

APPENDIX A PLANT SCHEDULES

SEEDING SCHEDULE

Botanical Name	Common Name	Mature Height	Application Rate of Seed Kg/Ha	Fertilizer: Organic slow release for natives (low p)	Total (Kg)
<b>Native Grasses</b>			<b>Area (m<sup>2</sup>)</b>		<b>51089</b>
<i>Austrodanthonia richardsonii</i>	Wallaby Grass	30 cm	0.5	250 Kg/Ha	3
<i>Austrostipa pubescens</i>	Speargrass	1.8 m	1	250 Kg/Ha	5
<i>Capillipedium spicigerum</i>	Scented Top Grass	1.5 m	1	250 Kg/Ha	5
<i>Cymbopogon refractus</i>	Barbed Wire Grass	100 cm	0.5	250 Kg/Ha	3
<i>Echinopogon caespitosus</i>	Hedgehog Grass	60 cm	0.5	250 Kg/Ha	3
<i>Poa labillardieri</i>	Tussock Grass		0.5	250 Kg/Ha	3
<i>Imperata cylindrica</i>	Blady Grass		0.5	250 Kg/Ha	3
<i>Juncus usitatus</i>	Common Rush		1	250 Kg/Ha	5
<i>Lepidosperma laterale</i>	Variable Saw-sedge		1	250 Kg/Ha	5
<i>Microlaena stipoides</i>	Weeping Grass		0.5	250 Kg/Ha	3
<i>Themeda australis</i>	Kangaroo Grass		1	250 Kg/Ha	5
	<b>Total</b>		<b>8</b>		<b>41</b>
<b>Shrubs</b>			<b>Area (m<sup>2</sup>)</b>		<b>18438</b>
<i>Austrodanthonia sp.</i>	Wallaby Grass		0.2	250 Kg/Ha	0.4
<i>Austrostipa pubescens</i>	Speargrass		0.2	250 Kg/Ha	0.4
<i>Capillipedium spicigerum</i>	Scented Top Grass		0.2	250 Kg/Ha	0.4
<i>Cymbopogon refractus</i>	Barbed Wire Grass		0.1	250 Kg/Ha	0.2
<i>Echinopogon caespitosus</i>	Hedgehog Grass		0.2	250 Kg/Ha	0.4
<i>Poa labillardieri</i>	Tussock Grass		0.1	250 Kg/Ha	0.2
<i>Imperata cylindrica</i>	Blady Grass		0.1	250 Kg/Ha	0.2
<i>Juncus usitatus</i>	Common Rush		0.2	250 Kg/Ha	0.4
<i>Lepidosperma laterale</i>	Variable Saw-sedge		0.2	250 Kg/Ha	0.4
<i>Microlaena stipoides</i>	Weeping Grass		0.2	250 Kg/Ha	0.4
<i>Themeda australis</i>	Kangaroo Grass		0.2	250 Kg/Ha	0.4
<i>Breynia oblongifolia</i>	Coffee Bush	3 m	0.2	250 Kg/Ha	0.4
<i>Daviesia ulicifolia</i>	Gorse Bitter Pea	2 m	0.2	250 Kg/Ha	0.4
<i>Dianella caerulea</i>	Flax Lily	0.4 m	0.2	250 Kg/Ha	0.4
<i>Gompholobium pinnatum</i>	Pinnate Wedge Pea	0.3 m	0.2	250 Kg/Ha	0.4
<i>Lomandra longifolia</i>	Mar Rush	1.2 m	0.5	250 Kg/Ha	0.9

Botanical Name	Common Name	Mature Height	Application Rate of Seed Kg/Ha	Fertilizer: Organic slow release for natives (low p)	Total (Kg)
<i>Ozothamnus diosmifolius</i>	Rice Flower	4 m	0.2	250 Kg/Ha	0.4
<i>Platylobium formosum</i>	Handsome Flat Pea	2 m	0.2	250 Kg/Ha	0.4
<i>Pultenaea villosa</i>	Hairy Bush-Pea	1 m	0.5	250 Kg/Ha	0.9
<i>Zieria smithii</i>	Zieria	1.5 m	0.2	250 Kg/Ha	0.4
<i>Pultenaea retusa</i>	Notched Bush-Pea	2 m	0.5	250 Kg/Ha	0.9
<i>Banksia spinulosa var. collina</i>	Hairpin Banksia	3 m	0.2	250 Kg/Ha	0.4
<i>Melaleuca nodosa</i>	Prickly leaved Paperbark	4 m	0.2	250 Kg/Ha	0.4
<i>Acacia falcata</i>	Wattle	3 m	0.5	250 Kg/Ha	0.9
<i>Acacia longissima</i>	Long leaved Wattle	4 m	0.5	250 Kg/Ha	0.9
<i>Acacia longifolia</i>	Sydney Golden Wattle	7 m	0.5	250 Kg/Ha	0.9
<i>Leptospermum polygalifolium</i>	Tantoon	5 m	0.2	250 Kg/Ha	0.4
<i>Acacia fimbriata</i>	Fringed Wattle	5 m	0.5	250 Kg/Ha	0.9
<i>Melaleuca sieberi</i>	Paperbark	5 m	0.2	250 Kg/Ha	0.4
<i>Callistemon salignus</i>	Willow Bottlebrush	7 m	0.2	250 Kg/Ha	0.4
<i>Hibiscus splendens</i>	Pink Hibiscus	5 m	0.2	250 Kg/Ha	0.4
	<b>Total</b>		<b>8</b>		<b>15</b>
<b>Pasture grasses seeding mix</b>			<b>Area (m<sup>2</sup>)</b>		<b>12285</b>
<i>Axonopus fissifolius</i>	Carpet Grass		5	250 Kg/Ha	6.1
<i>Cynodon dactylon</i>	Unhulled Couch		5	250 Kg/Ha	6.1
<i>Echinochloa itilis (Sep-Mar) or Secale cereale (Apr-Aug)</i>	Japanese Millet or Rye Corn		40	250 Kg/Ha	49.1
<i>Lolium multiflorum</i>	Eclipse Rye		20	250 Kg/Ha	24.6
	<b>Total</b>		<b>70</b>		<b>86</b>
<b>Cover crop seeding mix (All disturbed areas identified to be hydromulched) cover crop may be applied separately or in conjunction with all other hydromulch mixes</b>			<b>Area (m<sup>2</sup>)</b>		<b>69527</b>
<i>Echinochloa itilis (Sep-Mar) or Secale cereale (Apr-Aug)</i>	Japanese Millet or Rye Corn		40	250 Kg/Ha	278.1
<i>Lolium multiflorum (All Year)</i>	Eclipse Rye		20	250 Kg/Ha	139.1
	<b>Total</b>		<b>60</b>		<b>417</b>

## PLANTING SCHEDULE

Botanical Name	Common Name	Qty.	Spacing (m <sup>2</sup> )	Sizes
<b>Tree</b>				
<i>Cupaniopsis anacardioides</i>	Tuckeroo	12	As Shown	35 L
<i>Eucalyptus microcorys</i>	Tallowood	12	As Shown	35 L
<i>Eucalyptus tereticornis</i>	Forest Red Gum	6	As Shown	35 L
<i>Eucalyptus pilularis</i>	Blackbutt	9	As Shown	35 L
<i>Liquidamber styraciflua</i>	Liquidamber	10	As Shown	75 L
<i>Podocarpus elatus</i>	Plum Pine	47	As Shown	75 L
<b>Total</b>		<b>96</b>		
<b>Semi-advanced Planting</b>				
<i>Lomandra confertifolia</i>	Mat Rush	6060	4/m <sup>2</sup>	150 mm
<i>Lomandra hystrix</i>	Mat Rush	520	4/m <sup>2</sup>	150 mm
<b>Total</b>		<b>6580</b>		
<b>Feature Planting</b>				
<i>Syzygium luehmannii</i> 'Royal Flame'	Lilly Pilly	82	As Shown	200 mm
<b>Total</b>		<b>82</b>		

APPENDIX B SANCROX TRAFFIC ARRANGEMENT LANDSCAPE MANAGEMENT PLAN



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# 1 BACKGROUND

## 1.1 PURPOSE OF THIS REPORT

This Landscape Management Plan (LMP) has been requested by the Roads and Maritime to promote the cost effective and consistent management of roadside landscape vegetation established for the Oxley Highway to Kempsey – Sancrox Traffic Arrangement (Stage 1).

