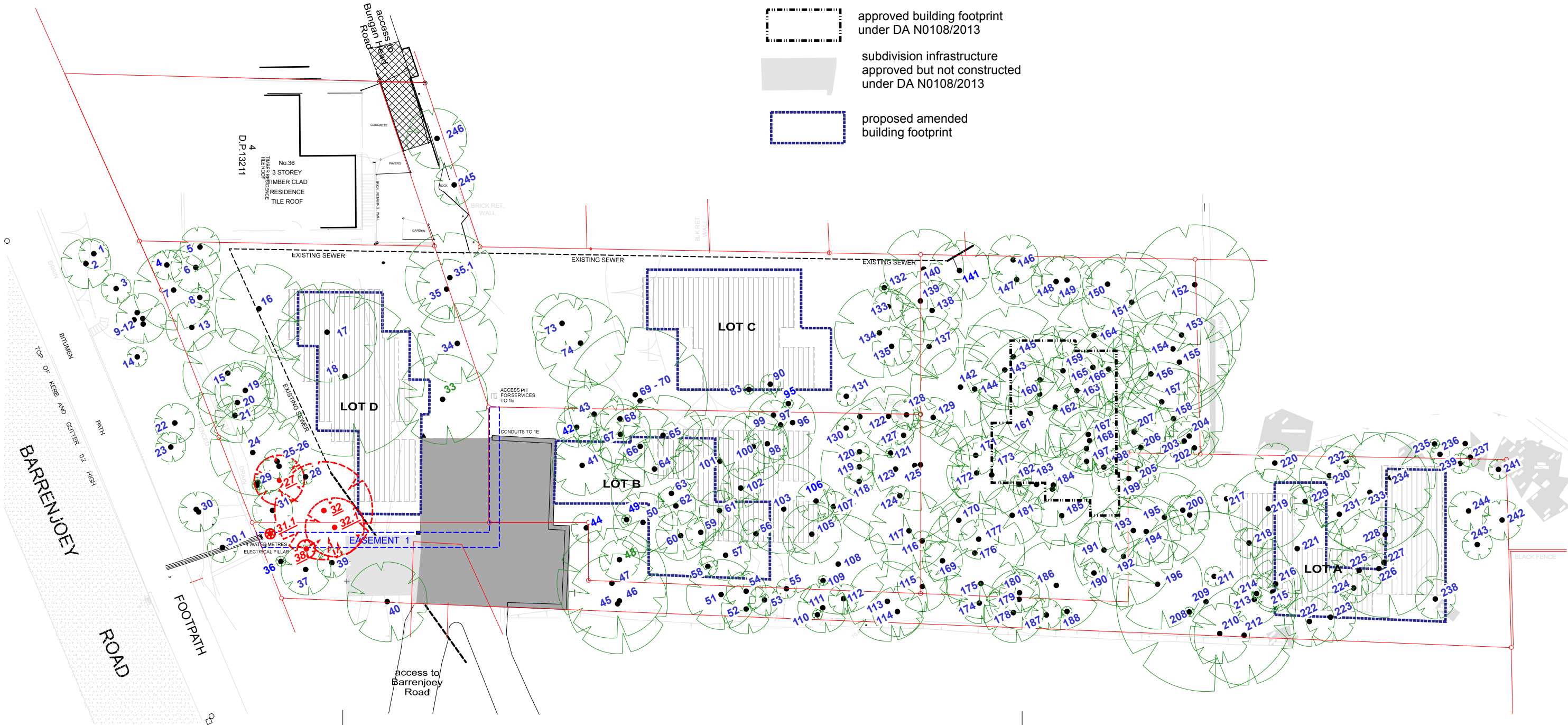
revised and updated by
- Level & Detail Survey Lot 4 in DP1167665 (Unreg.) No. 234 Barrenjoey Rd, Newport, Dated 11/06/13
(Stutchbury Jaques, Brookvale, NSW);
- A1 - Site Plan, Dated 07/05/15, Revision O, (Inscape)

legend

- approved building footprints under DA N0015/09
- subdivision infrastructure constructed under DA N0015/09
- easements for new services created under DA N0015/09
- approved building footprint under DA N0108/2013
- subdivision infrastructure approved but not constructed under DA N0108/2013
- proposed amended building footprint

tree legend

- trees retained for subdivision purposes
- trees removed for subdivision:



prepared by
mark couston

scale at A3
1: 400

date
21/05/15

dwg no. rev.
vmpet2.01 0.3

sheet of
5 7

project
**vegetation management plan -
- 232 & 234 barrenjoey rd, newport**

drawing title
**subdivision - proposed amended
building footprints**

This plan is based upon:

