COVENANT MANAGEMENT PLAN

ADDRESS: **97 - 105 Upper Ormeau Road, Kingsholme**

LOT 2 RP29994, LOT 2 RP107328

PREPARED FOR: Kingsholme Developments Pty Ltd

July 2015

gassman development perspectives

project coordination
urban + regional planning
landscape + urban design
environmental management
visualisation + spatial services
surveying services
advisory services

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V2.0	Brian Gassman	Director		

Final Distribution

Kingsholme Developments Pty Ltd	1 electronic copy
Gold Coast City Council	1 electronic copy

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1 Introduction

a) Description of the approved development

This Environmental Covenant Plan (ECP) applies to the parcel of land located at 97 - 105 Upper Ormeau Road, Kingsholme, described as Lot 2 RP29994 and Lot 2 RP107328 ('the subject site'). The covenant areas are located within selected individual lots, primarily coinciding with natural gullies currently present on the subject site. The development is a rural living residential subdivision with significant open space areas. The covenant areas are illustrated in Appendix 1 to this plan.

b) Purpose

This ECP has been prepared for the purposes of maintaining the covenant areas within lots on the subject site. It has been prepared further to requirements set out in Condition 37 contained within appeal number 640 of 2012 dated 13th September, 2013.

The purpose of this ECP is to detail all environmental management measures, monitoring and activities to be undertaken within the covenant areas (Appendix 1) for the life of the development by the developer and future landowners; and use of the premises subject to the approved operational works proposed for the site in addition to further building works which may be undertaken by future landowners.

Specific purposes of this ECP include:

1. To create an ecologically stable area that has no long term maintenance requirements;
2. Enhance the condition of the existing vegetation community within the proposed covenant areas;
3. Create a network of connected ecological corridors throughout the site;
4. Remove weed species threatening the ecosystems;
5. Revegetate the system using endemic plant species that will provide a range of ecological functions to combine with existing vegetation;
6. Increase a range of fauna opportunities of the vegetation community and surrounding habitats;
7. Increase soil biota and functions resulting from the rehabilitation strategy; and
8. Provide plants that will create strata levels within the vegetation to allow vertical as well as lateral movements for fauna groups.

The responsibility of the developer is to establish the covenant areas including establishing rehabilitation plantings and undertaking initial weed removal works. The responsibility of the future landowner is to maintain these covenant areas and ensure that rehabilitation works are maintained and weeds are appropriately managed to sustain the ongoing viability and ecological value of the covenant areas.

c) How to use this document

This ECP has been structured in accordance with Condition 37 of the Court Approval. It contains the following information in order to ensure that roles and responsibilities of all parties are clearly defined.

This document is structured in the following order:

Parts a – d: Site information, background and purpose of this document
Part e: Requirements to be fulfilled by the developer
Part f: Requirements to be fulfilled by landowners
Part g: General information including duration of responsibilities and contacts for further information
Part h: Context of ECP within other rehabilitation and management plans for the site

d) Site Description and Proposal

Development Name	Montego Hills
Site Owners	Kingsholme Developments Pty Ltd
Location	97 - 105 Upper Ormeau Road, Kingsholme
Legal Description	Lot 2 RP29994 and Lot 2 RP107328
Development Application	Rural living residential subdivision

The subject site is described as Lot 2 RP29994 and Lot 2 RP107328 and is situated at 97 - 105 Upper Ormeau Road, Kingsholme. It is bounded by rural residential lots in the south and west and the Pacific Motorway in the east and residential housing in the north.

i. Topography

The site contains areas of steep slopes which are largely vegetated in addition to more undulating areas which are open grasslands and paddocks. The majority of the covenant areas proposed for the subject site occur at the base of current gully areas.

ii. Waterways, flow paths and gullies

No significant waterways occur on the subject site with the exception of several artificially constructed farm dams. Due to the steep topography of the site, the site contains numerous gullies and flow paths which occur in the low areas of the hilly country. These flow paths and gullies will largely be retained in their current state and the majority of which are subject to this ECP.

iii. Vegetation Communities and significant species

The site contains remnant vegetation which is proposed to be fully retained under an Open Space Management Plan. No remnant vegetation is proposed to be disturbed as part of this development. The developable area of the subject site contains scattered mature native trees and groups of

regrowth native species in addition to Lantana and other weed species. The majority of the site is represented by pastoral grasslands. Two (2) Citywide Significant *Melaleuca decora* individuals were located within Stage 2a which are proposed to be removed and offset. No other significant species were detected on the subject site.

iv. Fauna habitat and significant species

Due to the degraded nature of the subject site, the majority of the fauna habitat available is located within the proposed open space areas. Very little fauna habitat was observed to be available within the proposed covenant areas. Some hollow bearing trees were observed within the covenant areas which are likely to provide some habitat for mobile mammal, bird, reptile and bat species.

v. Other significant features

The only other significant features of this site are the ridgelines and associated vistas. These will be retained and enhanced as part of the development. The balance of the development occurs over historically degraded land with low ecological value.

e) Requirements to be fulfilled by developer

To achieve the successful rehabilitation of the Environmental Covenant Area this Management Plan has been broken down to four main processes which are to be fulfilled by the developer:

Process 1 – Weed management and removal;
Process 2 – Treatment methods for retained vegetation; and
Process 3 – Re-vegetation establishment
Process 4 - Maintenance requirements.

The broad objectives of this plan are to:

- Comply with current 'best practice' guidelines as well as council guidelines and policies;
- Provide an overview of the sites environmental conditions;
- Provide a vegetated buffer among future residential lots; and
- Improve ecological function and fauna opportunities of the future vegetation communities and surrounding habitats.

i. Environmental Covenant Area Prohibited and Permitted Activities

The purpose of the ECP is to rehabilitate, maintain and preserve into perpetuity the ecological integrity of the subject sites' proposed covenant areas. The following activities will not be permitted to occur within the covenant area:

a Clearing, lopping or removal of any native plants, whether they are existing or to be planted as a result of the rehabilitation plan except where required for upfront operational works;

b Erection of any fixtures or improvements, including buildings or structures;
c Construction of any trails or paths;
d Depositing of any fill, soil, rock, rubbish, ashes, garbage, waste or other material foreign to the protected covenants;
e Keeping or permitting the entry of domestic animals or any other animals that are not indigenous to the Covenant Area; and
f Performance of any other acts which may have detrimental impact on the values of the Covenant Area.

However, some initial earthworks are required within Covenant Areas to achieve civil engineering outcomes required for creation of the development. Minor intrusions into covenant areas located on lots 10, 11, 12, 35, 36, 55 and 73 will be undertaken. These works will be reflected in future operational works applications prepared by the developer. As a result, prohibited activities will apply following the completion of plantings.

Current Condition of Covenant Area

The covenant areas are largely situated at the base of natural gullies on the subject site. Most are partly vegetated with scattered, mature native trees. However, no structural mid or understorey is present in the majority of the covenant areas. Consequently, biodiversity values are currently considered to be relatively low. A typical example of the current state of the covenant areas is illustrated in the following photograph.

ii. Infrastructure requirements

The only infrastructure requirements which will intrude into covenant areas are stormwater pipes and headwalls to convey stormwater through the development.

iii. Rehabilitation summary

Management of the rehabilitation will be covered in Part 2 of this document. In summary, the covenant areas will be rehabilitated by the developer with two different treatments. In areas not impacted by bushfire hazard, covenant areas will be rehabilitated with native species at 1 plant per $3m^2$ reflective of Regional Ecosystem (RE) 12.11.5a which is representative of the predominant pre-clearing RE over the subject site.

In areas impacted by bushfire hazard risks, no planting is proposed in the 10m zone within the covenant directly adjacent to the building envelopes. This is intended to adequately manage bushfire hazards. In these areas where no planting is proposed, higher density planting will be undertaken immediately adjacent to these areas to ensure that no net loss of plantings results.