This LMP promotes a standard approach to the maintenance of landscape plantings, both in technique and frequency.

The following table lists the Description of Services criteria regarding the landscape maintenance;

A Landscape Management Plan (LMP) must be prepared as a part of the Design Documentation;
The LMP must comply with the requirements described in the document titled "RTA Landscape Guideline April 2008" and must detail all landscape maintenance actions for the upgrade; and
The landscape works must:
(i) be cost effective;
(ii) minimise ongoing maintenance requirements; and
(iii) utilise native species, dense planting, bold simple planting designs and rapid planting establishment.

To avoid duplication and to highlight the specific maintenance requirements of some landscape types, the LMP details the required maintenance actions in two categories:

- **All Areas:**  
Those landscape maintenance actions that apply to every section of the Project.
- **Specific Landscape Types:**  
Those maintenance actions specific to the different landscape types present along the route, including:
  - Grassed Areas (Mown);
  - Vegetation (Hydroseed/Hydromulch);
  - Planting (Tubestock);
  - Landscape Planting Beds; and
  - Areas of Special Consideration.

## 1.2 WHERE THIS PLAN APPLIES

This LMP applies to the Oxley Highway to Kempsey – Sancrox Traffic Arrangement Stage 1 (the Project) from Just south of the Sancrox Road overbridge to approx. 920metres north and including all upgrade works on the Sancrox Service Roads and roundabout and Fernbank Creek Road roundabout.

The approximate location is illustrated in Figure 1.

## 1.3 LANDSCAPE MAINTENANCE RESPONSIBILITY

Three agencies are responsible for the maintenance of roadside landscapes within this LMP:

Agency	Extent of responsibility on Pacific Highway - Kundabung to Kempsey
Council	Local service roads, roundabouts and intersections and public areas immediately outside of highway corridor
Roads and Maritime	Pacific Highway corridor for the life of the highway
Contractor	All – from the commencement of construction until the date of construction completion and post-construction completion for the contract maintenance period - 2 years  The Principal will award a separate contract to maintain the landscape planting works after Completion concurrent with the award of the landscape subcontract.

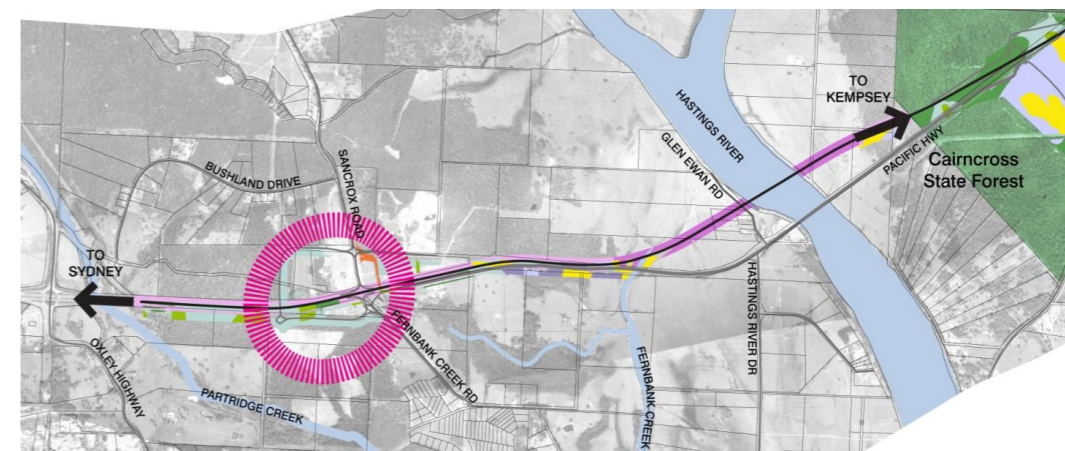


Figure 1 Approximate Location and Extent of Landscape Maintenance Plan (LMP)

## 1.4 LANDSCAPE TYPES TO BE MAINTAINED

Five main landscape types are present. These are:

- 1) Grass Areas (Mown);
- 2) Vegetation (Hydromulch or hydroseed with strawmulching);
- 3) Planting (tubestock);
- 4) Individual tree plantings (which include 35L and 75L plantings).
- 5) Areas of special consideration –
  - Batter Management
  - Native Grasses
  - Fauna Fence
  - Vegetated Channels
  - Ancillary Site Works
  - Myrtle Rust

The exact extent of these landscape types is illustrated on the landscape plans.

**Grass Areas (Mown) - Refers to exotic grasses only (see Areas of Special Consideration for Native Grasses)**



- Road edge mowing strip
  - Medians
  - Clear zones.
- (The Contractor is required to mow grass during construction, establishment and maintenance period. Thereafter mowing is by others)

**Vegetation (Hydroseeding with Strawmulching and Hydromulching)**



Shrubs and groundcovers are seeded using hydroseeding with strawmulching or with the hydromulching method alone. Species mix varies according to location.

This allows an easy, quick and repeatable method of establishing vegetation cover and aids with soil stability. Where a vegetated area fails (ie; scouring, land slippage) the soil profile is reconstructed and re-seeded to re-establish vegetation cover.

At specific locations the hydromulch vegetation is over planted with tubestock tree species.

Hydromulch areas have the following variations, based on the plant species used in specific areas:

- Pasture grasses (non-native species)
- Native grasses
- shrubs

**Landscape Planting Beds**



Landscape planted beds include massed planting in roundabouts of single species (*Lomandra sp.*) Planting size 150mm containers.

**Individual Tree Plantings**



Individual tree plantings include super-advanced and semi-mature tree plantings often in grassed areas requiring mowing.

## 1.5 SUMMARY TABLE OF MAINTENANCE REQUIRED

Maintenance Actions	Tasks	Timeframes / Frequency					
		Wkly / Mthly	Seasonal			As Required	As Specified Below
			Su	Au	Wi / Sp		
<b>All Areas</b>	<i>(Summarised from Section 3 of this LMP)</i>						
<b>1. Pruning of Vegetation for Safety</b>	Maintaining driver and pedestrian sightlines						Monitored Monthly, actioned as required
	Vegetation in intersection traffic islands						
	Pruning trees over carriageways, roads, paths and cycle ways.						
<b>2. Management of Non Frangible Vegetation</b>	Remove woody "non-frangible" vegetation in setbacks						As Required
	Treat noxious weeds according to control category						
<b>4. Rubbish Removal</b>	Remove all roadside litter and debris.						And prior to Mowing
<b>5. Auditing and Reporting</b>	Audit and report on maintenance and additional works						Every three months
<b>Grass Areas (Mown) Only</b>	<i>(Summarised from Section 3 of this LMP)</i>						
<b>1. Mowing</b>	Mow grass to a minimum height of 50mm and a maximum height of 100mm.						Every 6 weeks
	Mow grass to a minimum height of 50mm and a maximum height of 100mm.						Every 8 weeks