- Detail & Level Survey Lot D in DP 367 601, No. 232 Barrenjoey Road, Newport, Ref No. 6427/07 Dated 03/04/07 (Stutchbury Jaques, Brookvale, NSW);
- 234 Barrenjoey Road, Newport Being Lot 5A in DP 399973 Plan Showing Detail & Levels, Dwg No. 600.001, Dated 13/12/07, (Decon Surveying Pty Ltd, Eastwood, NSW);

revised and updated by

- Level & Detail Survey Lot 4 in DP1167665 (Unreg.) No. 234 Barrenjoey Rd, Newport, Dated 11/06/13 (Stutchbury Jaques, Brookvale, NSW);
- A1 - Site Plan, Dated 07/05/15, Revision O, (Inscape)

legend



subdivision infrastructure constructed under DA N0015/09

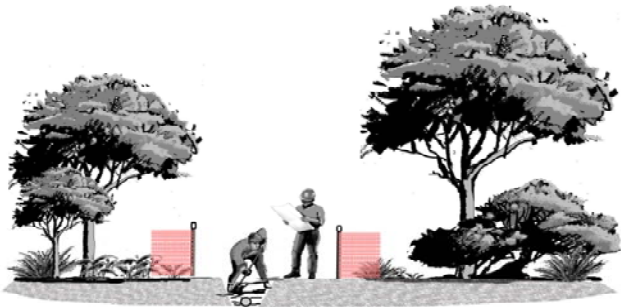


easements for new services created under DA N0015/09

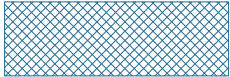


subdivision infrastructure approved but not constructed under DA N0108/2013

site management zones



services works area



performance criteria

- the works area defined using Tree Protection Webbing (refer specifications sheet 7)
- all indigenous trees are to be retained with the exception of Tree No's 31.1, 32.1 & 38;
- all indigenous shrubs and ground covers capable of being transplanted shall be removed and planted elsewhere on the site;
- the installation of services is to be carried out in accordance with specification Excavation For Services Using Hand Tools Within Tree Protection Zones (refer specifications sheet 7);
- after the services are installed the trench is to be back filled, the soil stabilised and disturbed areas covered with Organic Mulch (refer specifications sheet 7).
- the area is to be maintained at regular intervals using standard bush regeneration techniques (refer specifications sheet 7) so as to achieve less than 5% exotic flora & weed biomass at all times;
- no signs of erosion or sediment deposition.

