

Good Bush Pty Ltd

Report prepared by: Marcus Burgess

Date: 11th September 2020

Final Report for Bushland/Riparian Restoration Works at Boral Dunmore Quarry, Rocklow Road, Dunmore

Client	Boral Metro Quarries
Site Name	Rocklow Road, Dunmore
Contract Period	September 2019 – August 2020
Purchase Order Number	n/a
Value of Works	\$61,560.00 Ex GST



Greenhood Orchid (*Pterostylis curta*) within Zone 1, September 2019

Contents	
Introduction	3
Objectives.....	3
Vegetation Assessment Report Outcomes	4
Summary of Works for All Zones	4
Zone 1 Remnant Conservation Area	5
Zone 1 Remnant Vegetation Conservation Area Site Description.....	5
Summary of Works	6
Description of Works	6
Work Areas Map	7
Vegetation Condition Assessment	8
Photographs.....	9
Zone 2 Offset Area Works.....	13
Zone 2 Offset Area Site Description.....	13
Summary of Works	14
ZONE 1: Melaleuca armillaris Tall Shrubland - Description of Works	14
ZONE 2: Illawarra Subtropical Rainforest - Description of Works	15
ZONE 3: Illawarra Grassy Woodland - Description of Works.....	15
Work Areas Map	16
Vegetation Condition Assessment	17
Photographs.....	19
Zone 3 Compensatory Habitat Area	26
Zone 3 Compensatory Habitat Area Site Description	26
Summary of Works	27
Description of Works	27
Work Areas Map	28
Vegetation Condition Assessment	29
Photographs.....	32
Appendix 1 Vegetation Monitoring Field Sheets.....	40

Introduction

This final report is for bushland and riparian restoration works carried out by Good Bush Pty Ltd at Boral Metro Quarries, Rocklow Road, Dunmore from September 2019 to September 2020.

The works carried out at this site are based on the recommendations outlined in the 'Boral Dunmore Vegetation Assessment 29/04/2017'.

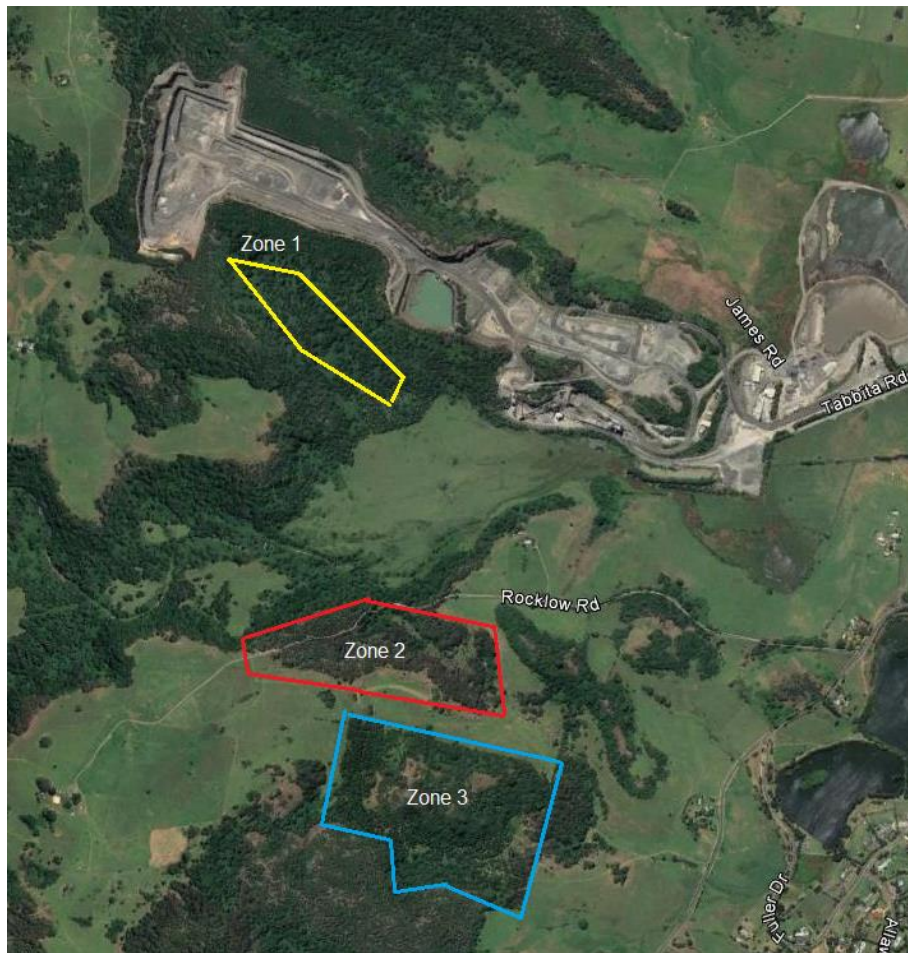
Objectives

The objective of these works was to undertake bushland restoration works in order to:

- Protect and enhance the remnants of the existing vegetation communities: Illawarra Dry Subtropical Rainforest, Illawarra Grassy Woodland and Melaleuca armillaris Tall Shrubland
- To reduce the area of Boral Dunmore Quarry natural areas impacted by Noxious Weeds, WoNs and environmental invasive weeds.
- Treat significant woody weeds throughout establishing 10 – 15 year old revegetation areas to assist development and establishment
- To improve connectivity between local remnant bushland fragments through weed control activities, regeneration and planting
- Assist natural regeneration by removing significant weed species using bush regeneration techniques and methods
- Monitor works, progress and completing using visual based documentation

Vegetation Assessment Report Outcomes

The 'Boral Dunmore Vegetation Assessment 29/04/2017' identified three zones surrounding the hard rock quarry at Tabbitta Road and Rocklow Road, Dunmore as priority areas for restoration work. The three zones are as follows:



Zone 1 – Remnant Vegetation Conservation Area

Zone 2 – Offset Area

Zone 3 – Compensatory Habitat Area

Summary of Works for All Zones

A total of 1,368 hours have been carried out within the three zones during the period from September 2019 to September 2020. The following table is a summary of all hours carried out within the three work zones:

Site	Hours Worked
Zone 1 Remnant Vegetation Conservation Zone	344 hours
Zone 2 Offset Area	393 hours
Zone 3 Compensatory habitat Area	631 hours
Total	1,368 hours

Zone 1 Remnant Conservation Area

Zone 1 Remnant Vegetation Conservation Area Site Description

This site consists of a large gully with a south easterly aspect with a drainage line that forms part of the Rocklow Creek catchment. The total site area of this zone is approximately 15 hectares. The gully is framed by basalt cliffs on the northern and western boundaries and large basalt boulders dominate the ground layer throughout much of this gully. The south eastern corner at the lower end of the gully has been cleared for pasture and grazing and a waterfall exists at the high end within the north western corner. Immediately west of the waterfall the Dunmore hard rock quarry dominates the landscape.

The basalt at this site erodes to a fine grained highly fertile soil that supports a diverse subtropical rainforest remnant that has remained largely intact despite the clearing of vegetation that was carried out here and within the surrounding areas in the mid 1800's. The vegetation at this site consists of subtropical rainforest within the deep shaded and wet areas at the top of the gully and planted woodland at the lower end of the gully.

The subtropical rainforest within this zone consists of diverse rainforest remnant that has remained intact due to the rocky nature of the site, difficulty of removing timber species and low value of timber species present. A diverse range of canopy species exists within this gully including Sassafras (*Doryphora sassafras*), Myrtle Ebony (*Diospyros pentamera*) and all five of the local Fig (*Ficus* sp.) species. An abundance of vines exist within this remnant including Round Vine (*Legnephora moorei*), Kangaroo Grape (*Cissus antarctica*) and Milk Vine (*Marsdenia* spp.) and many species of ferns are present as epiphytes, lithophytes and within the ground layer.

Where gaps in the canopy occur the gully has been invaded by woody weeds and a large percentage of the open areas on the slopes of the gully are dominated by Lantana.

The lower end of the gully has been revegetated within the last ten years using a range of local native tree species, some of which are not entirely relevant to this site. The revegetated areas are also subjected to grazing by cattle and woody weeds have colonised these areas.

Summary of Works

Works within this zone consisted of primary weed control targeting woody weeds throughout established approximately 15 year old revegetation. Large amounts of Wild Tobacco and Lantana were dominating the revegetation areas on the southern side of the creek while encroachment of Kikuyu was impacting the plantings on the northern side of the creek. A total of 25,000m² of primary weed control was carried out within this zone. Infill planting was scheduled for this zone but the fencing has fallen into disrepair. Cattle have accessed this site on a number of occasions. The hardwood stakes installed to monitor the photo points were removed and lost and cow pats litter the floor throughout the worked areas.

The following hours worked and square metres covered were carried out within this site:

Vegetation Community	Hours Worked	m² Worked Secondary	m² Worked Primary
Illawarra Subtropical Rainforest and Revegetation areas	344 hours		25,000m ²

Description of Works

Works within this area focused on:

- Primary weed control covering approximately 25,000m² throughout established revegetation areas and Illawarra Subtropical Rainforest
- Primary weed control targeting woody weeds such as Lantana, Gorse, Cassia and Wild Tobacco using the cut and paint method and mulching materials on site
- Treatment of invasive vines such as Cape Ivy and Moth Vine using hand removal and cut and paint methods and leaving materials suspended in the canopy after careful removal of viable propagules

Work Areas Map



Vegetation Condition Assessment

The vegetation condition assessments are based on a 20m² area surrounding the established photo points within each zone.

*The photo point markers (1.2m hardwood stake) were lost. Presumably knocked over by cattle

Photo Point	RVCA1		
Commencement of works date	August 2019		
Completion of works date	September 2020		
Vegetation Condition		Percentage Cover prior to works	Percentage Cover post works
Upper Stratum (emergent canopy)	The upper stratum surrounding this photo point is dominated by a tall canopy of <i>Melaleuca armillaris</i> <i>Acacia maidenii</i>	100% native cover	100% native cover
Mid Stratum (sub canopy)	The mid stratum surrounding this photo point is dominated by <i>Solanum mauritianum</i> *	20% native cover 80% weed cover	0% native cover 0% weed cover
Shrub layer	The shrub layer surrounding this photo point is dominated by <i>Lantana camara</i> * <i>Ulex europaeas</i> *	0% native cover 100% weed cover	0% native cover 0% weed cover
Ground Layer	The ground layer surrounding this photo point is dominated by native and weed grasses as well as a range of annual weeds and woody weed seedlings such as <i>Lantana camara</i> * <i>Bidens pilosa</i> * <i>Pellaea falcata</i>	60% native cover 30% weed cover	70% native cover 30% weed cover

Photo Point	RVCA2		
Commencement of works date	August 2019		
Completion of works date	September 2020		
Vegetation Condition		Percentage Cover prior to works	Percentage Cover post works
Upper Stratum (emergent canopy)	The upper stratum surrounding this photo point is dominated by a tall canopy of <i>Melaleuca armillaris</i> <i>Acacia maidenii</i>	100% native cover	100% native cover
Mid Stratum (sub canopy)	The mid stratum surrounding this photo point is dominated by <i>Solanum mauritianum</i> *	20% native cover 80% weed cover	0% native cover 0% weed cover
Shrub layer	The shrub layer surrounding this photo point is dominated by <i>Lantana camara</i> * <i>Ulex europaeas</i> *	0% native cover 100% weed cover	0% native cover 0% weed cover
Ground Layer	The ground layer surrounding this photo point is dominated by native and weed grasses as well as a range of annual weeds and woody weed seedlings such as <i>Lantana camara</i> * <i>Bidens pilosa</i> * <i>Pellaea falcata</i>	60% native cover 30% weed cover	70% native cover 30% weed cover