Maintenance Actions	Tasks	Timeframes / Frequency					
		Wkly / Mthly	Seasonal			As Required	As Specified Below
			Su	Au	Wi / Sp		
	Mow grass to a minimum height of 50mm and a maximum height of 100mm.						Every 12 weeks
<b>2. Replacement of Damaged Grass</b>	Re-establish damaged turf.						
<b>3. Weed Control in Grass</b>	Control weeds in turf areas using selective biodegradable herbicide <sup>1</sup> .						
<b>Vegetation (Hydromulch) areas</b>	<i>(Summarised from Section 3 of this LMP)</i>						
<b>1. Weeding</b>	Weed garden beds (manual or biodegradable herbicide) before weed seed set <sup>1</sup> .	Bi-monthly					Use biodegradable herbicide only
	Replace landscape plants damaged or killed by herbicide.						Should this happen it suggests improper use. Review manufactures instructions and application method
<b>2. Remove Dead/Dying Vegetation</b>	Cut back and remove dead or dying planting material. Do not pull root out. Replace topsoil as required. Prepare topsoil by loosening surface. Ensure topsoil depth is even across affected area and has a smooth transition into the existing vegetation.						
<b>3. Replacement Hydromulch</b>	Reapply hydromulch as per specification. Hydromulch seed mix as per vegetation plans and equal to what has been applied previously. Apply sufficient hydromulch to achieve consistent vegetation cover over affected area						When possible, apply hydromulch during optimum seasonal conditions
<b>Landscape Planting Beds Only</b>	<i>(Summarised from Section 3 of this LMP)</i>						

Maintenance Actions	Tasks	Timeframes / Frequency					
		Wkly / Mthly	Seasonal			As Required	As Specified Below
			Su	Au	Wi		
1. Weeding	Weed garden beds (manual or biodegradable herbicide) before planting flowers <sup>1</sup> .						Use biodegradable herbicide only
	Replace landscape plants damaged or killed by herbicide.						Should this happen it suggests improper use. Review manufactures instructions and application method
2. Mulching	Reapply mulch to replaced plantings to a depth of 75 mm min						
3. Removal of Dead / Dying Plant Material	Remove dead or dying planting material and replace.						
	Replace failed plantings with specified species and densities.						
4. Replacement Plantings	Irrigate replacement plantings for 12 weeks.						
	Replace damaged stakes during establishment.						
5. Stakes	Remove stakes.						18 months after planting or as required
	Fertilise all plantings at specified rates.						Or as required
6. Fertilising and Pruning	Prune all plantings in specified manner:						

Maintenance Actions	Tasks	Timeframes / Frequency					
		Wkly / Mthly	Seasonal			As Required	As Specified Below
			Su	Au	Wi		
	<ul style="list-style-type: none"> <li>■ Trees</li> <li>■ Tall / Medium / Low Shrubs</li> <li>■ Climbers</li> <li>■ Groundcover / Tussocks</li> </ul>						refer All Areas Point 1
							After Flowering. Allow to grow to full potential
							Once per year following completion of the maintenance period. Allow to grow to full potential
							After Flowering. Allow to grow to full potential Every 4 years
<b>Individual Tree Planting</b> <i>(Summarised from Section 3 of this LMP)</i>							
1. Weeding	Weed extent of mulched area around tree 3m <sup>2</sup> (manual or biodegradable herbicide) preferably before weeds flower <sup>1</sup> .						
	Replace tree plantings damaged or killed by herbicide.						
2. Mulching	Reapply mulch to replaced plantings to a depth of 75 mm min						
3. Removal of Dead / Dying Plant Material	Remove dead or dying planting material and replace.						

Maintenance Actions	Tasks	Timeframes / Frequency									
		Wkly Mthly	Seasonal			As Required	As Specified Below				
			Su	Au	Wi			Sp			
4. Replacement Plantings	Replace failed plantings with specified species and densities.										
	Irrigate replacement plantings for 12 weeks.										
5. Stakes	Replace damaged stakes during establishment.										
	Remove stakes.										
6. Fertilising and Pruning	Fertilise all plantings at specified rates.										
	Prune all plantings in specified manner: ■ Trees										

1 "The RMS Pesticide Use Notification Plan must be followed prior to herbicide application"

The Plan is available on the RMS Website at: [http://www.RMS.nsw.gov.au/environment/downloads/RMS\\_pesticide\\_plan\\_040107.pdf](http://www.RMS.nsw.gov.au/environment/downloads/RMS_pesticide_plan_040107.pdf)

## 2 MAINTENANCE ACTIONS

Maintenance actions to be undertaken under this LMP are divided into two categories based on which landscape type is being maintained:

### 1. **Actions for All Areas;**

Actions that apply to ALL landscape types / areas.

### 2. **Specific Actions for Different Landscape Types.**

In addition to actions that apply to all landscape types / areas, these actions are applied to a specific landscape type.

## 2.1 ALL AREAS

The following maintenance actions are to be implemented by all maintenance authorities (with reference to the Table of Responsibilities Section 1.3) across all areas of this LMP.

### 2.1.1 PRUNING OF VEGETATION FOR SAFETY

- Pruning to maintain driver sight lines; pruning to remove dead wood from over hanging paths, cycle-ways and roads.
- Prune to an extent where driver sightlines will not re-occur as a problem in the period to next routine maintenance without compromising overall form and growth potential of plant.

Actions Required	Frequency
<b>Maintaining driver sight lines</b>	
Within the sightline zone, prune all roadside vegetation, to a height of 300mm, when:	
Vegetation obscures any part of horizontal railing of safety barriers, when viewed from approaching traffic within 300 m of all intersections and access roads.	Monthly
<b>Pruning trees over carriageways, roads, paths and cycle ways</b>	
Prune all roadside vegetation over carriageways, roads, paths and cycle ways when it is:	
Carriageways / Roads:	Lower than 5.5 m above carriageway
Paths and Cycle ways:	Lower than 3.3 m above path or cycleway
All areas:	Overhanging dead / diseased/ badly damaged trees or limbs.



### 2.1.2 MANAGEMENT OF NON FRANGIBLE VEGETATION

To ensure that non frangible vegetation is removed in dangerous areas in accordance with Roads and Maritime safety standards:

Actions Required		Frequency
Remove woody regeneration / woody weeds (ie. where trunk diameter exceeds 150 mm measured at 300 mm from the ground) in setback area by manual removal if present in the following areas:		Annual
<b>Set backs from edge of travel lane:</b>		
With safety rail present:	6 m	
With no safety rail present, setback varies as follows:		
▪ <70 km/h speed zones	4 m	
▪ 70-90 km/h speed zones	5 m	
▪ >90 km/h speed zones:	11 m	

### 2.1.3 NOXIOUS WEED CONTROL

Noxious weeds continuously controlled as per legal requirements:

Actions Required	Frequency
Continuously suppress and destroy, in accordance with their control category, the growth of all declared noxious weeds where present or where they establish. Of particular concern are: <ul style="list-style-type: none"> <li>The areas planted with Pasture Grass. These areas must remain free of noxious weeds, in particular Giant Parramatta Grass;</li> <li>All areas where site topsoil has been re-spread. Site topsoil has been noted to contain Lantana seed.</li> </ul>	Monthly
<i>Declared noxious weed species within the area are listed in Appendix B – Noxious Weed Species and Control Categories of this LMP.</i>	

### 2.1.4 RUBBISH REMOVAL

Litter and roadside debris removal:

Actions Required	Frequency
Remove all roadside litter and debris.	Monthly and prior to mowing.

### 2.1.5 AUDITING AND REPORTING

Regular auditing and reporting on maintenance works undertaken and additional works required:

Actions Required	Frequency
Inspection of entire site to report on LMP maintenance compliance, report and enact remedial works.	Every 1 month
<i>An auditing and reporting form is provided in Appendix 3 – Three Monthly Maintenance Audit of this LMP.</i>	

## 3 SPECIFIC LANDSCAPE TYPES

### 3.1 GRASS AREAS (MOWN)

The following maintenance actions are to be implemented by all maintenance authorities in grassed areas (mown).