Native vegetation currently present on the subject site will be retained where possible. Rehabilitation works also include weed management operations to ensure an overall reduction in weed abundance and diversity across all covenant areas.

iv. Maintenance requirements

The 'on maintenance' period will be for 12 months after the 12 month establishment period and shall consist of:

- Hand weeding and spot spraying in planting areas.
- Watering of planted plants if required.
- Top up mulch around planted areas if required.

The performance of maintenance activities will be assessed as part of allocated monitoring inspections.

Table 1 – Measurement of health

Time scale	Growth and development processes	Key indicator for species health	Maintenance Issues that may arise	Description of maintenance period
0 – 12 Months (establishment period)	Growth rate and establishment	Seedling heights, foliage growth and colour, weed presence.	Weed removal, water requirements, impacts from unforseen destruction, attrition rates.	90% success in establishing the planted species. Minimal weeding required.
1 – 2 years	Continued	Increasing height	Weed removal,	Healthy foliage

Time scale	Growth and development processes	Key indicator for species health	Maintenance Issues that may arise	Description of maintenance period
(Maintenance period)	growth and establishment; General health; Minor habitat use.	and trunk diameter; Canopy growth and density; Weed presence, Canopy closure.	possible impacts from past weed invasion measures.	growth rates and characteristics corresponding with individual species.
2 years +	***See Table 3 below***			

v. Monitoring requirements

Works within the environmental covenant area are to be monitored by routine site inspections by a qualified professional (refer to Appendix 2 for a sample monitoring inspection form). Full details of monitoring requirements can be found in Section 2 of this plan.

Ongoing monitoring and maintenance issues

As the site's development moves into the operation phase, ongoing maintenance and monitoring of the area will reduce, but should continue to ensure no adverse impacts are suffered to the ECA.

Table 3 - On going monitoring and maintenance issues

Responsible Party	***Time scale***	***Growth & Development Processes***	***Indicators for species health***	***Possible Maintenance issues***	***Descriptions of stages***
Developer	***0 - 12 months***	Growth rate and establishment	Seedling heights, Foliage growth, Weed presence	Weed removal; Water requirements; Impacts from unforeseen destruction, attrition rates.	90% success in establishing the planted species; Minimal weeding required.
	1 – 2 years	Continued growth and establishment; General health; Minor habitat use.	Increasing height and trunk diameter increasing Canopy Growth and density Weed presence	Weed removal, may be required to ensure plant development Possible adverse impacts from past weed invasion measures	Healthy foliage growth rates and characteristics. Corresponding with individual species.

vi. Compliance and certification requirements

Compliance with and certification of the completion of works and maintenance requirements will be undertaken by a suitably qualified and experienced ecologist. A monitoring form for this purpose is included in Appendix 2 to this plan.

f) Requirements to be fulfilled by landowners

i. Purpose of the covenant

The covenant areas over lots have been implemented to create a network of ecological corridors which seek to connect adjacent natural areas and improve the amenity of the subject site. They seek to re-create natural bushland and enhance the currently degraded and pastoral nature of the subject site.

ii. Environmental Covenant Area Prohibited and Permitted Activities

The purpose of the ECP is to rehabilitate, maintain and preserve into perpetuity the ecological integrity of the subject sites' proposed covenant areas. The following activities will not be permitted to occur within the covenant area:

a Clearing, lopping or removal of any native plants, whether they are existing or to be planted as a result of the rehabilitation plan except where required for upfront operational works;
b Erection of any fixtures or improvements, including buildings or structures;
c Construction of any trails or paths;
d Depositing of any fill, soil, rock, rubbish, ashes, garbage, waste or other material foreign to the protected covenants;
e Keeping or permitting the entry of domestic animals or any other animals that are not indigenous to the Covenant Area; and
f Performance of any other acts which may have detrimental impact on the values of the Covenant Area.

iii. Landowner requirements and responsibilities

Landowners will be required to undertake the following works in maintaining the covenant areas on private lots:

a. Regularly maintain significant weed growth within covenant areas;
b. Periodically remove any rubbish or foreign debris which accumulates within covenant areas; and
c. Ensure that no encroachments into covenant areas occur from adjacent uses within lots.

iv. Maintenance and enhancement of the covenant areas

Whilst the majority of responsibilities relating to maintenance and enhancement of the covenant areas will be borne by the developer prior to landowner management commencing, detailed methods for weed removal, revegetation, monitoring requirements and useful resources and contacts are included in Part 2 of this document for use by landowners where required.

Table 4 - On going monitoring and maintenance issues

Responsible Party	*Time scale*	Growth & Development Processes	Indicators for species health	Possible Maintenance issues	Descriptions of stages
Land Owner	***3 years***	Native vegetation domination No maintenance	Rehabilitation species well established Weed presence.	Competition between species Weed invasion Human impacts.	Healthy established plant species should be represented at this time.
	5 years	Increasing habitat use	Well established species Weed Presence	Limited Maintenance Fire management. Monitoring edge effects Appropriate responses	Healthy established plant species. Developing Vegetation community No disruption to infrastructure limited in weed occurrence.
	5 years +	Notable habitat use.	Well established and developing species Weed presence	Fire management. Monitoring edge effects Appropriate responses	Healthy established plant species. Developing Vegetation community Increasing habitat use No disruption to infrastructure Extremely limited in weed occurrence.

g) General information

i. Duration of requirements / responsibilities

The developer will be responsible for establishing the rehabilitation works relating to the covenant areas and will then be responsible for maintaining the covenant areas for a total of two (2) years. As outlined in Table 4 above, the landowner will take over responsibilities from the commencement of year three and into perpetuity.

ii. Contact information for non-compliant activities

Should a landholder wish to undertake activities within the covenant area which are not permitted, they should contact the town planning desk at Gold Coast City Council (GCCC) on 1300 694 222 to obtain necessary approvals for these activities.

iii. Baseline data

Baseline data has been collected via detailed vegetation mapping and weed inventories in the separate Vegetation Management Plan and Rehabilitation Management Plan component of this plan. Improvements to native vegetation and reductions in weed abundance and diversity may be compared against these plans.

iv. Checklists for Council use

Checklists for use by Gold Coast City Council to assess compliance with the Covenant Management Plan and to use as a basis to determine remedial actions for non-compliance have been included in Appendix 2 to this plan.

2 Rehabilitation Plan for Covenant Areas

The rehabilitation and planting component of this ECP are to be undertaken by the developer prior to individual landowners taking over responsibility for the ongoing management and upkeep of the covenant areas.

Process 1: Weed Management & Removal

a) Management Objectives

1. To reduce the extent of weed species that are threatening or have future threats to diversity levels and ecological processes within the designated rehabilitation areas;
2. To remove listed weed (and undesirable exotic) species from Environmental Covenant area;
3. Allow increased success and establishment of existing natives and rehabilitation plantings; and
4. To reduce incidental weed invasion into plant communities within the surrounding areas.

b) Implementation

The weed management processes have been provided below sequentially so to ensure the most successful and efficient method is undertaken.

During the later construction and residential occupation phases of the site's development, weed invasion, and weed invasion potential, will be monitored by the consulting ecologist or associated professional in conjunction with the rehabilitation monitoring program.

c) Weed control method to be used within rehabilitation areas

i. Mechanical

Bobcat / Excavator – No mechanical weed maintenance will be permitted within the Environmental Covenant Area.

Hand pulling – This method of weed control will be implemented as specified throughout the covenant area. This method physically removes any existing or re-establishing weed species from around the existing plants thus limiting competition and increasing health of native plants and allowing the new plantings to establish.

Weed plough – This hand tool is effective to remove small weed species to physically remove weeds before planting occurs, ensure that roots are also removed.

ii. Chemical

All chemical treatment of weeds will be undertaken in accordance with Appendix 3 - South East Queensland Ecological Restoration Framework Weed Management Techniques. Table 1 contains a list of weed species observed on the subject site which will be treated as per the Framework.