Photographs



RVCA1 Photo point prior to primary weed control November 2019 (photo point marker was removed)



Similar area after primary weed control, September 2020



RVCA2 Photo point prior to primary weed control November 2019 (photo point marker was removed)



Similar area after primary weed control, September 2020



RVCA2 Photo point prior to primary weed control November 2019 (photo point marker was removed)



Similar area after primary weed control, September 2020

Zone 2 Offset Area Works

Zone 2 Offset Area Site Description

This zone is located south of Rocklow Road and consists of a large bushland remnant with a creek line flowing through the middle. The total site area of this zone covers approximately 18.3 hectares. The majority of this zone is perched on the rocky hillside immediately adjacent to Rocklow Road and supports the 'Melaleuca armillaris tall shrubland' vegetation community. The creekline drops toward the eastern end of the site forming a gully which is well defined by the presence of the rainforest tree species and is identified as the 'Illawarra Subtropical Rainforest' vegetation community. The creek flows close to Rocklow Road at one point where dumping of rubbish and weed material has introduced several highly invasive weed species. On the southern side of the gully a tall intact canopy of Forest Red Gum (*Eucalyptus tereticornis*) exists that defines the 'Illawarra Grassy Woodland' vegetation community on site.

The 'Pulpit Rock' is located within this zone which is a large basalt column projecting from the creek bank that has eluded the processes of erosion.

The Offset Area has been divided into three zones based on the three different vegetation communities found within this zone. Each of the three vegetation communities have had primary and secondary weed control works targeting woody weeds and invasive vines. The three zones with the Offset Area are as follows:



Zone 1: Melaleuca armillaris Tall Shrubland

Zone 2: Illawarra Subtropical Rainforest

Zone 3: Illawarra Grassy Woodland

Summary of Works

This contract period bush regeneration works focused on secondary and primary weed control within the woodland remnants and the rainforest ecotone at the eastern extent of this zone. Rainfall has been adequate this year compared to last year and regeneration of weeds and natives has become more widespread. Mass regeneration of rainforest pioneer species has been a positive sign and several additional local native plants have appeared within this area over this past nine months.

Extensive primary weed control was carried out at the eastern extent of this zone during this contract period. Additional populations of the threatened plant species White Wax Flower (*Cynanchum elegans*) were located within the ecotone between the rainforest and woodland remnants. Mass regeneration of Illawarra Zieria (*Zieria granulata*) has been observed within some areas and *Homalanthus stillingiifolius* has emerged within the site having not been previously recorded.

The following hours worked and square metres covered were carried out within the three zones at this site:

Zone	Vegetation Community	Hours Worked	m ² Worked Secondary	m ² Worked Primary
Zone 1	Melaleuca armillaris Tall Shrubland	21 hours	9,250m ²	420m ²
Zone 2:	Illawarra Subtropical Rainforest	150 hours	11,100m ²	3,000m ²
Zone 3	Illawarra Grassy Woodland	222 hours	10,000m ²	4,440m ²
Total		393 hours	30,350m²	7,860m²

ZONE 1: Melaleuca armillaris Tall Shrubland - Description of Works

Works within this area focused on:

- Secondary weed control covering approximately 9,250m² throughout all areas worked in the previous year over the duration of the contract period
- Additional primary weed control covering approximately 420m² over the duration of the contract period
- Primary weed control targeting woody weeds such as Lantana, African Olive, Cassia and Wild Tobacco using the cut and paint method and mulching materials on site
- Treatment of invasive vines such as Cape Ivy and Moth Vine using hand removal and cut and paint methods and leaving materials suspended in the canopy after careful removal of viable propagules
- Frilling many large African Olive trees using a hammer and chisel

ZONE 2: Illawarra Subtropical Rainforest - Description of Works

Works within this area focused on:

- Secondary weed control covering approximately 11,100m² throughout all areas worked in the previous year over the duration of the contract period
- Additional primary weed control covering approximately 3,000m² over the duration of the contract period
- Primary weed control targeting woody weeds such as Lantana, African Olive, Cassia and Wild Tobacco using the cut and paint method and mulching materials on site
- Treatment of invasive vines such as Cape Ivy, Madiera Vine and Moth Vine using hand removal and cut and paint methods and leaving materials suspended in the canopy after careful removal of viable propagules
- Spray treatment of annual weeds and Madiera Vine using the Brush Off herbicide composition

ZONE 3: Illawarra Grassy Woodland - Description of Works

Works within this area focused on:

- Secondary weed control covering approximately 10,000m² throughout all areas worked in the previous year over the duration of the contract period
- Additional primary weed control the eastern extent of the woodland remnant covering approximately 4,440m² over the duration of the contract period
- Primary weed control targeting woody weeds such as Lantana, African Olive, Cassia and Wild Tobacco using the cut and paint method and mulching materials on site
- Treatment of invasive vines such as Cape Ivy and Moth Vine using hand removal and cut and paint methods and leaving materials suspended in the canopy after careful removal of viable propagules
- Frilling many large African Olive trees using a hammer and chisel

Work Areas Map

The following map identifies the approximate areas worked within the three zones:



Vegetation Condition Assessment

The vegetation condition assessments are based on a 20m² area surrounding the established photo points within each zone.