The extent of grassed areas (mown) are illustrated on the Landscape Plans (refer Appendix A)

#### 3.1.1 MOWING

Maintain grassed areas for neat appearance and to maintain groundcover:

Actions Required	Frequency
Remove litter prior to mowing.	Spring – Every 8 weeks
Mow grass at road side and rest areas to a min height of 50 mm and max height of 100 mm.	Summer – Every 6 weeks
Do not scalp grass.	Autumn – Every 8 weeks
Clippings to remain where they fall except that: road surfaces, drains, footpaths, picnic areas shall be swept or raked clear of clippings and these clippings shall be removed from site.	Winter – Every 12 weeks

#### 3.1.2 REPLACEMENT OF DAMAGED GRASS

Replacement of grass damaged by vehicles or other disturbances:

Actions Required	Frequency
Re-establish grass cover immediately after damage / death / removal. Use originally specified species.	As Required

### 3.1.3 WEED CONTROL IN GRASS

Ensure that grass remains weed free:

Actions Required	Frequency
Control, through the use of selective herbicides, the establishment and growth of weed species in turf. Herbicide use to be in accordance with regulation rates and manufacturers recommendations. Dye (colour: red) is to be added to herbicides to show extent of treated area.	Monthly

## 3.2 VEGETATION AREAS (SEEDING)

The following maintenance issues and actions are to be implemented by all maintenance authorities in vegetation seeded areas.

The extent of vegetation seeded areas is illustrated on the Landscape Plans (refer *Appendix A*).

### 3.2.1 WEEDING

To ensure that environmental weeds do not reproduce within vegetation seeded areas and compete with vegetation:

Weeding and weed control is considered to be a critical maintenance action.

Actions Required	Frequency
Prevent reproduction of weeds by destroying seedlings and established weeds before seed set or other propagules form. Weeds to not exceed 10% cover in any 50m <sup>2</sup> area. <ul style="list-style-type: none"> <li>Herbicide application must occur before weed seed set. Non-target species and areas must be reinstated if damaged by herbicide application.</li> <li>Herbicide use to be in accordance with regulation rates and manufacturers recommendations.</li> <li>Dye is to be added to herbicides to show extent of treated area.</li> <li>Use of bio-degradable herbicide is encouraged</li> </ul>	Monthly

### 3.2.2 REMOVAL OF DEAD / DYING PLANT MATERIAL

To remove dead or dying plant material from landscapes:

This action may be required as plantings mature, after damage, during adverse environmental conditions or to facilitate the re-application of hydromulch.

Actions Required	Frequency
Remove dead or dying plant material only if contact between re-applied hydromulch and ground will not occur. Preference is to slash and leave existing dead or dying plant material to act as additional mulch material if there is no danger of material falling onto the carriageway	As required.
Replacement of plantings in accordance with actions listed in 3.2.3 Re-application of Hydromulching (below)	

### 3.2.3 RE-APPLICATION OF HYDROMULCHING/HYDROSEEDING AND STRAWMULCHING

To ensure density and species of vegetation is maintained:

Actions Required	Frequency
See 3.8.1 Batter Revegetation Management Strategy	

*The species density and species selections specified for each area of landscape covered by this LMP are provided in the Landscape Plans – refer Appendix A.*

### 3.3 LANDSCAPE PLANTING BEDS

The following maintenance issues and actions are to be implemented by all maintenance authorities in landscape planting beds.

The extent of landscape planting beds, are illustrated on the Landscape Plans (refer Appendix A).

#### 3.3.1 WEEDING

To ensure that environmental weeds do not reproduce within planted beds and compete with plantings:

Weeding and weed control is considered to be a critical maintenance action.

Actions Required	Frequency
Prevent reproduction of weeds by destroying seedlings and established weeds before seed set or other propagules form. Weeds to not exceed 10% cover in any 50m <sup>2</sup> area. <ul style="list-style-type: none"> <li>Herbicide application must occur before weed seed set. Non-target species and areas must be reinstated if damaged by herbicide application.</li> <li>Herbicide use to be in accordance with regulation rates and manufacturers recommendations.</li> </ul>	Monthly
Dye (colour: red) is to be added to herbicides to show extent of treated area.	

#### 3.3.2 REMOVAL OF DEAD / DYING PLANT MATERIAL

To remove dead or dying plant material from landscapes:

This action may be required as plantings mature, after damage, during adverse environmental conditions.

Actions Required	Frequency
Remove dead or dying plant material.	As required.
Replacement of plantings in accordance with actions listed in 3.4.3 Replacement Plantings (below)	

### 3.3.3 REPLACEMENT PLANTINGS

To ensure that the density and species of established plant material is maintained:

Actions Required	Frequency
Replace failed, senescent or damaged plantings. Densities, sizes and species used are to be in accordance with those specified in the landscape plans.	As Required
Irrigate replacement plantings for a minimum of 12 weeks after planting.	Weekly.

*The species density and species selections specified for each area of landscape covered by this LMP are provided in the Landscape Plans – refer Appendix A.*

### 3.4 INDIVIDUAL TREE PLANTINGS

The following maintenance issues and actions are to be implemented by all maintenance authorities for individual tree plantings.

The extent of individual tree plantings, are illustrated on the Landscape Plans (refer Appendix A).

#### 3.4.1 WEEDING

To ensure that environmental weeds do not reproduce within planted beds and compete with plantings:

Weeding and weed control is considered to be a critical maintenance action.

Actions Required	Frequency
Prevent reproduction of weeds by destroying seedlings and established weeds before seed set or other propagules form. Weeds to not exceed 10% cover in any 50m <sup>2</sup> area. <ul style="list-style-type: none"> <li>Herbicide application must occur before weed seed set. Non-target species and areas must be reinstated if damaged by herbicide application.</li> <li>Herbicide use to be in accordance with regulation rates and manufacturers recommendations.</li> </ul>	Monthly
Dye (colour: red) is to be added to herbicides to show extent of treated area.	

### 3.4.2 REMOVAL OF DEAD / DYING PLANT MATERIAL

To remove dead or dying plant material from landscapes:

This action may be required as plantings mature, after damage, during adverse environmental conditions.

Actions Required	Frequency
Remove dead or dying plant material.	As required.
Replacement of plantings in accordance with actions listed in 3.4.3 Replacement Plantings (below)	

### 3.4.3 REPLACEMENT PLANTINGS

To ensure that the density and species of established plant material is maintained:

Actions Required	Frequency
Replace failed, senescent or damaged plantings. Densities, sizes and species used are to be in accordance with those specified in the landscape plans.	As Required
Irrigate replacement plantings for a minimum of 12 weeks after planting.	Weekly.

*The species density and species selections specified for each area of landscape covered by this LMP are provided in the Landscape Plans – refer Appendix A.*

### 3.4.4 STAKES

To replace stakes when damaged, and to remove when no longer required:

Actions Required	Frequency
Replace stakes if damaged or removed prior to plant establishment. Replace with same or equivalent stake.	As required.
Remove stakes.	As required, not more than 18 months after planting.

### 3.4.5 HORTICULTURAL MAINTENANCE OF PLANTINGS

Horticultural maintenance of advanced plantings will ensure the long life and maintenance of form.

Section 3.5 outlines the standards required for pruning and fertilising all Landscape Planted Beds or Feature Plantings.