Table 4: Weed species occurrence and proposed treatments

Scientific Name	Common Name	Proposed Weed Control Method
Brachiaria mutica	Para Grass	Spot spray 100ml Glyphosate:10L water + Dye
Cinnamonum camphora	Camphor Laurel	Stem inject 1:1.5 Glyphosate:Water
Lantana camara	Lantana	Cut Spray Paint 1:1.5 Glyphosate:Water
Sporobolus fertilis	Giant Parramatta Grass	Spot spray 100ml Glyphosate:10L water + Dye
Setaria sphacelata	South African Pigeon Grass	Spot spray 100ml Glyphosate:10L water + Adjuvant + Dye
Conyza bonariensis	Flaxleaf Fleabane	Spot spray 100ml Glyphosate:10L water + Dye
Paspalum mandiocanum	Broad-leaved Paspalum	Spot spray 100ml Glyphosate:10L water + Dye
Solanum chrysotrichum	Giant Devil's Fig	Stem inject 1:1.5 Glyphosate:Water
Eragrostis curvula	African Love Grass	Spot spray 100ml Glyphosate:10L water + Dye
Sporobolus pyramidalis	Giant Rat's Tail Grass	Spot spray 100ml Glyphosate:10L water + Dye
Senecio madagascariensis	Fireweed	Spot spray 300ml Glyphosate:10L water + Dye
Gomphocarpus physocarpus	Balloon Cotton Bush	Spot spray 100ml Glyphosate:10L water + Dye
Sida acuta	Spiny Head Sida	Spot spray 100ml Glyphosate:10L water + Dye
Coffee Senna	Coffee Senna	Cut Spray Paint 1:1.5 Glyphosate:Water
Solanum mauritianum	Tobacco Bush	Cut Spray Paint 1:1.5 Glyphosate:Water
Bidens pilosa	Cobblers Pegs	Spot spray 100ml Glyphosate:10L water + Dye
Verbena bonariensis	Purple Top	Spot spray 100ml Glyphosate:10L water + Dye

iii. Herbicide Application

All weed control techniques will be in accordance with the South East Queensland Ecological Restoration Framework Guidelines 2012 (Appendix 2).

iv. Weed Management Procedures

STEP	ACTIVITY
1	Ensure that any section of non-fauna friendly fencing, including any debris from the fence, has been fully removed. Barb wire can be a hazard to various fauna groups.
2	Remove any protective fencing that has been placed along the boundary of the Environmental Covenant area or individual trees (pursuant to the site's Vegetation Management Plan) following the completion of all construction activities. Fencing will remain in place until this time.
3	Identify and clearly mark the existing native species within the treatment area.
4	Identify and physically remove the weed species as recommended in the weed control table.
5	Spray the remaining exotic grasses and herbs within this area with the recommended chemical treatment, limit exposure to any native grasses and ground layer species present.
6	Allow the weeds to uptake chemicals and die (this should take effect within 5 – 7 days).

v. Performance criteria

- All weed species have been removed from the rehabilitation area within 12 months of completion of construction.
- The covenant area is free from rubbish and debris within 3 months of completion of construction.
- No stockpiles or material storage has occurred within the covenant area (to be adhered to at all times).
- No erosion or re-growth of the weed species is evident for 12+12 months following the completion of construction works.

vi. Corrective Actions

Reapply procedures and actions to eradicate weed re-establishment within the area if required.

Process 2: Vegetation to Remain

a) Introduction

The Environmental Covenant Area contains occasional scattered mature native trees. Several of the proposed covenant areas also contain native regrowth. Various species of Eucalyptus and Corymbia are present in association with Acacia species. None of the covenant areas are consistent with remnant vegetation and have not been mapped as containing Regional Ecosystems. In order to maintain and increase the health and vitality of these species specific treatment methods have been provided.

b) Arbor treatments – Objectives

- To increase the health and vitality of the exiting native species within the Environmental Covenant area.
- To reuse any pruned dead and damaged limbs within the ground layer of the covenant area to increase habitat potentials.

c) Treatment methods of the existing vegetation

Vegetation that will be retained within the covenant area will be protected from clearing activities on the site pursuant to the operational works approved Vegetation Management Plan (e.g. protective fencing, pruning requirements). Some existing vegetation within covenant areas will require removal to facilitate the bulk earthworks proposed for the subject site.

In consideration of the fact that the Covenant Area's weed removal methodologies do not include mechanical eradication (i.e. bobcats etc), the existing vegetation will not be at risk from possible collateral damage such as soil compaction, limb damage and root system damage. Selective spot spraying, hand pulling, slashing and direct application of herbicide will be the main weed management techniques, and subsequently will facilitate protection of the Covenant Area's desirable vegetation.

The rehabilitation contractor will undertake a detailed survey of the Covenant Area prior to any works being undertaken, in order to accurately identify and mark existing vegetation to be protected.

Process 3: Revegetation Establishment

a) Timing of Works

STEP	ACTIVITY
1	After the completion of the initial weed removal and the arboricultural procedures on the existing trees within the covenant area, begin the re-vegetation works.
2	Apply mulch around individual new plants. This mulch should not be applied in areas of extant vegetation. In areas considered to contain water flows, alternatives such as jute matting will be acceptable.

b) Planting modules

In consideration of the requirements of the development approval over the subject site including bushfire planning considerations, planting densities across the covenants have been divided into two (2) treatment areas also illustrated in Appendix 1:

Treatment Area 1: No planting proposed. This treatment area is 10m wide and is intended as a bushfire hazard setback from the adjacent building envelopes.

Treatment Area 2: 2 plants per $3m^2$. This treatment area represents the balance of planted areas and is located directly adjacent to the Treatment 1 areas.

This facilitated establishment, combined with (1) the removal of the existing highly competitive weed species, (2) the application of mulch or jute mat where appropriate, (3) correct planting techniques and follow up maintenance regimes will provide a successful rehabilitation strategy.

c) Planting module layout

As mentioned in the previous section The species selection for the revegetation areas have been selected to reflect the pre-clearing Regional Ecosystems, namely 12.11.5a for the area over which the covenants are proposed.

No plantings are proposed for Treatment Area 1 so planting modules are included for Treatment Area 2 only.

Treatment Area 2

Total Area: 75,726m² (approx)
Density: 2 plant per 3m²

46x Canopy Species per 100m² (70%)
14x Mid-storey Species per 100m² (20%)
6x Groundcover Species per 100m² (10%)

Total = 66 plants per 100m² module

Table 5 – Species List

Scientific Name	Common Name	Number
Canopy Species		
Corymbia citriodora	Lemon Scented Gum	5806
Eucalyptus tereticornis	Queensland Blue Gum	5806
Eucalyptus siderophloia	Northern Grey Ironbark	5806
Eucalyptus propinqua	Grey Gum	5806
Corymbia trachyphloia	Brown Bloodwood	5806
Eucalyptus resinifera	Red Mahogany	5806
Mid-storey Species		
Angophora woodsiana	Rough-barked Apple	1767
Melaleuca quinquenervia	Narrow-leaved Paperbark	1767
Lophostemon confertus	Brush Box	1767
Lophostemon suaveolens	Swamp Box	1767
Alphitonia excelsa	Red Ash	1767
Melaleuca decora	White Feather Honeymyrtle	1767
Groundcover Species		
Alphitonia excelsa	Red Ash	1136
Dianella caerulea	Blue Flax Lily	1136
Lomandra hystrix	Green matrush	1136
Lomandra longifolia	Spiny headed matrush	1136
	Total	**49,982**

d) Planting module layout

- A suitably qualified planting team is to be engaged.
- Plant stock is to be grown from local provenance, where possible.
- The plants listed are to be used, in the situation arises where a plant species is not available at the time of planting a suitable substitute can be made.