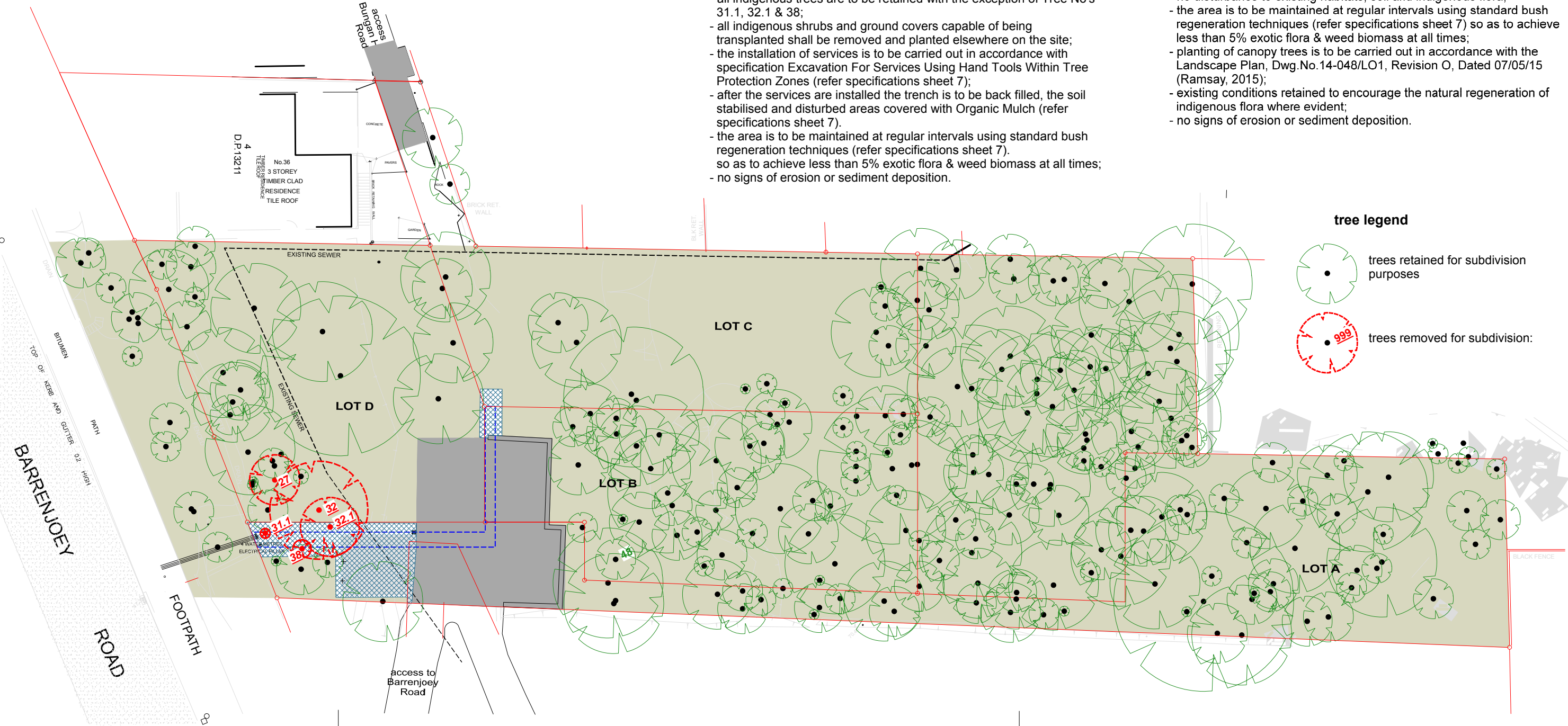


bushland protection & regeneration

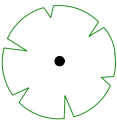


performance criteria

- all indigenous trees are to be retained with the exception of Tree No's 27 & 32;
- no disturbance to existing habitats, soil and indigenous flora;
- the area is to be maintained at regular intervals using standard bush regeneration techniques (refer specifications sheet 7) so as to achieve less than 5% exotic flora & weed biomass at all times;
- planting of canopy trees is to be carried out in accordance with the Landscape Plan, Dwg.No.14-048/LO1, Revision O, Dated 07/05/15 (Ramsay, 2015);
- existing conditions retained to encourage the natural regeneration of indigenous flora where evident;
- no signs of erosion or sediment deposition.



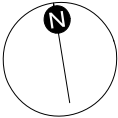
tree legend



trees retained for subdivision purposes



trees removed for subdivision:



prepared by
mark couston

scale at A3
1: 400

date
21/05/15

dwg no. rev.
vmpet2.01 0.3

sheet of
5 7

project
**vegetation management plan -
232 & 234 barrenjoey rd, newport**

drawing title
**vegetation management
- subdivision**

specifications

bush regeneration

Bushland Regeneration is the activities carried out to provide conditions that facilitate the natural recruitment or germination of endemic flora species. It primarily involves the progressive control of weed species in a systematic manner of primary weed control, follow-up weed control (often several follow –up sessions) and maintenance over an identified works area. Typically work areas progress from areas of little weeds and expand to adjacent works areas. It is recommended that these activities are undertaken by specialised and experienced bush regeneration contractors.

bush regeneration contractors

Bush regeneration contractors are companies or individuals who have experience and qualifications in bush regeneration activities. Contractors must provide an experienced site supervisor with minimum qualifications of a TAFE Certificate II in Bush Regeneration or Conservation & Land Management and must be eligible for membership to Australian Association of Bush Regenerators.

erosion & sediment controls

All erosion and sediment controls such as berms, sediment fences, rumble zones sediment basins and site drainage flow paths must be designed and constructed in accordance with Managing Urban Stormwater: Soils and Construction. 4th Edition (Landcom, 2004), New South Wales Government.