### 3.5 TREES - FEATURE PLANTING

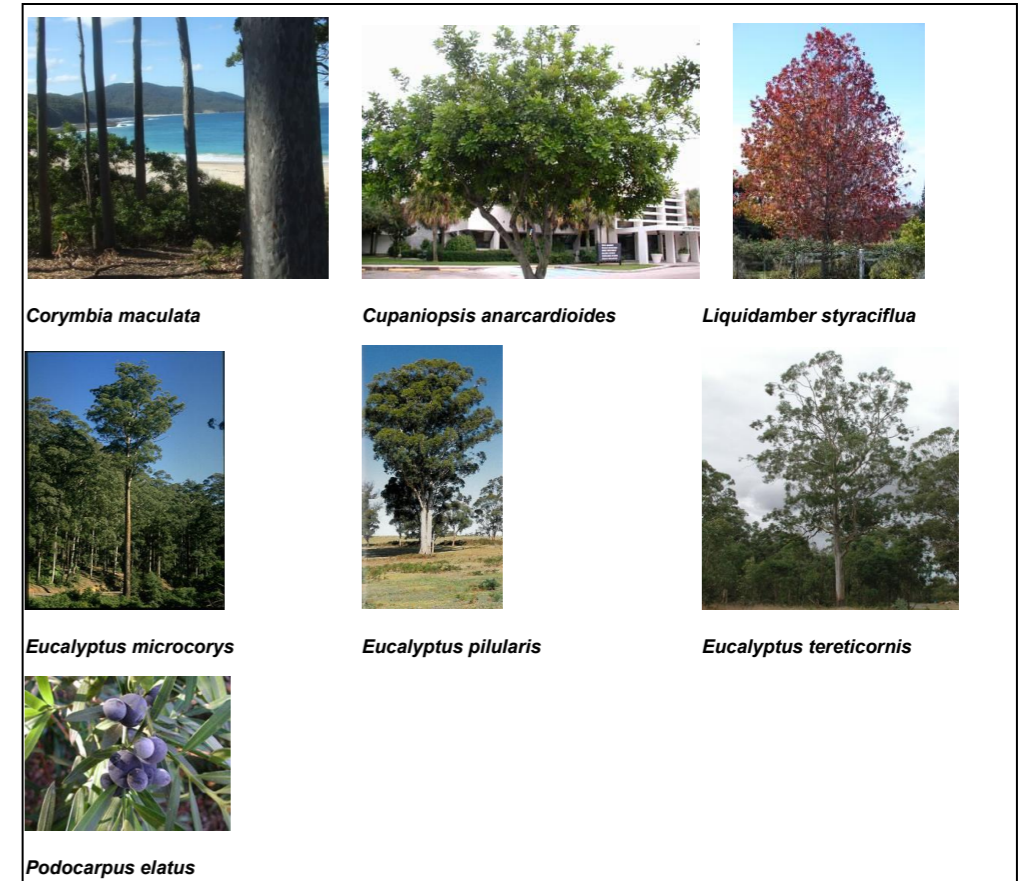
Botanic Name	Common Name	Pruning Type
<i>Podocarpus elatus</i>	Plum Pine	A
<i>Liquidamber styraciflua</i>	Liquidamber	A
<i>Eucalyptus microcorys</i>	Tallowood	A
<i>Eucalyptus pilularis</i>	Blackbutt	A
<i>Eucalyptus tereticornis</i>	Forest Red Gum	A
<i>Cupaniopsis anacardioides</i>	Tuckeroo	A

For all tree species, the following fertilising and pruning is required:

Apply the following fertiliser to all species:

Fertilising	Frequency
60 grams slow release fertiliser per plant. N:P:K ratio- 20:4:8 (The above fertiliser rates are in addition to those specified in the landscape details required at time of planting)	Annually or as required Applied Late Spring.

Pruning Type	Frequency
A Prune to remove split leaders, remove dead limbs, and remove heavily damaged limbs. As maturity permits prune lower branches to collar to 5.5 m above ground level where these overhang carriageways and roads. In other areas, prune lower branches to 3.3m above ground level.	As required.
B Prune to remove split leaders, remove dead limbs, and remove heavily damaged limbs. As maturity permits prune lower branches to 1 m above ground level	As required.



### 3.6 FEATURE PLANTING-SHRUBS

Botanic Name	Common Name	Pruning Type	Max. Height.(m)
<i>Syzygium leuhmannii</i> "Royal Flame"	Lilly Pilly	C	6-8

Note; this species occurs only within private lands. Arrangement regarding maintenance requirements and watering following the establishment period may be made with owner following installation.

For all shrub species, the following fertilising and pruning is required:

Apply the following fertiliser to all species:	
Fertilising	Frequency
30 grams slow release fertiliser per plant. N:P:K ratio– 20:4:8	Annually or as required Applied Late Spring.
Prune species as per appropriate type:	
Pruning	Frequency
A Prune to remove split leaders, remove dead limbs, and remove heavily damaged limbs. As maturity permits prune lower branches to collar to 5.5 m above ground level where these overhang carriageways and roads. In other areas, prune lower branches to 3.3m above ground level.	As required.
C Prune evenly to promote compact shape (to specified max. height). Remove 200 to 300mm (depending on vigour of previous plant growth) length of branches all around the plant.	Only as directed by a suitably qualified Landscape Representative



*Syzygium leuhmannii* "Royal Flame"

### 3.7 FEATURE PLANTING-GROUND COVERS / LOW TUSSOCKS

Botanic Name	Common Name	Pruning Type
<i>Lomandra hystrix</i>	Mat Rush	None
<i>Lomandra confertifolia</i>	Mat Rush	None

For all groundcover and low tussock species, the following fertilising is required: (pruning not required).

Apply the following fertiliser to all species:

Fertilising	Frequency
20 grams slow release fertiliser per plant. N:P:K ratio– 20:4:8 (The above fertiliser rates are in addition to those specified in the landscape details required at time of planting)	Annually or as required Applied Late Spring.



*Lomandra confertifolia*



*Lomandra hystrix*

### 3.8 AREAS OF SPECIAL CONSIDERATION

The following maintenance issues and actions are to be implemented by all maintenance authorities in areas of special consideration.

The extent of special areas is illustrated generally on the Landscape Plans (refer Appendix A).

#### 3.8.1 BATTER RE-VEGETATION MANAGEMENT STRATEGY

A batter management strategy is recommended as part of the long-term management of the road to ensure batter stability through the successful establishment of vegetation. The strategy will be audited and revised as required.

Activity	Intervention	Repair Standards
1. Topsoil and hydroseed followed by strawmulching or hydromulching only	At areas where rilling only occurs	After initial growing season or next failure. Vegetation is established and binds soil within first growing season, halting rilling.
2. Topsoil and hydroseed followed by strawmulching or hydromulching only	Where areas larger than rilling occur After previous option fails	Reapply topsoil as specified in Landscape Plans and ensure an even finish and matches existing ground levels. Vegetation is established and binds soil within first growing season.
3. Engineered solutions may include anchor mat, or meshes	At slopes of 2:1 or steeper After previous options fail	Apply topsoil type to ensure successful vegetation growth. Topsoil depth as per the 'Enkammat' or equivalent manufactures recommendations. Vegetation is established and binds soil within first growing season.
4. One of the previous treatments plus Tubestock planting	After previous options fail and only in those areas where tree planting is permitted ie not interfering with sight-lines or within a setback zone	Vegetation is established and binds soil within first growing season.
5. Lastly shotcrete (although shotcrete is not preferred and would require urban design treatments to be visually acceptable	After previous options fail	

- The cause of rilling should be identified and rectified before reapplication of topsoil etc.
- All plant species, hydroseeding and tubestock to be as per the Landscape Plans.

- Geo-technical advice is recommended for each situation to identify potential variations in the physical properties of the underlying geology which may impact on the practicality of planting vegetation community type on a single cut batter. Final plant selection was varied to match the final exposed geological properties without variation to the design intent as best as possible.
- Final plant selection for use at these locations should be as per the Landscape Plans to match those species in the existing adjacent vegetation community and that tolerate drier conditions due to potentially lower or non-existent water table.

#### 3.8.2 NATIVE GRASSES

To ensure that native grasses are maintained in a way that supports their survival and persistence in the landscape:

Actions Required	Frequency
Mow all areas of native grasses flatter than 3H:1V. Do not mow during flowering and seeding. Where mowing is required at this time, mow in a pattern that allows sections of at least 50% of any given area to persist with flowering seed heads. Maintain length not less than 200mm.	Minimum of once per year to a maximum of two times per year
Native Grass Areas steeper than 3H:1V (and including all other areas where burning may replace mowing as a management tool) may be maintained by controlled / planned fire according to ecological and catchment requirements; in some communities, no planned fire will be applied, but in other areas fire will be applied within a defined fire frequency range and prescription. The action must be co-ordinated with Roads and Maritime, Rural Fire Service and Local Council.	As required

*The species density and species selections specified for each area of landscape covered by this LMP are provided in the Landscape Plans – refer Appendix A.*

### 3.8.3 FAUNA FENCE

To ensure integrity of the fauna fence is maintained.