Zone 1: *Melaleuca armillaris* Tall Shrubland

Photo Point	A1, A3		
Commencement of works date	August 2017		
Completion of works date	September 2018		
Vegetation Condition		Percentage Cover prior to works	Percentage Cover post works
Upper Stratum (emergent canopy)	The upper stratum surrounding this photo point is dominated by a tall canopy of <i>Melaleuca armillaris</i> <i>Eucalyptus tereticornis</i>	100% native cover	100% native cover
Mid Stratum (sub canopy)	The mid stratum surrounding this photo point is dominated by <i>Zieria granulata</i> <i>Dodonea viscosa</i> <i>Olea europaea</i> subsp. <i>cuspidate</i> *	80% native cover 20% weed cover	100% native cover 0% weed cover
Shrub layer	The shrub layer surrounding this photo point is dominated by <i>Lantana camara</i> * <i>Indigofera australis</i> <i>Leucopogon juniperinus</i>	30% native cover 70% weed cover	100% native cover 0% weed cover
Ground Layer	The ground layer surrounding this photo point is dominated by native and weed grasses as well as a range of annual weeds and woody weed seedlings such as <i>Lantana camara</i> * <i>Bidens pilosa</i> * <i>Tagetes minuta</i> *	40% native cover 60% weed cover	90% native cover 10% weed cover

* indicates exotic plant species

Zone 2: Illawarra Subtropical Rainforest

Photo Point	B1		
Commencement of works date	August 2017		
Completion of works date	September 2020		
Vegetation Condition		Percentage Cover prior to works	Percentage Cover post works
Upper Stratum (emergent canopy)	The upper stratum surrounding this photo point is dominated by a tall canopy of rainforest species such as Red Cedar, Red Ash, Ficus spp.	100% native cover	100% native cover
Mid Stratum (sub canopy)	The mid stratum surrounding this photo point is dominated by rainforest species such as <i>Guoia semiglauca</i> <i>Hibiscus heterophyllus</i>	95% native cover 5% weed cover	100% native cover
Shrub layer	The shrub layer surrounding this photo point is dominated by small regenerating rainforest species and Lantana, Wild Tobacco*, Cassia*	20% native cover 80% weed cover	100% native cover
Ground Layer	The ground layer surrounding this photo point is dominated by regenerating native rainforest trees and ferns as well as a range of annual weeds and invasive vines such as Cape Ivy* and Madiera Vine*	40% native cover 60% weed cover	70% native cover 30% weed cover

* indicates exotic plant species

Zone 3: Illawarra Grassy Woodland

Photo Point	A2		
Commencement of works date	August 2018		
Completion of works date	September 2020		
Vegetation Condition		Percentage Cover prior to works	Percentage Cover post works
Upper Stratum (emergent canopy)	The upper stratum surrounding this photo point is dominated by a tall canopy of <i>Melaleuca armillaris</i> <i>Eucalyptus tereticornis</i>	100% native cover	100% native cover
Mid Stratum (sub canopy)	The mid stratum surrounding this photo point is dominated by <i>Notolea venosa</i> <i>Dodonea viscosa</i> <i>Acaica maidenii</i> <i>Olea europaea</i> subsp. <i>cuspidata</i> *	80% native cover 20% weed cover	100% native cover 0% weed cover
Shrub layer	The shrub layer surrounding this photo point is dominated by <i>Lantana camara</i> * <i>Indigofera australis</i>	30% native cover 70% weed cover	100% native cover 0% weed cover
Ground Layer	The ground layer surrounding this photo point is dominated by native and weed grasses as well as a range of annual weeds and woody weed seedlings such as <i>Lantana camara</i> * <i>Bidens pilosa</i> * <i>Tagetes minuta</i> *	40% native cover 60% weed cover	70% native cover 30% weed cover

* indicates exotic plant species

Photographs



A1 Photo point prior to commencement of works in 2017



A1 Photo point after primary weed control and maintenance, September 2020



A3 Photo point prior to commencement of works in 2017



A3 Photo point after primary weed control and maintenance, September 2020



Mature Forest Red Gum (*Eucalyptus tereticornis*) surrounded by dense woody weeds such as Lantana prior to commencement of works in 2017



The same view post works demonstrating the success of woody weed treatment, September 2020



A2 Photo point prior to commencement of works in 2017



A2 Photo point after primary weed control and maintenance, September 2020

Good Bush Pty Ltd

ABN 94 129 963 246

Phone: 0406 215 823

41 Gloucester Cres Dapto NSW 2530

Email: brookscreekdapto@gmail.com



Prostanthera nivea regeneration within the Melaleuca Tall Shrubland Community



Homalanthus stilingiifolius with the rainforest and woodland ecotone



Natural regeneration within the rainforest and woodland ecotone *Einadia hastata*, *Zieria granulata*, *Melia azedarach*



Primary weed control area within the rainforest and woodland ecotone

Zone 3 Compensatory Habitat Area

Zone 3 Compensatory Habitat Area Site Description

This zone is located south of Rocklow Road and consists of a large bushland remnant on a hilltop with a small ephemeral creek line within a gully to the south of the hill. The total site area of this zone covers approximately 23.1 hectares. The majority of this zone is perched on the rocky hillside and supports the *Melaleuca armillaris* tall shrubland vegetation community. The gully drops at the southern end of the zone which is well defined by the presence of rainforest species and some very impressive land large Moreton Bay Fig (*Ficus macrophylla*) trees.

Extensive revegetation has been carried out within this zone within the southern gully and on the eastern and western edges of the zone. Hundreds of thousands of trees have been planted within this zone and are now reaching maturity. Many open areas that have been cleared of vegetation also exist within this zone with the majority of these clearings occurring on the rocky hill tops.

Works within this zone have focused on treating woody weeds within the establishing revegetation along the western boundary of the zone.

Vegetation community boundaries within the compensatory habitat zone are as follows:



Summary of Works

Works within this contract period focused heavily on primary weed control throughout established revegetation areas. Works commenced for the northern fence line that defines this zone and have continued south covering over 2ha. The western fence line defined the boundary of this work area and an old dry stone wall that divides the revegetation areas from the natural bushland was used to define the eastern boundary.

Work continued south focusing on primary weed control within the *Melaleuca armillaris* Tall Shrubland vegetation community and many individual plants of the threatened species Illawarra Zieria (*Zieria granulata*) were uncovered within this area.