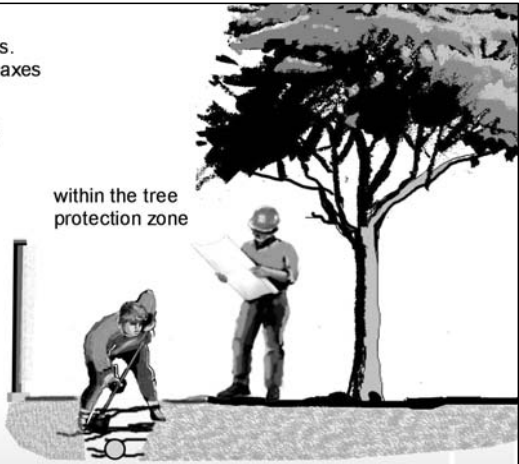
excavation for services using hand tools within tree protection zones

hand tools
include the use of shovels, crowbars.
shall not include use of mattocks & axes

retention of tree roots
tree roots < 30mm dia. shall remain intact and shall not be severed or damaged.

inspection of tree roots
excavation is to be conducted under the supervision of the project arborist and where tree roots spatially conflict with the fall line of the service, depending upon the number and size of the tree roots, the project arborist shall either: cleanly prune the tree roots and treat them with a root hormone compound, or provide instructions to leave the tree roots intact, backfill the excavation and investigate alternate locations.

excavation for services using hand tools within Tree Protection Zones - specifications



within the tree protection zone

copyright Footprint Green P/L

herbicide usage

Glyphosate based herbicides can be used in conjunction with weed control techniques and is to be used in accordance with the product label and registration. Herbicide usage must be undertaken in a manner or method that does not cause harm to new plantings and there is no contamination of surface or ground waters.

organic mulch

Organic mulch material shall consist of a 75mm (unless otherwise specified) deep layer of chipped wood material of similar standard to Forest Blend ® and is to be free of non-organic material, contaminated chemicals such as hydrocarbons and weed seed.

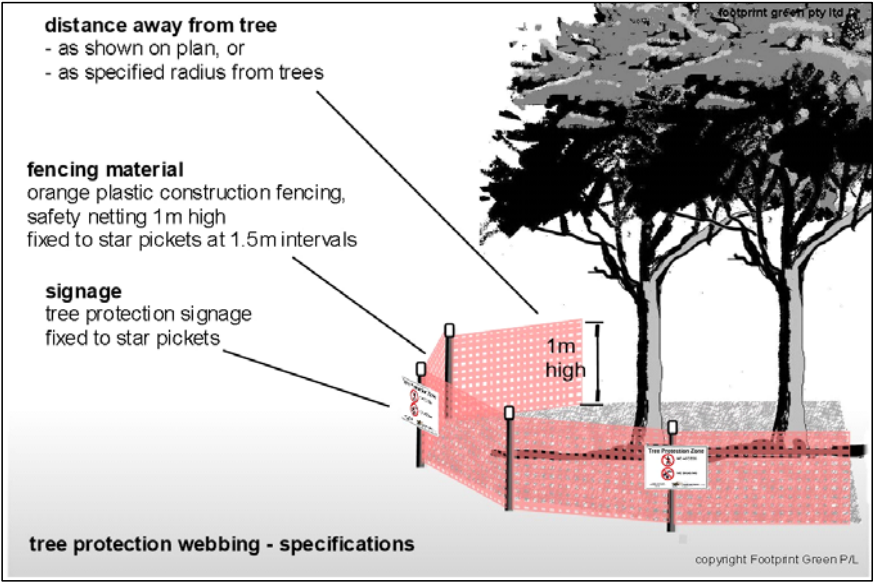
plant maintenance & replacement

All plantings shall be maintained, (watered, weeded) so as to display good health and vigour. Apart from typical seasonal variations, plantings showing poor vigour, stress or disease will be replaced.

planting

Planting is to be carried out using standard horticultural practices. Because of the nature of the site and environmentally sensitive lands downstream, no fertiliser is to be used in conjunction with planting, however if considered necessary, water retaining crystals can be used. All tree & shrub plantings are to be planted with staked translucent or cardboard grow tubes.

tree protection webbing



weed control

Weed control is to be undertaken using standard bush regeneration techniques such as hand weeding or with the use of Glyphosate based herbicides when necessary (eg. cut & paint, stem scrape, spot spraying).

weed material disposal and temporary storage on site.