Actions Required	Frequency
Remove all plant growth from fence i.e. vine growth	As required
Remove all fallen branches and tree limbs that are leaning or resting on or against the fence	As required
Maintain height of planting to maximum 300mm in height within 2 metres and remove all naturally occurring tree species within 3 metres of the non-road side of the fence.	As required
Maintain height of planting to maximum 300mm in height within 1m and remove all naturally occurring tree species within 2 metres on the road side of the fence except where shown on the landscape plans.	As required

### 3.8.4 VEGETATED CHANNELS

To ensure integrity of vegetated channels is maintained.

Actions Required	Frequency
Maintain grass species as per section 3.8.3 Native Grasses where native grass is specified or section 3.1 Grassed Areas (mown) where Pasture Grass is specified.	Refer Sections 1.5. and 3.8.3.
<i>The species density and species selections specified for basins (margin zone planting) zones covered by this LMP are provided in the Landscape Plans – refer Appendix A.</i>	

### 3.8.5 ANCILLARY SITE WORKS

The Urban Design and Landscape Plan indicates the areas to be used for ancillary sites. The actual extent of disturbance to be restored on these sites is to be confirmed on site with the Roads and Maritime representative.

Actions Required	Frequency
1. Batch Plants 2. Compounds 3. Stockpiles 4. Other areas	
Adjust extent of landscape works on site to suit. These yards may be in place during the maintenance period or during stage 3 works, after which the yard will be the subject of further landscape remediation.	Completion of works

### 3.8.6 MYRTLE RUST

To ensure that Myrtle Rust is not spread due to activity within the corridor.

Myrtle rust (*Puccinia psidii* s.l.) is a newly described fungus that is closely related to the Eucalyptus/Guava rusts. These rusts are serious pathogens which affect plants belonging to the family Myrtaceae including Australian natives like bottle brush (*Callistemon* spp.), tea tree (*Melaleuca* spp.) and eucalypts (*Eucalyptus* spp.) and is widespread on the eastern seaboard.

Myrtle rust is distinctive in that it produces masses of powdery bright yellow or orange-yellow spores on infected plant parts. It infects leaves of susceptible plants producing spore-filled lesions on young actively growing leaves, shoots, flower buds and fruits. Leaves may become buckled or twisted and



Myrtle Rust is regarded as being widely distributed throughout the OH2K section of the Pacific Highway therefore landscape managers of the highway have a responsibility to report occurrences, control and prevent the spread of Myrtle Rust.

The NSW Office of Environment and Heritage have prepared a plan outlining how myrtle rust will be managed on the national park estate in NSW, including the potential impacts of myrtle rust on threatened species. The plan also provides guidance to managers of other bushland and threatened species sites including the OH2K section of the Pacific Highway. The plan is available at;

<http://www.environment.nsw.gov.au/resources/pestsweeds/110683myrtlerustmp.pdf>

More information on myrtle rust and guidance for managing myrtle rust in other environments can be found on the NSW Department of Primary Industries website at;

[www.dpi.nsw.gov.au/biosecurity/plant/myrtle-rust](http://www.dpi.nsw.gov.au/biosecurity/plant/myrtle-rust)

## APPENDIX A

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### LANDSCAPE PLANS

To be provided during the contract period

## APPENDIX B

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### NOXIOUS WEED SPECIES

The link below contains a list of the Noxious Weed species that have been declared for the land covered by this LMP.

Maintenance staff should be familiarised with the identification of these species as their control (in accordance with the control category) is a legal requirement under the NSW Noxious Weeds Act.

Control techniques for these species are to be consistent the standards / practices outlined in the Noxious and Environmental Weed Control Handbook 2011. Copies of this handbook can be downloaded for free from:

[http://www.dpi.nsw.gov.au/data/assets/pdf\\_file/0017/123317/Noxious-and-environmental-weed-control-handbook.pdf](http://www.dpi.nsw.gov.au/data/assets/pdf_file/0017/123317/Noxious-and-environmental-weed-control-handbook.pdf)

Where control standards have not been clearly defined for a species, control is to utilise chemicals (where required) that are registered for use on the species or control techniques that minimise environmental impacts.

## APPENDIX C

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### ONE MONTHLY MAINTENANCE AUDIT FORM



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APPENDIX C WEED SPECIES LIST

**Table 2.1 MID NORTH COAST REGION DECLARED NOXIOUS WEEDS**

The following table details the noxious weeds declared within the Mid North Coast Weeds Advisory Committee area.

Plants Declared Noxious (per Noxious Weeds Act 1993 as Gazetted)		Local weed control authorities				
<p><b>Class 1</b> - The plant must be eradicated from the land and the land must be kept free of the plant (Notifiable – State prohibited)</p> <p><b>Class 2</b> - The plant must be eradicated from the land and the land must be kept free of the plant (Notifiable – Regionally prohibited)</p> <p><b>Class 3</b> - The plant must be fully and continuously suppressed and destroyed (Regionally controlled)</p> <p><b>Class 4</b> - The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority (Locally controlled)</p> <p><b>Class 5</b> - Requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with (Notifiable – Sale restricted)</p> <p>(WoNS) = Weed of National Significance</p> <p>- Denotes no Declaration * Denotes sale restricted</p> <p>Correct as at 06/10/2006</p>		Great Lakes	Gloucester	Greater Taree	Port Macquarie - Hastings	Kempsey
Common Name	Botanical Name	Class of weed				
African Boxthorn	<i>Lycium ferocissimum</i>	4	4	-	-	-
African Feather Grass *	<i>Pennisetum macrourum</i>	5	5	5	5	5
African Turnip Weed *	<i>Sisymbrium runcinatum</i>	5	5	5	5	5
African Turnip Weed *	<i>Sisymbrium thellungii</i>	5	5	5	5	5
Alligator Weed (WoNS) *	<i>Altemanthera philoxeroides</i>	2	2	2	2	2
Anchored Water Hyacinth *	<i>Eichhornia azurea</i>	1	1	1	1	1
Annual Ragweed *	<i>Ambrosia artemisiifolia</i>	5	5	5	5	5
Arrowhead *	<i>Sagittaria montevidensis</i>	5	5	5	5	5
Artichoke Thistle *	<i>Cynara cardunculus</i>	5	5	5	5	5
Athel Tree/Athel Pine (WoNS) *	<i>Tamarix aphylla</i>	5	5	5	5	5
Bathurst/Noogoora/Californian/Cockle Burrs	<i>Xanthium spp</i>	4	4	4	4	4
Bear-skin Fescue	<i>Festuca gautieri</i>	5	5	5	5	5
Bitou Bush (WoNS) *	<i>Chrysanthemoides monilifera ssp rotundata</i>	4	-	4	4	4
Black Knapweed *	<i>Centaurea nigra</i>	1	1	1	1	1
Blackberry (WoNS) *	<i>Rubus fruticosus agg spp</i>	4	4	4	4	4
Boneseed *	<i>Chrysanthemoides monilifera ssp monilifera</i>	4	-	4	4	4
Bridal Creeper (WoNS) *	<i>Myrsiphyllum asparagoides</i>	5	5	5	5	5
Broadleaf Pepper Tree *	<i>Schinus terebinthifolius</i>	3	3	3	3	3
Broomrapes *	<i>Orobancha spp</i> except the native spp <i>O. cernua</i> var <i>australiana</i> & <i>O. minor</i>	1	1	1	1	1
Burr Ragweed *	<i>Ambrosia confertiflora</i>	5	5	5	5	5
Cabomba (WoNS) *	<i>Cabomba caroliniana</i>	5	5	5	5	5
Cayenne Snakeweed *	<i>Stachytarpheta cayennensis</i> <i>Stachytarpheta urticifolia</i>	5	5	5	5	5
Chilean Needle Grass (WoNS) *	<i>Nassella neesiana</i>	4	4	4	4	4
Chinese Celtis *	<i>Celtis sinensis</i>	3	3	3	3	3
Chinese Violet *	<i>Asystasia gangetica ssp micrantha</i>	1	1	1	1	1
Clockweed *	<i>Gaura lindheimeri</i>	5	5	5	5	5
Clockweed *	<i>Gaura parviflora</i>	5	5	5	5	5
Columbus Grass	<i>Sorghum x alnum</i>	4	4	4	4	4
Corn Sowthistle *	<i>Sonchus arvensis</i>	5	5	5	5	5
Crofton Weed	<i>Ageratina adenophora</i>	4	4	4	4	4
Dodder *	<i>Cuscuta spp</i> except the native spp <i>C.australis</i> , <i>C. Tasmania</i> & <i>C. victoriana</i>	5	5	5	5	5