- Plant out areas and species locations should be located and clearly marked.
- Replanting areas should be monitored for exotic weed growth during plant out and spot treated accordingly.
- The boundaries of the planting areas will be located and marked or clearly visible.
- Temporary markings on existing native species can be removed during the plant out.
- The planting is to include the addition of a long term slow release fertilizer to increase establishment potentials and rates of the plant.
- Where possible plants should be planted the day they arrive on site, if this is unfeasible they will require a shaded location with sufficient watering provided.
- All planted species should be immediately watered after planting. If this is between the hours of 9am and 4pm specific attention should be given to avoiding leaves during watering to limit epidermis burning.
- Planting is not to occur in extreme weather conditions i.e. strong winds, extremely high temperatures.
- The planting hole should be dished to maximise water catchment and retention

Plants are to be supplied in tubestock, 75mm native tube or equivalent.

Plant stock is to be sourced from local nurseries, using local provenence parent material only. The source of the material should be certified by the supplying nursery. Stock is to be free of defects and pathogens and should show good root structure and vigor.

A survival rate of at least 90% is to occur within the buffer rehabilitation area (covenant management area) for the duration of the 12 month establishment and 12 month maintenance periods. Failure to achieve these targets will require plant replacement.

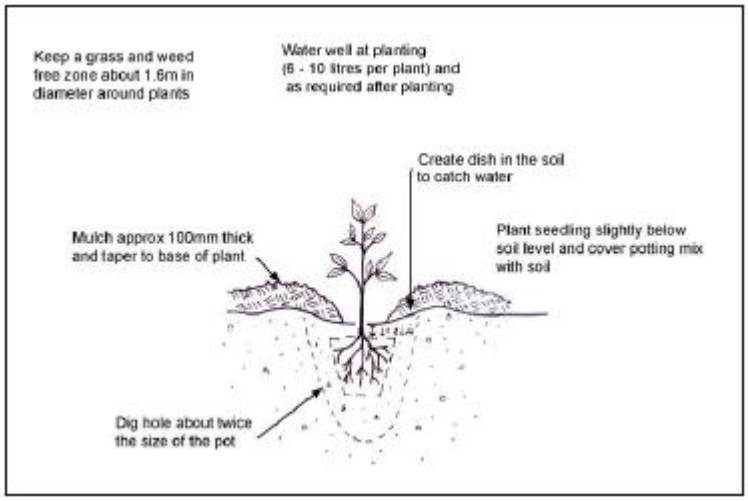


Figure 1 – Planting Detail

e) Mulch

Mulch is to be used on all planting areas except those that are subject to overland flows. Mulch shall be applied around individual plants. For planting occurring within the likely overland flow paths, jute matting should be used in lieu of mulch. Mulch within the planting area is to consist of 100mm of weed free forest mulch throughout.

f) Staging of works

The Covenant Area establishment period will run for 12 months - inclusive of a 6 week window for adequate preparation of planting areas.

The Covenant Area establishment works should be staged as follows:

Table 6 – Staging of works (Establishment Phase)

Step	*Activity*	*Timing*
1	Locate and delineate the rehabilitation area	Week1
2	Remove all rubbish and foreign debris from rehabilitation area	Week 1
3	Undertake initial weed treatment. Locate, mark out and prepare areas for planting within the covenant area	Week 1
4	Undertake follow up weed control and plant the specified species according to the planting module	Week 7 – 10
5	Scheduled maintenance of planting areas during establishment period and follow up weed control.	6 weekly cycle: Week 16, 22, 28, 34 - 52

Process 4: Maintenance

g) Proposed maintenance regime

The 'on maintenance' period will be for 12 months after the 12 month establishment period and shall consist of:

- Hand weeding and spot spraying in planting areas.
- Watering of planted plants if required.
- Top up mulch around planted areas if required.

The performance of maintenance activities will be assessed as part of allocated monitoring inspections.

Table 7 – Measurement of health

Responsible Party	Time scale	Growth and development processes	Key indicator for species health	Maintenance Issues that may arise	Description of maintenance period
Developer	0 – 12 Months (establishment period)	Growth rate and establishment	Seedling heights, foliage growth and colour, weed presence.	Weed removal, water requirements, impacts from unforseen	90% success in establishing the planted species. Minimal weeding required.

Responsible Party	Time scale	Growth and development processes	Key indicator for species health	Maintenance Issues that may arise	Description of maintenance period
				destruction, attrition rates.	
Developer	1 – 2 years (Maintenance period)	Continued growth and establishment General health Minor habitat use	Increasing height and trunk diameter increasing, Canopy growth and density Weed presence, Canopy closure	Weed removal, possible impacts from past weed invasion measures.	Healthy foliage growth rates and characteristics corresponding with individual species.
Landowner	2 years +	***See Table 8 below***			

h) Monitoring

Works within the environmental covenant area are to be monitored by routine site inspections by a qualified professional (refer to Appendix 3 for a sample monitoring inspection form).

The following monitoring inspections are recommended:

Table 8 – Monitoring Schedule (Establishment Phase)

Responsible Party	Inspection	Timing	Purpose	Evidence
Developer	1	Weeks 1-2	Confirm location of rehabilitation area & planting areas	Site visit
	2	Weeks 3-4	Inspection of planting modules, correct densities, species, and mulch application.	Inspection form & photographs
	3 to 25	Weeks 5 - 51	Fortnightly inspection of planting areas. Replace any dead plants. Monthly Inspection of weed control areas.	Inspection form & photographs
	26	Week 52	'On maintenance' inspection – assess ecological integrity of site; • Plant establishment and vigour • Effectiveness of weed control activities	Inspection form, photographs & certification to council

i) On going monitoring and maintenance issues

As the site's development moves into the operation phase, ongoing maintenance and monitoring of the area will reduce, but should continue to ensure no adverse impacts are suffered to the Environmental Covenant Area.

Table 9 - On going monitoring and maintenance issues

Responsible Party	*Time scale*	*Growth & Development Processes*	*Indicators for species health*	*Possible Maintenance issues*	*Descriptions of stages*
Developer	***0 - 12 months***	Growth rate and establishment	Seedling heights, Foliage growth, Weed presence	Weed removal; Water requirements; Impacts from unforeseen destruction, attrition rates.	90% success in establishing the planted species; Minimal weeding required.
	1 – 2 years	Continued growth and establishment; General health; Minor habitat use.	Increasing height and trunk diameter increasing Canopy Growth and density Weed presence	Weed removal, may be required to ensure plant development Possible adverse impacts from past weed invasion measures	Healthy foliage growth rates and characteristics. Corresponding with individual species.
Landowner	***3 years***	Native vegetation domination No maintenance	Rehabilitation species well established Weed presence.	Competition between species Weed invasion Human impacts.	Healthy established plant species should be represented at this time.
	5 years	Increasing habitat use	Well established species Weed Presence	Limited Maintenance Fire management. Monitoring edge effects Appropriate responses	Healthy established plant species. Developing Vegetation community No disruption to infrastructure limited in weed occurrence.
	5 years +	Notable habitat use.	Well established and developing species Weed presence	Fire management. Monitoring edge effects Appropriate responses	Healthy established plant species. Developing Vegetation community Increasing habitat use No disruption to infrastructure Extremely limited in weed occurrence.

3 Conclusion

This Covenant Management Plan has addressed the objectives that are required to protect and enhance natural assets into perpetuity.

By providing evidence and the rationale behind the creation of the covenant areas over the site, this plan provides the various strategies and responses to achieve Council objectives, whilst developing the covenant areas into natural conservation areas.