Primary weed control works continued eastward from this point and a large subtropical rainforest remnant was reached that is dominated by several large and very old Moreton Bay Figs (*Ficus macrophylla*).

The following hours worked and square metres covered were carried out within this site:

Vegetation Community	Hours Worked	m² Worked Primary Weed Control
Established Revegetation Areas, <i>Melaleuca armillaris</i> Tall Shrubland Illawarra Subtropical Rainforest	631 hours	25,300m ²

Description of Works

Works within this area focused on:

- Primary weed control covering approximately 25,300m² throughout established revegetation areas and two EEC's (Endangered Ecological Communities) *Melaleuca armillaris* Tall Shrubland and Illawarra Subtropical Rainforest
- Primary weed control targeting woody weeds such as Lantana, African Olive, Cassia and Wild Tobacco using the cut and paint method and mulching materials on site
- Treatment of invasive vines such as Cape Ivy and Moth Vine using hand removal and cut and paint methods and leaving materials suspended in the canopy after careful removal of viable propagules
- Assisted regeneration of two threatened species- Illawarra Zieria (*Zieria granulata*) and Illawarra Socketwood (*Daphnandra johnsonii*)
- Assessment of established monitoring points

Work Areas Map

The following map identifies the approximate areas worked within this contract period:



Vegetation Condition Assessment

The vegetation condition assessments are based on a 20m² area surrounding the established photo points within each zone.

Photo Point	3A		
Commencement of works date	August 2019		
Completion of works date	September 2020		
Vegetation Condition		Percentage Cover prior to works	Percentage Cover post works
Upper Stratum (emergent canopy)	The upper stratum surrounding this photo point is dominated by a tall canopy of revegetation <i>Melaleuca armillaris</i> <i>Eucalyptus saligna</i> <i>Acacia maidenii</i>	100% native cover	100% native cover
Mid Stratum (sub canopy)	The mid stratum surrounding this photo point is dominated by <i>Hakea salicifolia</i> <i>Dodonea viscosa</i> <i>Glochidion ferdinandi</i>	100% native cover 0% weed cover	100% native cover 0% weed cover
Shrub layer	The shrub layer surrounding this photo point is dominated by <i>Lantana camara</i> * <i>Solanum mauritianum</i> *	100% native cover 0% weed cover	0% native cover 0% weed cover
Ground Layer	The ground layer surrounding this photo point is dominated by native and weed grasses as well as a range of annual weeds and woody weed seedlings such as <i>Sida rhombifolia</i> * <i>Bidens pilosa</i> * <i>Sigesbeckia orientalis</i>	40% native cover 60% weed cover	70% native cover 30% weed cover

Photo Point	3B		
Commencement of works date	August 2019		
Completion of works date	September 2020		
Vegetation Condition		Percentage Cover prior to works	Percentage Cover post works
Upper Stratum (emergent canopy)	The upper stratum surrounding this photo point is dominated by a tall canopy of revegetation <i>Melaleuca armillaris</i> <i>Eucalyptus saligna</i> <i>Acacia maidenii</i>	100% native cover	100% native cover
Mid Stratum (sub canopy)	The mid stratum surrounding this photo point is dominated by <i>Hakea salicifolia</i> <i>Dodonea viscosa</i> <i>Glochidion ferdinandi</i>	100% native cover 0% weed cover	100% native cover 0% weed cover
Shrub layer	The shrub layer surrounding this photo point is dominated by <i>Lantana camara</i> * <i>Solanum mauritianum</i> *	100% native cover 0% weed cover	0% native cover 0% weed cover
Ground Layer	The ground layer surrounding this photo point is dominated by native and weed grasses as well as a range of annual weeds and woody weed seedlings such as <i>Sida rhombifolia</i> * <i>Bidens pilosa</i> * <i>Sigesbeckia orientalis</i>	40% native cover 60% weed cover	70% native cover 30% weed cover

Photo Point	3C		
Commencement of works date	August 2020		
Completion of works date	September 2020		
Vegetation Condition		Percentage Cover prior to works	Percentage Cover post works
Upper Stratum (emergent canopy)	The upper stratum surrounding this photo point is dominated by a tall canopy of <i>Melaleuca armillaris</i> <i>Acacia maidenii</i>	100% native cover	100% native cover
Mid Stratum (sub canopy)	The mid stratum surrounding this photo point is dominated by <i>Clerodendrum tomentosum</i> <i>Maclura cochinchinensis</i> <i>Ehretia accuminata</i> <i>Solanum mauritianum</i> *	80% native cover 20% weed cover	100% native cover 0% weed cover
Shrub layer	The shrub layer surrounding this photo point is dominated by <i>Lantana camara</i> * <i>Zieria granulata</i> <i>Croton verrauxii</i>	70% native cover 30% weed cover	100% native cover 0% weed cover
Ground Layer	The ground layer surrounding this photo point is dominated by native and weed grasses as well as a range of annual weeds and woody weed seedlings such as <i>Lantana camara</i> * <i>Bidens pilosa</i> * <i>Pellaea falcata</i>	60% native cover 30% weed cover	80% native cover 20% weed cover

Photo Point	3D		
Commencement of works date	August 2020		
Completion of works date	September 2020		
Vegetation Condition		Percentage Cover prior to works	Percentage Cover post works
Upper Stratum (emergent canopy)	The upper stratum surrounding this photo point is dominated by a tall canopy of <i>Ficus macrophylla</i>	100% native cover	100% native cover
Mid Stratum (sub canopy)	The mid stratum surrounding this photo point is dominated by <i>Elaeodendron australe</i> <i>Clerodendrum tomentosum</i> <i>Maclura cochinchinensis</i>	100% native cover 20% weed cover	100% native cover 0% weed cover
Shrub layer	The shrub layer surrounding this photo point is dominated by <i>Lantana camara</i> * <i>Cestrum nocturnum</i> <i>Pittosporum multiflorum</i>	30% native cover 70% weed cover	100% native cover 0% weed cover
Ground Layer	The ground layer surrounding this photo point is dominated by native and weed grasses as well as a range of annual weeds and woody weed seedlings such as <i>Oplismenis imbecillis</i> <i>Bidens pilosa</i> * <i>Solanum pseudocapsicum</i> *	40% native cover 60% weed cover	50% native cover 50% weed cover