Plants Declared Noxious (per Noxious Weeds Act 1993 as Gazetted)		Local weed control authorities				
<p><b>Class 1</b> - The plant must be eradicated from the land and the land must be kept free of the plant (Notifiable – State prohibited)</p> <p><b>Class 2</b> - The plant must be eradicated from the land and the land must be kept free of the plant (Notifiable – Regionally prohibited)</p> <p><b>Class 3</b> - The plant must be fully and continuously suppressed and destroyed (Regionally controlled)</p> <p><b>Class 4</b> - The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority (Locally controlled)</p> <p><b>Class 5</b> - Requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with (Notifiable – Sale restricted)</p> <p>(WoNS) = Weed of National Significance</p> <p>- Denotes no Declaration * Denotes sale restricted</p> <p>Correct as at 06/10/2006</p>		Great Lakes	Gloucester	Greater Taree	Port Macquarie - Hastings	Kempsey
Common Name	Botanical Name	Class of weed				
East Indian Hygrophila *	<i>Hygrophila polysperma</i>	1	1	1	1	1
Egeria	<i>Egeria densa</i>	5	5	5	5	5
Espartillo *	<i>Achnatherum brachychaetum</i>	5	5	5	5	5
Eurasian Water Milfoil *	<i>Myriophyllum spicatum</i>	1	1	1	1	1
Fine-Bristled Burr Grass *	<i>Cenchrus brownii</i>	5	5	5	5	5
Fountain Grass *	<i>Pennisetum setaceum</i>	5	5	5	5	5
Gallon's Curse *	<i>Cenchrus biflorus</i>	5	5	5	5	5
Giant Parramatta Grass	<i>Sporobolus fertilis</i>	4	3	4	4	4
Giant Rats Tail Grass	<i>Sporobolus pyramidalis</i>	3	3	3	3	3
Glaucous Starthistle *	<i>Carthamus glaucus</i>	5	5	5	5	5
Golden Dodder	<i>Cuscuta campestris</i>	4	4	4	4	-
Golden Thistle *	<i>Scolymus hispanicus</i>	5	5	5	5	5
Green Cestrum *	<i>Cestrum parqui</i>	3	3	3	3	3
Groundsel Bush *	<i>Baccharis halimifolia</i>	3	3	3	3	3
Harrisia Cactus *	<i>Eriocereus spp</i>	4	4	4	4	4
Hawkweed *	<i>Hieracium spp</i>	1	1	1	1	1
Horsetail *	<i>Equisetum species</i>	1	1	1	1	1
Hygrophila *	<i>Hygrophila costata</i>	2	-	2	2	2
Hymenachne (WoNS) *	<i>Hymenachne amplexicaulis</i>	1	1	1	1	1
Johnson Grass	<i>Sorghum halepense</i>	4	4	4	4	4
Karoo Thorn *	<i>Acacia karroo</i>	1	1	1	1	1
Kochia *	<i>Bassia scoparia / Kochia scoparia</i>	1	1	1	1	1
Lagarosiphon *	<i>Lagarosiphon major</i>	1	1	1	1	1
Lantana (All) (WoNS) *	<i>Lantana spp</i>	5	5	5	5	5
Lantana (Red Flowering) (WoNS) *	<i>Lantana camara</i>	4	4	4	4	4
Long-Leaf Willow Primrose *	<i>Ludwigia longifolia</i>	4	4	4	4	4
Mexican Feather Grass *	<i>Nassella tenuissima</i>	1	1	1	1	1
Mexican Poppy *	<i>Argemone mexicana</i>	5	5	5	5	5
Miconia *	<i>Miconia spp</i>	1	1	1	1	1
Mimosa (WoNS) *	<i>Mimosa pigra</i>	1	1	1	1	1
Mintweed	<i>Salvia reflexa</i>	4	-	-	-	-
Mossman River Grass *	<i>Cenchrus echinatus</i>	5	5	5	5	5
Mother Of Millions *	<i>Bryophyllum spp</i>	3	3	3	3	3
Nodding Thistle	<i>Carduus nutans</i>	-	4	4	4	-
Onion Grass *	<i>Romulea spp &amp; vars</i> except <i>R. rosea</i> var. <i>australis</i>	5	5	5	5	5
Oxalis *	All <i>Oxalis</i> spp and vars except the natives <i>O. chnoodes</i> , <i>O. exilis</i> , <i>O. perennans</i> , <i>O. radicata</i> , <i>O. rubens</i> , & <i>O. thompsoniae</i>	5	5	5	5	5
Pampas Grass *	<i>Cortaderia spp</i>	4	4	4	4	4
Parthenium Weed (WoNS) *	<i>Parthenium hysterophorus</i>	1	1	1	1	1



Plants Declared Noxious (per Noxious Weeds Act 1993 as Gazetted)		Local weed control authorities						
<p><b>Class 1</b> - The plant must be eradicated from the land and the land must be kept free of the plant (Notifiable – State prohibited)</p> <p><b>Class 2</b> - The plant must be eradicated from the land and the land must be kept free of the plant (Notifiable – Regionally prohibited)</p> <p><b>Class 3</b> - The plant must be fully and continuously suppressed and destroyed (Regionally controlled)</p> <p><b>Class 4</b> - The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority (Locally controlled)</p> <p><b>Class 5</b> - Requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with (Notifiable – Sale restricted)</p> <p>(WoNS) = Weed of National Significance</p> <p>- Denotes no Declaration * Denotes sale restricted</p> <p>Correct as at 06/10/2006</p>		Great Lakes	Gloucester	Greater Taree	Port Macquarie - Hastings	Kempsey		
		Class of weed						
		East Indian Hygrophila *	<i>Hygrophila polysperma</i>	1	1	1	1	1
		Egeria	<i>Egeria densa</i>	5	5	5	5	5
		Espartillo *	<i>Achnatherum brachychaetum</i>	5	5	5	5	5
Eurasian Water Milfoil *	<i>Myriophyllum spicatum</i>	1	1	1	1	1		
Fine-Bristled Burr Grass *	<i>Cenchrus brownii</i>	5	5	5	5	5		
Fountain Grass *	<i>Pennisetum setaceum</i>	5	5	5	5	5		
Gallon's Curse *	<i>Cenchrus biflorus</i>	5	5	5	5	5		
Giant Parramatta Grass	<i>Sporobolus fertilis</i>	4	3	4	4	4		
Giant Rats Tail Grass	<i>Sporobolus pyramidalis</i>	3	3	3	3	3		
Glaucous Starthistle *	<i>Carthamus glaucus</i>	5	5	5	5	5		
Golden Dodder	<i>Cuscuta campestris</i>	4	4	4	4	-		
Golden Thistle *	<i>Scolymus hispanicus</i>	5	5	5	5	5		
Green Cestrum *	<i>Cestrum parqui</i>	3	3	3	3	3		
Groundsel Bush *	<i>Baccharis halimifolia</i>	3	3	3	3	3		
Harrisia Cactus *	<i>Eriocereus spp</i>	4	4	4	4	4		
Hawkweed *	<i>Hieracium spp</i>	1	1	1	1	1		
Horsetail *	<i>Equisetum species</i>	1	1	1	1	1		
Hygrophila *	<i>Hygrophila costata</i>	2	-	2	2	2		
Hymenachne (WoNS) *	<i>Hymenachne amplexicaulis</i>	1	1	1	1	1		
Johnson Grass	<i>Sorghum halepense</i>	4	4	4	4	4		
Karoo Thorn *	<i>Acacia karroo</i>	1	1	1	1	1		
Kochia *	<i>Bassia scoparia / Kochia scoparia</i>	1	1	1	1	1		
Lagarosiphon *	<i>Lagarosiphon major</i>	1	1	1	1	1		
Lantana (All) (WoNS) *	<i>Lantana spp</i>	5	5	5	5	5		
Lantana (Red Flowering) (WoNS) *	<i>Lantana camara</i>	4	4	4	4	4		
Long-Leaf Willow Primrose *	<i>Ludwigia longifolia</i>	4	4	4	4	4		
Mexican Feather Grass *	<i>Nassella tenuissima</i>	1	1	1	1	1		
Mexican Poppy *	<i>Argemone mexicana</i>	5	5	5	5	5		
Miconia *	<i>Miconia spp</i>	1	1	1	1	1		
Mimosa (WoNS) *	<i>Mimosa pigra</i>	1	1	1	1	1		
Mintweed	<i>Salvia reflexa</i>	4	-	-	-	-		
Mossman River Grass *	<i>Cenchrus echinatus</i>	5	5	5	5	5		
Mother Of Millions *	<i>Bryophyllum spp</i>	3	3	3	3	3		
Nodding Thistle	<i>Carduus nutans</i>	-	4	4	4	-		
Onion Grass *	<i>Romulea spp &amp; vars</i> except <i>R. rosea</i> var. <i>australis</i>	5	5	5	5	5		
Oxalis *	All <i>Oxalis</i> spp and vars except the natives <i>O. chnoodes</i> , <i>O. exilis</i> , <i>O. perennans</i> , <i>O. radicata</i> , <i>O. rubens</i> , & <i>O. thompsoniae</i>	5	5	5	5	5		
Pampas Grass *	<i>Cortaderia spp</i>	4	4	4	4	4		
Parthenium Weed (WoNS) *	<i>Parthenium hysterophorus</i>	1	1	1	1	1		