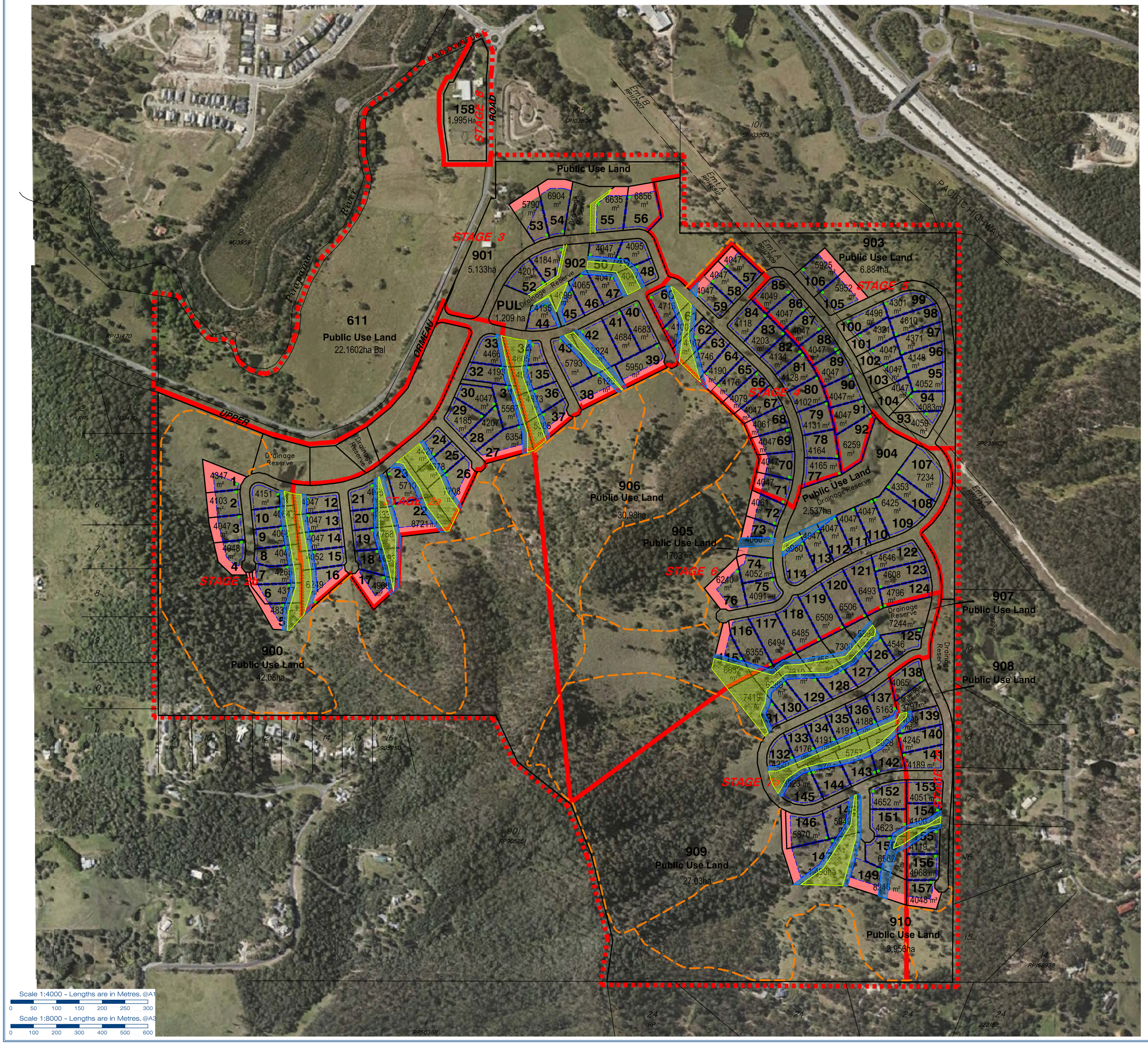
The creation and spatial dimensions of the covenant areas have been based on reference to the overall development plan and requirements set out in the development approval.

Resulting from the environmental context of the proposed covenant areas, rehabilitation will involve reconstructive rehabilitation to function primarily as connective ecological corridors in addition to weed control to allow for natural regeneration and subsequently enhanced ecological functioning.

The plan has clearly delineated and outlined responsibilities to be borne by the developer and the future landowners of the lots.

It is considered that the allocated area of the covenant areas adheres to the Council's organisational requirements and produces a broad range of benefits to both potential user groups and the natural environment. These benefits have been identified primarily as addressing ecological issues, such as vegetation conservation, habitat protection and the future development and succession of the limited existing ecology.

APPENDIX 1 – Rehabilitation Plan of Covenant Areas



N

Rehabilitation Treatments

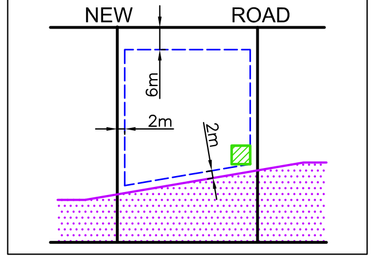
		AREA
	No Plantings - 10m	57,864m²
	2 Plants per 3m²- 10m	75,726m²

DEVELOPMENT SUMMARY	
Total Site Area 236.6Ha	
(Lot 2 on RP29994 - 159.044Ha) (Lot 2 on RP107328 - 52.609Ha) (Lot 1 on SP243312 - 24.947)	
Public Use Land / Drainage Area	141.232Ha
Area of New Road	14.877Ha
Total No. of Lots	161 Lots
Smallest Lot Area	4047m²
Largest Lot Area	1,496Ha
Average Lot Area	4999m²

LEGEND

Building Envelopes	
Effluent Disposal	
Fire Breaks / Trails	
20m setback to edge of building envelope for bushfire hazard area	

Typical Building Envelope



Client:

MONTEGO Hills

for

Designed for Living

villawood properties

Site Address:

MONTEGO HILLS
Upper Ormeau Road,
Kingsholme

RPD:

Lot:	2/RP29994, 2/RP107328,
Plan:	1/SP243312
Parish:	Pimpama
County:	Ward
Local Authority:	Gold Coast City Council
Level Datum:	AHD der
Meridian:	RP107328

Associated Consultants:

MORTON urbansolutions
Urban & Regional Planning
Civil Engineering
Project Coordination

This plan has been prepared for the exclusive use of the client as stated on this plan for the purpose of application to the relevant local authority for material change of use and/ or reconfiguration of the land as described and should not be used by any other person or corporation and for any other purpose.

Property boundaries have not been defined by this survey and have been compiled from RP.

All dimensions are approximate only and subject to survey.

This plan may not be photocopied unless these notes are included.

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Issue	Date	Description	DRN	CHK
-	09-07-15	ORIGINAL ISSUE	SJH	MDS

Scale at A1: 1:4000

Date: 10-07-15

Design: .

Drawn: SJH

Checked: MDS

Drawing Title:

Appendix 1
Covenant Rehabilitation Plan

Over Lot: 2 on RP29994, Lot 2 on RP107328 & Lot 1 on SP243312

gassman development perspectives
planning design environment surveying

Brisbane Office
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Drawing No: 5543 E COV 02

Rev. No:

APPENDIX 2 – Monitoring Form

gassman development perspectives | surveyors planners designers

SITE VISIT DETAILS	
Location: **Site Visit No. & Date:** **Site Visit By:** **Weather:**	
Purpose of the site visit	**Tick box**
Allocated routine inspection	
Final Inspection	

PLANTS				
Condition of plants (circle)				
Good	Fair		Poor	Dead
Pruning required	Yes / No			
Watering required	Yes / No			
Comment / Description				
Tick box if action is required				

MULCH		
Even spread of mulch	Yes / No	
Mulch is outside of covenant area	Yes / No	
Comment / Description		
Tick box if action is required		

WEED COVERAGE			
None	Light	Moderate	Heavy
Comment / Description			
Tick box if action is required			

FENCING		
Condition of fence	Damaged	Good
Does the fence adequately protect the existing vegetation	Yes / No	
Comment / Description		
Tick box if action is required		

LITTER		
None	Minimal	Heavy
Was the litter collected this site visit	Yes / No	
Comment / Description		
Tick box if action is required		

PHOTOGRAPHIC MONITORING	
The previous photographic record was observed prior to photo being taken to ensure the same view.	Yes / No
Clear line of site with no obstructions	Yes / No
Comment / Description/ Detail level of Planting Health (Good, Fair, Poor, Dead)	

APPENDIX 3 – South East Queensland Ecological Restoration Framework Weed Management Techniques

DISCLOSURE

At the time of publication the following chemicals and techniques are registered for use and are commonly utilised. Other chemicals and techniques are used in the ecological restoration industry. Laws and best practice techniques change over time and as such it is best to check with your local government as to the current preferred approach.