Photographs



3A Photo point prior to commencement of works



The same view after primary and secondary weed control works, September 2020



3A Photo point prior to commencement of works



The same view after primary and secondary weed control works, September 2020



3B Photo point prior to commencement of works



The same view after primary and secondary weed control works, September 2020



3B Photo point prior to commencement of works



The same view after primary and secondary weed control works, September 2020



3C Photo Point before primary weed control August 2020



3D Photo point after primary weed control September 2020



3D Photo point prior to commencement of works August 2020



3D Photo after primary weed control September 2020

Good Bush Pty Ltd

ABN 94 129 963 246

Phone: 0406 215 823

41 Gloucester Cres Dapto NSW 2530

Email: brookscreekdapto@gmail.com



3D Photo point prior to commencement of works August 2020



3D Photo after primary weed control September 2020

Appendix 1 Vegetation Monitoring Field Sheets

Good Bush Monitoring Survey sheet		Site: Boral Zone 3 (west of creek)	
Date: 5/8/2019		Plot No: 3A Pre Condition Assessment	
Recorder: Marcus Burgess		Plot Size: 20 x 20m	
GPS Northing	6166983	GPS Easting	299805
GPS Accuracy	+7m	GPS Elevation	64m
Vegetation Community: Established Revegetation with Rainforest Understorey			

Abundance Key

I	Isolated specimens	Usually only 1 individual plant
U	Uncommon	2 to 10 plants throughout the site
O	Occasional	10 to 50 plants throughout the site
C	Common	50 + plants throughout the site

Botanical Name	Abundance	% Cover	Botanical Name	Abundance	% Cover
Accacia maidenii	U	<5%	Lantana camara	C	45%
Glochidion ferdinandii	U	<5%	Bidens pilosa	C	15%
Ficus coronata	U	<5%	Araujia sericifera	C	15%
Acmena smithii	U	<5%	Sida rhombifolia	C	10%
Melaleuca armillaris	U	<5%	Solanum mauritianum	I	1%
Hakea salicifolia	U	<5%	Cirsium vulgare	U	<5%
Eucalyptus saligna	U	<5%			
Dodonea viscosa	U	<5%			
Hibbertia scandens	U	<5%			
Melaleuca decora	U	<5%			
Streblus brunonianus	U	<5%			
Maclura cochinchinensis	U	<5%			
Toona ciliata	U	<5%			

Vegetation Condition:	15 year old established revegetation
Fauna Evidence:	
Significant Species:	

Good Bush Monitoring Survey sheet		Site: Boral Zone 3 (west of creek)	
Date: 20/8/2020		Plot No: 3A Post Condition	
Recorder: Marcus Burgess		Plot Size: 20 x 20m	
GPS Northing	6166983	GPS Easting	299805
GPS Accuracy	+/-7m	GPS Elevation	64m
Vegetation Community:			

Abundance Key

I	Isolated specimens	Usually only 1 individual plant
U	Uncommon	2 to 10 plants throughout the site
O	Occasional	10 to 50 plants throughout the site
C	Common	50 + plants throughout the site

Botanical Name	Abundance	% Cover	Botanical Name	Abundance	% Cover
Accacia maidenii	U	<5%	Bidens pilosa	C	15%
Glochidion ferdinandii	U	<5%	Araujia sericifera	C	10%
Ficus coronata	U	<5%	Sida rhombifolia	C	10%
Acmena smithii	U	<5%	Solanum mauritianum	I	1%
Melaleuca armillaris	U	<5%	Cirsium vulgare	U	<5%
Hakea salicifolia	U	<5%			
Eucalyptus saligna	U	<5%			
Dodonea viscosa	U	<5%			
Hibbertia scandens	U	<5%			
Melaleuca decora	U	<5%			
Streblus brunonianus	U	<5%			
Maclura cochinchinensis	U	<5%			
Toona ciliata	U	<5%			

Vegetation Condition:	15 year old established revegetation
Fauna Evidence:	
Significant Species:	

Good Bush Monitoring Survey sheet		Site: Boral Zone 3 (east of creek)	
Date: 5/8/2019		Plot No: 3B Pre Assessment	
Recorder: Marcus Burgess		Plot Size: 20 x 20m	
GPS Northing	616694	GPS Easting	0299814
GPS Accuracy	+7m	GPS Elevation	69m
Vegetation Community: Established Revegetation with Rainforest Understorey			

Abundance Key

I	Isolated specimens	Usually only 1 individual plant
U	Uncommon	2 to 10 plants throughout the site
O	Occasional	10 to 50 plants throughout the site
C	Common	50 + plants throughout the site

Botanical Name	Abundance	% Cover	Botanical Name	Abundance	% Cover
Melaleuca armilaris	U	5%	Lantana camara	C	45%
Hakea salicifolia	U	5%	Araujia sericifera	U	5%
Ficus coronata	U	5%	Bidens pilosa	C	10%
Eucalyptus saligna	U	5%	Passiflora subpeltata	O	5%
Accacia maidenii	U	<5%	Sida rhombifolia	C	10%
Eucalyptus quadrangulata	U	<5%			
Acmena smithii	U	<5%			
Hibiscus heterophyllus	O	7%			
Carex longibrachiata	U	5%			
Hibbertia scandens	U	<5%			
Maclura cochinchinensis	U	5%			
Pandorea pandorana	O	7%			
Sigesbeckia orientalis	O	5%			
Toona ciliata	I	5%			