Weed material containing seed or weed material capable of spreading vegetatively shall be removed from site and disposed of at an appropriate location where it will not cause further environmental damage.

Temporary storage of weed material prior to disposal can occur on site where it is stored, outside drainage lines, on an impervious surface and it is covered with a material that adequately contains the weed debris.

species options for revegetation

ground covers

Genus species	Common Name
<i>Adiantum aethiopicum</i>	Common Maidenhair Fern
<i>Billardiera scandens</i>	Appleberry
<i>Blechnum cartilagineum</i>	Gristle Fern
<i>Clematis aristata</i>	Old Man's Beard
<i>Desmodium rhytidophyllum</i>	Desmodium
<i>Doodia aspera</i>	Prickly Rasp-fern
<i>Hardenbergia violacea</i>	False Sarsaparilla
<i>Hibbertia dentata</i>	Twining Guinea Flower
<i>Lomandra longifolia</i>	Spiny-headed Mat-rush
<i>Lomatia silaifolia</i>	Crinkle Bush
<i>Morinda jasminoides</i>	Morinda
<i>Pandorea pandorana</i>	Wonga Wonga Vine
<i>Stephania japonica</i>	Snake Vine
<i>Themeda australis</i>	Kangaroo Grass

understorey shrubs

Genus species	Common Name
<i>Acacia implexa</i>	Hickory Wattle
<i>Acacia longifolia</i>	Sydney Golden Wattle
<i>Acacia suaveolens</i>	Sweet Wattle
<i>Banksia spinulosa</i>	Hairpin Banksia
<i>Breynia oblongifolia</i>	Coffee Bush Shrub
<i>Callistemon linearifolius</i>	Netted Bottle Brush
<i>Dodonaea triquetra</i>	Hop Bush
<i>Diospyros australis</i>	Black Plum
<i>Grevillea linearifolia</i>	White Spider Flower
<i>Grevillea sericea</i>	Pink Spider Flower
<i>Homalanthus populifolius</i>	Bleeding Heart
<i>Jacksonia scoparia</i>	Dogwood
<i>Kennedia rubicunda</i>	Red Kennedy Pea
<i>Lasiopetalum ferrugineum</i>	Rusty Velvet-bush
<i>Leptospermum trinervium</i>	Paperbark Tea-tree
<i>Macrozamia communis</i>	Burrawang
<i>Maytenus silvestris</i>	Narrow-leaved Orangebark
<i>Notelaea longifolia</i>	Large Mock-olive
<i>Oxylobium ilicifolium</i>	Native Holly
<i>Pittosporum revolutum</i>	Rough Fruit Pittosporum
<i>Polyscias sambucifolia</i>	Elderberry Panax
<i>Pultenaea daphnoides</i>	Large-leaf Bush-pea
<i>Pultenaea elliptica</i>	-
<i>Rapanea variabilis</i>	Muttonwood
<i>Synoum glandulosum</i>	Scentless Rosewood
<i>Wikstroemia indica</i>	Wikstromia
<i>Wilkiea huegeliana</i>	Veiny Wilkiea
<i>Zeria smithii</i>	Sandfly Zieria

tree species

Genus species	Common Name
<i>Acmena smithii</i>	Lilly Pilly
<i>Allocasuarina littoralis</i>	Black She-oak
<i>Allocasuarina torulosa</i>	Forest Oak
<i>Angophora costata</i>	Sydney Red/Rusty Gum
<i>Angophora floribunda</i>	Rough-barked Apple
<i>Backhousia myrtifolia</i>	Ironwood/Grey Myrtle Tree
<i>Ceratopetalum gummiferum</i>	Christmas Bush
<i>Elaeocarpus reticulatus</i>	Blueberry Ash
<i>Eucalyptus botryoides</i>	Bangalay
<i>Eucalyptus paniculata</i>	Grey Ironbark
<i>Eucalyptus punctata</i>	Grey Gum
<i>Eucalyptus umbra</i>	Broad-leaved Mahogany
<i>Glochidion ferdinandi</i>	Cheese Tree
<i>Guioa semiglauc</i>	Guioa
<i>Syncarpia glomulifera</i>	Turpentine