Under label or off-label permits 11463 and 9868. Permit 9868 requires that persons who can use the product under the permit are "All persons who are trained in the use and handling of agricultural chemicals and who are performing weed control as part of a bush regeneration/restoration project". Operators are legally obliged to read the label before using any herbicides. If the species you wish to treat is not on the label it will be necessary to read the off label permit. Always consult the ecological restoration plan for the projects.

Additional useful references include the Weeds of Southern Queensland (Dight et al., 2011) and PUBCRIS (http://services.apvma.gov.au/PubcrisWebClient/welcome.do).

HERBICIDE (+ E.G. TRADE NAME)	PRINCIPLE USES	ECOTOXICOLOGY	GROUP	SCHEDULE	UPTAKE AND RESIDUAL AFFECT
Glyphosate 360gl (Weedmaster® or Roundup Biactive®)	Non- selective weed control	Full Aquatic registration (in **most formulations**),	M	5	Absorbed through the leaf via spraying and through the cambium when applying techniques such as stem injection and cut, scrape and paint. Extremely short-lived and rapidly immobilised (both in soil and water). Degraded within hours in most environments
2,4-D 625 gl amine (Amicide 625)	Selective of broad-leaved weeds in native grasses (limited effect on deep rooted dicots, legumes etc.)	Aquatically registered formulations **available**	I	5	Mainly absorbed through leaves and stems. Fairly immobile and reltively short-lived in the soil. (degraded within days in most environments)
Fluroxypyr 333gl (Starane advance)	Selective broad-leaf control (particularly effective on undersown legumes weeds)	N (demonstrated toxicity to aquatic organisms)	I	NS	Absorbed through the leaves. Relatively short-lived in the soil though highly persistent in water
Metsulfuron Methyl (Brush-off, Ally, Associate)®	Selective of broad-leaved weeds but also able to control a variety of monocots when applied at higher rates especially Liliaceae and Commilinacea. Lower rates do affect monocots.	N (demonstrated toxicity to aquatic organisms)	B (potential resistance rotate with other herbicicdes)	NS	Mainly leaf absorbed. May persist for 3-6 months in the soil profile.
Metsulfuron + Glyphosate	Non-selective weed control and used with particular weeds or combination of weeds.	N (demonstrated toxicity to aquatic organisms)	MB (potential resistance rotate with other herbicicdes)	5	Mainly leaf absorbed, may persist for 3-6 months in the soil profile.
2,2-DPA	Grass (monocot) selective herbicide suitable for targeting dense weedy grass infestations amongst desirable native vegetation.	Yes (limited)	J	NS	Leaf and root absorbed
***Aquatic reg indicates that formulations of this herbicide may carry and aquatice registration, some formulations do not and individuals should check PUBRCRIS prior to assuming they have an aquatically regitered formulation. Addition of non-aquatically re...**					
Gly	Glyphosate	eg. Weedmaster Duo®, Roundup Biactive®			
MM	Metsulfuron methyl	eg. Brushoff ®, Brushkiller®, Associate®			
S	Surfactant	eg. LI700®, Prosil®, Pulse®			
A	Spray Adjuvant	eg. Agral®, Protec®, Codacide®,			
D	Colour Marking Dye	eg. Herbi (red or blue) Liquid Dye®			

COMMON NAME	SCIENTIFIC NAME	APPLICATION METHOD	CHEMICAL	RATE	ADJUVENT	SURFACTANT	COMMENTS
TREES							
Cinese Celtis	*Celtis sinensis*	Stem Inject	Glyphosate	1:1.5 Gly:water			
		Cut, Scrape and Paint	Glyphosate	1:1.5 Gly:water			
		Basal Bark (saplings)	Fluroxypyr	210ml:10L diesel			
		spot-spray	Glyphosate	200ml:10L water + A + D			
			Glyphosate + Metsulfuron Methyl	200mL Gly + 1.5g MM in 10L water + S + A			
Camphor Laurel	*Cinnamomum camphora*	Stem Inject	Glyphosate	1:1.5 Gly:water			
		Cut, Scrape and Paint	Glyphosate	1:1.5 Gly:water			
		Basal Bark (saplings)	Fluroxypyr	210ml:10L diesel			
		Spot spray	Glyphosate + Metsulfuron Methyl	200ml Gly + 1.5g MM in 10L water + S + D			
			Glyphosate	200ml:10l water + A + D			
Cadaghi	*Corymbia torelliana*	Cut, Scrape and Paint	Glyphosate	1:1.5 Gly:water			
		Stem Inject	Glyphosate	1:1.5 Gly:water			
		Basal Bark (saplings)	Fluroxypyr	210ml:10L diesel			
		Spot spray	Glyphosate	100ml Gly: 10L water + A + D			
Loquat	*Eriobotrya japonica*	Basal Bark(sapling)	Fluroxypyr	210ml:10L diesel			
		Spot spray	Glyphosate	200ml Gly:10L water +			
		Cut Scrape and Paint	Glyphosate	1:1.5 Gly:water			
		Stem Inject	Glyphosate	1:1.5 Gly:water			
Cockscomb Coral Tree and Coral Tree	*Erythrina crista-galli and E. x sykesii*	Spot spray	Glyphosate	200ml Gly:10L water + S+ A			
		Basal Bark (sapling)	Fluroxypyr	210ml/10L diesel			
		Cut Scrape and Paint	Glyphosate	1:1.5 Gly:water			
		Stem Inject	Glyphosate	1:1.5 Gly:water			
Brazilian cherry	*Eugenia uniflora*	Cut Scrape and Paint	Glyphosate	neat (undiluted)			
		Stem Inject	Glyphosate + Metsulfuron Methyl	1g MM added to 1 Gly:1.5 water			
		Spot Spray	Glyphosate + Metsulfuron Methyl	200ml Gly + 1.5g MM in 10L water + S + D			
Golden Rain Tree	*Koelreuteria elegans; paniculata*	Cut Scrape and Paint	Glyphosate	1:1.5 Gly:water			
		Stem Inject	Glyphosate	1:1.5 Gly:water			
		Basal Bark (sapling)	Fluroxypyr	210ml:10L diesel			
		Spot spray	Glyphosate	100ml Gly:10L water + A + D			
Privet (Large and Small leaved)	*Ligustrum lucidum and L.sinense*	Spot Spray	Glyphosate	200ml Gly:10L water + S+ D			
			Metsulfuron methyl	1.5g MM:10L water + A + D			
			Fluroxypyr	30ml:10L water +			
		Cut Scrape and Paint	Glyphosate	1:1.5 Gly:water			
		Stem Inject	Glyphosate	1:1.5 Gly:water			
		Basal Bark (sapling)	Fluroxypyr	210ml:10L diesel			