Vegetation Condition:	
Fauna Evidence:	
Significant Species:	

Good Bush Monitoring Survey sheet		Site: Zone 3 Mel armillaris shrubland	
Date: 5/8/2019		Plot No: 3C Post Assessment	
Recorder: Samantha King		Plot Size: 20 x 20m	
GPS Northing	6166725	GPS Easting	0299937
GPS Accuracy	+8m	GPS Elevation	87m
Vegetation Community: Ecotone Rainforest and Melaleuca armillaris tall shrubland			

Abundance Key

I	Isolated specimens	Usually only 1 individual plant
U	Uncommon	2 to 10 plants throughout the site
O	Occasional	10 to 50 plants throughout the site
C	Common	50 + plants throughout the site

Botanical Name	Abundance	% Cover	Botanical Name	Abundance	% Cover
Zieria granulata	U	5%	Lantana camara		0%
Accacia maidenii	U	7%	Delairea odorata	U	10%
Maclura cochinchinensis	U	5%	Passiflora subpeltata		0%
Breynia oblongifolia	C	<5%	Araujia sericifera		0%
Guoia semiglauca	U	<5%	Bidens pilosa		0%
Croton verreauxii	U	<5%			
Notelaea venosa	U	<5%			
Trophis scandens	U	<5%			
Streblus brunonianus	O	5%			
Ehretia acuminata	U	<5%			
Melaleuca armillaris	O	7%			
Alphitonia excelsa	U	<5%			
Parsonsia straminea	O	<5%			
Geitonoplesium cymosum	O	<5%			
Clerodendrum tomentosum	O	<5%			
Poa labillardierei	C	5%			
Plectranthus parviflorus	C	20%			
Einadia hastata	C	<5%			
Pittosporum multiflorum	C	<5%			
Pellaea falcata	C	<5%			
Aneilema biflorum	U	<5%			
Oplismenus imbecillis	C	<5%			
Gahnia aspera	I	<5%			
Plamchonella australis	I	<5%			
Pseudoranthemum var.	C	<5%			
Asplenium flabellifolium	C	<5%			

Vegetation Condition:	Regrowth
Fauna Evidence:	Kangaroo tracks & scats/ cow paddock outside of plot
Significant Species:	Zieria granulata

Good Bush Monitoring Survey sheet		Site: Zone 3 Mel armillaris shrubland	
Date: 5/8/2019		Plot No: 3C Pre Assessment	
Recorder: Samantha King		Plot Size: 20 x 20m	
GPS Northing	6166725	GPS Easting	0299937
GPS Accuracy	+8m	GPS Elevation	87m
Vegetation Community: Ecotone Rainforest and Melaleuca armillaris tall shrubland			

Abundance Key

I	Isolated specimens	Usually only 1 individual plant
U	Uncommon	2 to 10 plants throughout the site
O	Occasional	10 to 50 plants throughout the site
C	Common	50 + plants throughout the site

Botanical Name	Abundance	% Cover	Botanical Name	Abundance	% Cover
Zieria granulata	U	5%	Lantana camara	C	75%
Accacia maidenii	U	7%	Delairea odorata	C	30%
Maclura cochinchinensis	U	5%	Passiflora subpeltata	O	<5%
Breynia oblongifolia	C	<5%	Araujia sericifera	U	<5%
Guoia semiglauca	U	<5%	Bidens pilosa	C	<5%
Croton verreauxii	U	<5%			
Notelaea venosa	U	<5%			
Trophis scandens	U	<5%			
Streblus brunonianus	O	5%			
Ehretia acuminata	U	<5%			
Melaleuca armillaris	O	7%			
Alphitonia excelsa	U	<5%			
Parsonsia straminea	O	<5%			
Geitonoplesium cymosum	O	<5%			
Clerodendrum tomentosum	O	<5%			
Poa labillardierei	C	5%			
Plectranthus parviflorus	C	20%			
Einadia hastata	C	<5%			
Pittosporum multiflorum	C	<5%			
Pellaea falcata	C	<5%			
Aneilema biflorum	U	<5%			
Oplismenus imbecillis	C	<5%			
Gahnia aspera	I	<5%			
Plamchonella australis	I	<5%			
Pseudoranthemum var.	C	<5%			
Asplenium flabellifolium	C	<5%			

Vegetation Condition:	Regrowth
Fauna Evidence:	Kangaroo tracks & scats/ cow paddock outside of plot
Significant Species:	Zieria granulata

Good Bush Monitoring Survey sheet		Site: Zone 3 Subtropical RF Big Fig Area	
Date: 26/8/2020		Plot No: 3D Post Assessment	
Recorder: Samantha King & Tanita Gordon		Plot Size: 20 x 20m	
GPS Northing	6166719	GPS Easting	0300124
GPS Accuracy	+ - 10m	GPS Elevation	55m
Vegetation Community: Remnant Subtropical Rainforest			

Abundance Key

I	Isolated specimens	Usually only 1 individual plant
U	Uncommon	2 to 10 plants throughout the site
O	Occasional	10 to 50 plants throughout the site
C	Common	50 + plants throughout the site