Mulberry	*Morus spp.*	Spot Spray	Glyphosate	200ml Gly:10L water + S + D			
		Cut Scrape and Paint	Glyphosate	1 Gly:1.5 water			
		Stem Inject	Glyphosate	1 Gly:1.5 water			
		Basal Bark (Juvenile)	Fluroxypyr	210ml:10L diesel			
Canary Island Date Palm	*Phoenix canariensis*	Spot Spray	Glyphosate	200ml Gly:10L water + S + D			
		Stem Inject	Glyphosate + Metsulfuron Methyl	1g MM added to 1 Gly:1.5 water			
Guava	*Psidium guajava*	Spot Spray	Glyphosate + Metsulfuron Methyl	200ml Gly + 1.5g MM in 10L water + S + D			
		Cut Scrape and Paint	Glyphosate + Metsulfuron Methyl	1g MM added to 1 Gly:1.5 water			
		Stem Inject	Glyphosate + Metsulfuron Methyl	1g MM added to 1 Gly:1.5 water			
Umbrella Tree	*Schefflera actinophylla*	Spot Spray	Glyphosate + Metsulfuron Methyl	200ml Gly + 1.5g MM in 10L water + A + D			
		Cut Scrape and Paint	Glyphosate	1 Gly:1.5 water			
		Stem Inject	Glyphosate	1 Gly:1.5 water (do not stem inject when in flower)			
Broad-leaf Pepper Tree	*Schinus terebinthifolius*	Spot Spray	Glyphosate	200ml:10L water + S + A			
			Glyphosate + Metsulfuron Methyl	200ml Gly + 1.5g MM in 10L water + S + A			
			Fluroxypyr	30ml:10L water			
		Cut Scrape and Paint	Glyphosate	1 Gly:1.5 water			
		Basal Bark (sapling)	Fluroxypyr	210ml:10L diesel			
		Stem Inject	Glyphosate	1 Gly:1.5 water			
Giant Devils Fig and Wild Tobacco	*Solanum chrysotrichum and S. mauritianum*	Spot Spray	Glyphosate	150ml Gly:10L water + A + D			
			Fluroxypyr	30ml/10L water			
		Cut Scrape and Paint	Glyphosate	1 Gly:1.5 water			
		Basal Bark (Juvenile/ Mature)	Fluroxypyr	210ml/10L diesel			
		Stem Inject	Glyphosate	1 Gly:1.5 water			
African tulip tree	*Spathodea campanulata*	Spot Spray	Glyphosate	200ml Gly + 1.5g MM in 10L water + A + D			
		Cut Scrape and Paint	Glyphosate	1 Gly:1.5 water			
		Stem Inject	Glyphosate	1 Gly:1.5 water			
Cocos palm	*Syagrus romanzoffiana*	Stem Inject	Glyphosate + Metsulfuron Methyl	1g MM added to 1 Gly:1.5 water			
		Spot Spray	Glyphosate + Metsulfuron Methyl	200ml Gly + 1.5g MM in 10L water + A + D			
Yellow Bells	*Tecoma stans*	Cut Scrape and Paint	Glyphosate	1 Gly:1.5 water			
		Basal Bark	Fluroxypyr	210ml/10L diesel			
		Spot Spray	Glyphosate	150ml Gly: 10L water + A + D			
		Stem Inject	Glyphosate	1 Gly:1.5 water			
Tipuana	*Tipuana tipu*	Cut Scrape and Paint	Glyphosate	1 Gly:1.5 water			
		Stem Inject	Glyphosate	1 Gly:1.5 water			

GRASSES							
Creeping Bamboo/ Clumping Bamboo	*Arundinaria spp./ Bambusa spp.*	Cut and spray (re-growth/seedling)	Glyphosate	100ml Gly: 10L water + D			
			2,2-DPA	150g:10L water			
		Cut stump and fill segment	Glyphosate	1 Gly:1.5 water			
Broad-leaved carpet grass, Narrow-leaved carpet grass, Para grass, Mosman River grass , Pangola grass, Guinea grass, Rhodes grass, Molasses grass, Sour grass, Paspalum, Bahia grass, Vasey grass, Broad-leaf paspalum, Kikuyu grass, Bana grass, Elephant grass	*Axonopus compressus, A. fissifolius, Brachiaria mutica, Cenchrus echinatus, Chloris gayana, Digitaria eriantha, Megathyrsus maximus, Melinis minutiflora, Paspalum conjugatum , P. dilatatum , P. notatum , P. urvillei , P. wettsteinii , Pennisetum clandesti*	Spot Spray	Glyphosate	100ml Gly:10L water + D			
Herbs							
Agave/Century plant	*Agave americana*	Cut Scrape and Paint	Glyphosate	1 Gly:1.5 water			
		Stem Inject	Glyphosate	1g MM added to 1 Gly:1.5 water			
Crofton weed	*Ageratina adenophora*	Spot Spray	Glyphosate	100ml Gly:10L water + D			
			Metsulfuron methyl	1/2 - 1g MM: 10L water + D			
Mistflower	*Ageratina riparia*	Spot Spray	Glyphosate	100ml Gly:10L water + D			
			Metsulfuron methyl	1/2 - 1g MM: 10L water + D			
Blue billy-goat weed	*Ageratum houstonianum*	Spot Spray	Glyphosate	100ml Gly:10L water + D			
			Metsulfuron methyl	1g MM: 10L water + D			
			Fluroxypyr	30ml/10L water			
			2-4,D	30ml/10L water			
Ragweed	*Ambrosia artemisifolia*	Spot Spray	Glyphosate	100ml gly:10L water + A + D			
			Metsulfuron methyl	1.5g MM: 10L water + A + D			
Cobblers pegs	*Bidens pilosa var. pilosa*	Spot Spray	Fluroxypyr	30ml/10L water			
			2, 4-D	30ml/10L water			
			Glyphosate	100ml Gly: 10L water + A + D			
			Metsulfuron methyl	1g MM: 10L water + A + D			
Mother of Millions; Live Leaf Plant; Resurrection Plant	*Bryophyllum delagoense; Pinnatum*	Spot Spray	2, 4-D	50ml/10L water			
	Bryophyllum delagoense		Metsulfuron methyl	1.5g MM:10L water + S + D			
Purple/Green Succulent, Inch Plant	*Callisia fragran; repens*	Spot Spray	Fluroxypyr	90ml/10L water			
			Metsulfuron methyl	1.5g MM:10L water + S + D			
			Glyphosate	200ml Gly:10L water + A + D			
			Glyphosate + Metsulfuron Methyl	200ml Gly + 1.5g MM in 10L water + A + D			

Hairy Commelina; Trad (wandering Jew); Purple Succulent; Striped Trad	*Commelina benghalensis; Tradescantia fluminensis/ albiflora;Tradescantia pillida; Zebrina pendula syn Tradescantia zebrina*	Spot Spray	Glyphosate + Metsulfuron Methyl	200ml Gly + 1.5g MM in 10L water + A + D			
			Glyphosate	200ml Gly:10L water + A + D			
			Metsulfuron methyl	1.5g MM: 10L water + S + D			
			Fluroxypyr	90ml/10L water			
Glory lilly	*Gloriosa superba*	Foliar Spray	Glyphosate + Metsulfuron Methyl	200ml Gly + 1.5g MM in 10L water + A + D			
Polka dot plant	*Hypoestes phyllostachya*	Spot Spray	Metsulfuron methyl	1.5g MM:10L water + S + D			
			Glyphosate + Metsulfuron Methyl	200ml Gly + 1.5g MM in 10L water + A + D			
Fish bone fern	*Nephrolepis cordifolia*	Spot Spray	Metsulfuron methyl	1g MM: 10L + A/S + D			
			Glyphosate + Metsulfuron Methyl	200ml Gly + 1.5g MM in 10L water + A + D			
Coral berry	*Rivinia humilis*	Spot Spray	Glyphosate	100ml Gly: 10L water + A + D			
			Glyphosate + Metsulfuron Methyl	100ml Gly + 1.5g MM in 10L water + A + D			
Mother-in-law's tongue	*Sansevieria trifasciata*	Spot Spray	Glyphosate + Metsulfuron Methyl	200ml Gly + 1.5g MM in 10L water + A + D			
Flannel Weed	*Sida cordifolia*	Spot Spray	Fluroxypyr	60ml/10L water			
Ground Asparagus	*Asparagus aethiopicus*	Spot Spray	Metsulfuron Methyl	1.5g MM : 10L water + A + D			
			Glyphosate + Metsulfuron Methyl	200ml Gly + 1.5g MM in 10L water + A/S + D			
Singapore Daisy	*Sphagneticola trilobata*	Spot Spray	Metsulfuron methyl	1.5g MM in 10L water + A + D			
			Glyphosate + Metsulfuron Methyl	100ml Gly + 1g MM in 10L water + A + D			
SHRUBS							
Groundsel bush	*Baccharis halimifolia*	Spot Spray	2,4-D	40ml/10L water			
		Spot Spray	Glyphosate	200ml Gly:10L water + A + D			
		Stem Inject	Glyphosate	1 Gly:1.5 water			
		Cut Scrape and Paint	Glyphosate	1 Gly:1.5 water			
Green cestrum	*Cestrum parqui*	Spot Spray	Glyphosate	200ml Gly:10L water + A + D			
			Glyphosate + Metsulfuron Methyl	200ml Gly + 1.5g MM in 10L water + A + D			
Duranta	*Duranta erecta*	Overall Spray (re-growth/seedling)	Glyphosate	200ml Gly:10L water + A + D			
		Cut Scrape and Paint	Glyphosate	1 Gly:1.5 water			
		Stem Inject	Glyphosate	1 Gly:1.5 water			
Lantana	*Lantana camara*	Cut Scrape and Paint	Glyphosate	1 Gly:1.5 water			
		Spot Spray	Fluroxypyr	40ml/10L (spring, summer)-60ml/10L water (Autumn, Winter)			
		Spray (spot spray and overspray)	Glyphosate	100ml Gly:10L water + D			
		Spray Red Flowering species	Glyphosate	200ml Gly:10L water + A + D			
		Splatter Gun	Glyphosate	1 Gly:9 water			

Leucaena	*Leucaena leucocephela*	Cut Scrape and Paint	Glyphosate	1 Gly:1.5 water			
		Spot Spray	Fluroxypyr	30ml/10L water			
HERBS							
Murraya	*Murraya paniculata*	Spot Spray	Glyphosate	200ml Gly:10L water + A + D			
		Cut Scrape and Paint	Glyphosate	1 Gly:1.5 water			
		Stem Inject	Glyphosate	1 Gly:1.5 water			
Mickey mouse bush	*Ochna serrulata*	Basal Bark	Fluroxypyr	210ml/10L diesel			
		Spot Spray	Fluroxypyr	30ml/10L water			
		Spot Spray	Glyphosate + Metsulfuron Methyl	200ml Gly + 1.5g MM in 10L water + A/S + D			
		Scrape (lightly) and Paint - juvenile	Glyphosate	neat (undiluted)			
		Cut Drill and Fill - mature	Glyphosate + Metsulfuron Methyl	1g MM added to 1 Gly:1.5 water			
Prickly pear	*Opuntia Spp.*	Spot Spray	Glyphosate + Metsulfuron Methyl	100ml Gly + 1.5g MM in 10L water + A + D			
		Cut Scrape and Paint in horizontal cuts across flat stems	Glyphosate + Metsulfuron Methyl	1g MM added to 1 Gly:1.5 water			
Castor Oil Plant	*Ricinus communis*	Spot Spray	2, 4-D	45ml/10L water			
			Glyphosate	100ml/ 10L water			
		Cut Scrape and Paint	Glyphosate	1g MM added to 1 Gly:1.5 water			
		Stem Inject	Glyphosate	1g MM added to 1 Gly:1.5 water			
Easter Cassia/ Winter Senna	*Senna pendula var. glabrata*	Spot Spray	Glyphosate	200ml Gly:10L water + A + D			
		Cut and Paint		1 Gly:1.5 water			
		Stem Inject (Mature)	Glyphosate	1 Gly:1.5 water			
Smooth senna	*Senna septemtrionalis*	Spot Spray	Glyphosate	200ml Gly:10L water + A + D			
		Cut and Paint	Glyphosate	1 Gly:1.5 water			
		Stem Inject	Glyphosate	1 Gly:1.5 water			
Yellow Oleander	*Thevetia peruviana*	Basal Bark	Fluroxypyr	210ml/10L Diesel			
		Spot Spray	Glyphosate	200ml Gly:10L water + A + D			
		Cut Scrape and Paint	Glyphosate	1 Gly:1.5 water			
		Stem Inject	Glyphosate	1 Gly:1.5 water			
VINES							
Madeira Vine	*Anredera cordifolia*	Spot Spray	Fluroxypyr	30ml/10L water			
		Spot Spray	Glyphosate + Metsulfuron Methyl	200ml Gly + 1.5g MM in 10L water + A/S + D			
		Scrape and Paint (mature vines)	Glyphosate	Scrape as much stem as possible in 1m lengths on alternate sides. Gouge and paint ground tubers. Scrape and paint roots			
Moth vine	*Araujia sericiflora*	Spot Spray	Glyphosate + Metsulfuron Methyl	200ml Gly + 1.5g MM in 10L water + A + D			
		Cut Scrape and Paint	Glyphosate (aerial)	1 Gly:1.5 water			

Dutchman's pipe	*Aristolochia elegans*	Spot Spray	Glyphosate + Metsulfuron Methyl	200ml Gly + 1.5g MM in 10L water + A + D			
		Cut Scrape and Paint	Glyphosate	1 Gly:1.5 water			
Climbing Asparagus	*Asparagus africanus; plumosus*	Basal Bark	Fluroxypyr	210ml/ 10L diesel			
		Spot Spray	Glyphosate	200ml Gly:10L water + A+ + D			
Balloon Vine	*Cardiospermum grandiflorum*	Cut Scrape and Paint	Glyphosate	1 Gly:1.5 water			
		Spot Spray	Glyphosate	100ml Gly:10L water + D			
Green/ Silver-leaf desmodium; Siratro; Horesgram; Glycine	*Desmodium intortum; Macroptilium atropurpureum; Macrotyloma uniflorum; Neonotonia wightii*	Spot Spray	Glyphosate	200ml Gly:10L water + A+ + D			
			2,4-D	40ml/10L water			
			Glyphosate + Metsulfuron Methyl	100ml Gly + 1.5g MM in 10L water + A + D			
		Cut Scrape and Paint	Glyphosate	1 Gly:1.5 water			
Moon flower; Mile-a-minute; Morning Glory; Blue Morning Glory	*Ipomoea alba; I. cairica; I. indica and I.purpurea*	Spot Spray	Glyphosate + Metsulfuron Methyl	100ml Gly + 1.5g MM in 10L water + A + D			
			2, 4-D	30ml/10L water			
		Cut Scrape and Paint	Glyphosate	1 Gly:1.5 water			
Creeping Lantana	*Lantana montevidensis*	Spot Spray	2,4-D	40ml/10L water			
			Glyphosate + Metsulfuron Methyl	100ml Gly + 1.5g MM in 10L water + A + D			
			Metsulfuron methyl	1.5g MM : 10L water + A + D			
Cat's Claw Creeper	*Macfadyena unguis-cati*	Spot Spray	Glyphosate	100ml Gly : 10L water + S + D			
			Glyphosate + Metsulfuron Methyl	100ml Gly + 1g MM:10L water + A + D			
		Cut Scrape and Paint	Glyphosate	1 Gly:1.5 water			
Edible passionfruit; Stinking Passionflower; Corky Passionfruit; White Passionfruit	*Passiflora edulis; foetida; suberosa; subpeltata*	Spot Spray	Glyphosate + Metsulfuron Methyl	100ml Gly + 1g MM in 10L water + A + D			
			Glyphosate	200ml Gly:10L water + A + D			
			2,4-D	30ml/10L water			
		Cut Scrape and Paint	Glyphosate	1 Gly:1.5 water			
Kudzu	*Pueraria lobata*	Spot Spray	Glyphosate + Metsulfuron Methyl	100ml Gly + 1.5g MM in 10L water + A + D			
			Fluroxypyr	30ml/10L water			
		Gouge and Paint tubers	Glyphosate	1 Gly:1.5 water			
		Stem Inject	Glyphosate + Metsulfuron Methyl	1/1 (g) + 1g (MM) Per Litre of water			
Climbing nightshade	*Solanum seaforthianum*	Spot Spray	Fluroxypyr	30ml/10L water			
			Glyphosate	100ml Gly : 10L water + A + D			
		Cut Scrape and Paint	Glyphosate	1 Gly:1.5 water			
Black eyed susan	*Thunbergia alata*	Spot Spray	2-4,D	30ml/10L water			
			Glyphosate	200mL in 10L water			
			Metsulfuron methyl	1.5g in 10L water			
		Basal Bark	Fluroxypyr	210ml/ 10L diesel			
		Cut Scrape and Paint	Glyphosate	1 Gly:1.5 water			