Botanical Name	Abundance	% Cover	Botanical Name	Abundance	% Cover
<i>Alchornea ilicifolia</i>	C	15%	<i>Lantana camara</i>	C	50%
<i>Ficus macrophylla</i>	O	90%	<i>Cestrum nocturnum</i>	C	5%
<i>Pittosporum multiflorum</i>	C	5%	<i>Solanum pseudocapsicum</i>	C	<5%
<i>Maclura cochinchinensis</i>	C	5%	<i>Delairea odorata</i>	C	<5%
<i>Alectryon subcinereus</i>	O	<5%	<i>Passiflora subpeltata</i>	O	<5%
<i>Claoxylon australe</i>	O	5%	<i>Araujia sericifera</i>	C	<5%
<i>Notelaea venosa</i>	O	5%	<i>Bidens pilosa</i>	C	<5%
<i>Breynea oblongifolia</i>	O	5%	<i>Asparagus aethiopicus</i>	U	<5%
<i>Diploglottis australis</i>	O	<5%	<i>Stellaria media</i>	U	<5%
<i>Brachychyton acerifolia</i>	O	<5%	<i>Physalis peruviana</i>	O	<5%
<i>Streblus brunonianus</i>	C	10%	<i>Ehrharta erecta</i>	C	<5%
<i>Clerodendrum tomentosum</i>	O	<5%	<i>Phytolaca octandra</i>	U	<5%
<i>Elaeodendron austral</i>	O	5%			
<i>Melicytus dentatus</i>	O	<5%			
<i>Geitonoplesium cymosum</i>	C	<5%			
<i>Eustrephus latifloius</i>	C	<5%			
<i>Pandorea pandorana</i>	C	<5%			
<i>Parsonia straminea</i>	C	<5%			
<i>Nyssanthus erecta</i>	C	<5%			
<i>Wilkea huegliana</i>	O	<5%			
<i>Gahnia aspera</i>	O	<5%			
<i>Oplismenus imbecillis</i>	C	<5%			
<i>Pseudoranthemum var.</i>	C	<5%			
<i>Pallea falcata</i>	C	<5%			
<i>Asplenium flabelifolium</i>	C	<5%			
<i>Parietaria debelis</i>	O	<5%			
<i>Croton verreauxii</i>	O	5%			
<i>Trophis scandens</i>	C	<5%			
<i>Aneilema biflorum</i>	C	<5%			
<i>Plectranthus parviflorus</i>	C	<5%			
<i>Aphanopetalum resinosum</i>	C	<5%			
<i>Sigesbeckia orientalis</i>	C	<5%			

Sarcomelicope simplicifolia	U	<5%			
Morinda jasminoides	C	<5%			
Cayratia clematidea	O	<5%			
Melia azedarach	U	<5%			
Urtica incisa	O	<5%			
Phylanthus gunnii	O	<5%			

Vegetation Condition:	Heavily degraded
Fauna Evidence:	Evidence of Kangaroos & Wallabies. Cow tracks close to site.
Significant Species:	

Good Bush Monitoring Survey sheet		Site: Zone 3 Subtropical RF Big Fig Area	
Date: 5/8/2019		Plot No: 3D Pre Assessment	
Recorder: Marcus Burgess		Plot Size: 20 x 20m	
GPS Northing	6166719	GPS Easting	0300124
GPS Accuracy	+ - 10m	GPS Elevation	55m
Vegetation Community: Remnant Subtropical Rainforest			

Abundance Key

I	Isolated specimens	Usually only 1 individual plant
U	Uncommon	2 to 10 plants throughout the site
O	Occasional	10 to 50 plants throughout the site
C	Common	50 + plants throughout the site

Botanical Name	Abundance	% Cover	Botanical Name	Abundance	% Cover
<i>Alchornea ilicifolia</i>	C	15%	<i>Lantana camara</i>	C	50%
<i>Ficus macrophylla</i>	O	90%	<i>Cestrum nocturnum</i>	C	5%
<i>Pittosporum multiflorum</i>	C	5%	<i>Solanum pseudocapsicum</i>	C	<5%
<i>Maclura cochinchinensis</i>	C	5%	<i>Delairea odorata</i>	C	<5%
<i>Alectryon subcinereus</i>	O	<5%	<i>Passiflora subpeltata</i>	O	<5%
<i>Claoxylon australe</i>	O	5%	<i>Araujia sericifera</i>	C	<5%
<i>Notelaea venosa</i>	O	5%	<i>Bidens pilosa</i>	C	<5%
<i>Breynea oblongifolia</i>	O	5%	<i>Asparagus aethiopicus</i>	U	<5%
<i>Diploglottis australis</i>	O	<5%	<i>Stellaria media</i>	U	<5%
<i>Brachychyton acerifolia</i>	O	<5%	<i>Physalis peruviana</i>	O	<5%
<i>Streblus brunonianus</i>	C	10%	<i>Ehrharta erecta</i>	C	<5%
<i>Clerodendrum tomentosum</i>	O	<5%	<i>Phytolaca octandra</i>	U	<5%
<i>Elaeodendron austral</i>	O	5%			
<i>Melicytus dentatus</i>	O	<5%			
<i>Geitonoplesium cymosum</i>	C	<5%			
<i>Eustrephus latifloius</i>	C	<5%			
<i>Pandorea pandorana</i>	C	<5%			
<i>Parsonsia straminea</i>	C	<5%			
<i>Nyssanthus erecta</i>	C	<5%			
<i>Wilkea huegliana</i>	O	<5%			
<i>Gahnia aspera</i>	O	<5%			
<i>Oplismenus imbecillis</i>	C	<5%			
<i>Pseudoranthemum var.</i>	C	<5%			
<i>Pallea falcata</i>	C	<5%			
<i>Asplenium flabelifolium</i>	C	<5%			
<i>Parietaria debelis</i>	O	<5%			
<i>Croton verreauxii</i>	O	5%			
<i>Trophis scandens</i>	C	<5%			
<i>Aneilema biflorum</i>	C	<5%			
<i>Plectranthus parviflorus</i>	C	<5%			
<i>Aphanopetalum resinosum</i>	C	<5%			
<i>Sigesbeckia orientalis</i>	C	<5%			

Sarcomelicope simplicifolia	U	<5%			
Morinda jasminoides	C	<5%			
Cayratia clematidea	O	<5%			
Melia azedarach	U	<5%			
Urtica incisa	O	<5%			
Phyllanthus gunnii	O	<5%			

Vegetation Condition:	Heavily degraded
Fauna Evidence:	Evidence of Kangaroos & Wallabies. Cow tracks close to site.
Significant Species:	