Plants Declared Noxious (per Noxious Weeds Act 1993 as Gazetted)		Local weed control authorities						
<p><b>Class 1</b> - The plant must be eradicated from the land and the land must be kept free of the plant (Notifiable – State prohibited)</p> <p><b>Class 2</b> - The plant must be eradicated from the land and the land must be kept free of the plant (Notifiable – Regionally prohibited)</p> <p><b>Class 3</b> - The plant must be fully and continuously suppressed and destroyed (Regionally controlled)</p> <p><b>Class 4</b> - The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority (Locally controlled)</p> <p><b>Class 5</b> - Requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with (Notifiable – Sale restricted)</p> <p>(WoNS) = Weed of National Significance</p> <p>- Denotes no Declaration * Denotes sale restricted</p> <p>Correct as at 06/10/2006</p>		Great Lakes	Gloucester	Greater Taree	Port Macquarie - Hastings	Kempsey		
		Class of weed						
		Paterson's Curse, Vipers Bugloss, Italian Bugloss	<i>Echium spp</i>	4	4	4	4	4
		Pond Apple (WoNS) *	<i>Annona glabra</i>	1	1	1	1	1
		Prickly Acacia (WoNS) *	<i>Acacia nilotica</i>	1	1	1	1	1
Prickly Pear *	<i>Cylindropuntia species</i>	4	4	4	4	4		
Prickly Pear *	<i>Opuntia spp</i> except <i>O. ficus-indica</i>	4	4	4	4	4		
Red Rice *	<i>Oryza rufipogon</i>	5	5	5	5	5		
Rhus Tree *	<i>Toxicodendron succedanea</i>	4	4	4	4	4		
Rubbervine (WoNS) *	<i>Cryptostegia grandiflora</i>	1	1	1	1	1		
Sagittaria *	<i>Sagittaria platyphylla</i> <i>Sagittaria graminea</i>	5	5	5	5	5		
Salvinia (WoNS) *	<i>Salvinia molesta</i>	3	3	3	3	3		
Sand Oat *	<i>Avena strigosa</i>	5	5	5	5	5		
Scotch Broom	<i>Cytisus scoparius</i>	-	4	-	-	-		
Senegal Tea Plant *	<i>Gymnocoronis spilanthoides</i>	1	1	1	1	1		
Serrated Tussock (WoNS) *	<i>Nassella trichotoma</i>	4	4	4	4	4		
Siam Weed *	<i>Chromolaena odorata</i>	1	1	1	1	1		
Smooth-Stemmed Turnip *	<i>Brassica barrelieri ssp oxyrrhina</i> <i>Brassica oxyrrhina</i>	5	5	5	5	5		
Soldier Thistle *	<i>Picnomon acarna</i>	5	5	5	5	5		
Spiny Burrgrass *	<i>Cenchrus incertus</i>	4	4	4	4	4		
Spiny Burrgrass *	<i>Cenchrus longispinus</i>	4	4	4	4	4		
Spotted Knapweed *	<i>Centaurea maculosa</i>	1	1	1	1	1		
St. John's Wort	<i>Hypericum perforatum</i>	3	3	3	3	-		
Texas Blueweed *	<i>Helianthus ciliaris</i>	5	5	5	5	5		
Water Caltrop *	<i>Trapa Spp</i>	1	1	1	1	1		
Water Hyacinth *	<i>Eichhornia crassipes</i>	3	3	3	3	3		
Water Lettuce *	<i>Pistia stratiotes</i>	1	1	1	1	1		
Water Soldier *	<i>Stratiotes aloides</i>	1	1	1	1	1		
Willows (WoNS) *	<i>Salix spp</i> except <i>S. babylonica</i> , <i>S. x reichardtii</i> , <i>S. x calodendron</i>	5	5	5	5	5		
Witchweed *	<i>Striga species</i>	1	1	1	1	1		
Yellow Burrhead *	<i>Limnocharis flava</i>	1	1	1	1	1		
Yellow Nutgrass *	<i>Cyperus esculentus</i>	5	5	5	5	5		



**Table 2.2 Prioritisation of Weeds in Coastal Landscapes.**

WEED Common Name	Scientific Name	Catchment Category			
		Macleay	Hastings Camden Haven	Manning	Great Lakes
Class 1 & 2 Noxious Weeds	(See Noxious Weeds List – Refer Table 2.1)	A	A	A	A
Telegraph Weed	Heterotheca grandiflora	A	A	A	A
Cats Claw Creeper	Macfadyena unguis-cati	A	A	A	A
Singapore Daisy	Wedelia trilobata	A	A	A	A
Madeira Vine	Anredera cordifolia	B	B	B	B
Glory Lily	Gloriosa superba	B	B	B	B
Broad Leaf Pepper	Schinus terebinthifolius	B	B	B	B
Groundsel Bush	Baccharis halimifolia	B	B	B	B
Umbrella Tree	Schefflera actinophylla	B	B	B	B
Mysore Thorn	Caesalpinia decapetala	B	B	B	B
Indian Hawthorn	Rhapiolepis indica	B	B	B	B
African Boxthorn	Lycium ferocissimum	B	B	B	B
Norfolk Island Hibiscus	Hibiscus insularis	B	B	B	B
Acacia Saligna	Acacia saligna	B	B	B	B
Spiny Burrgrass	Cenchrus incertus longispinus	B	B	B	B
Fish Bone Fern	Nephrolepis cordifolia	C	C	C	C
Prickly Pear spp	Opuntia stricta, vulgaris, Tomentosa, aurantiaca	C	C	C	C
Mother of Millions	Bryophyllum spp	C	C	C	C
German Ivy	Senecio macroglossus	C	C	C	C
Cape Ivy	Delairea odorata	C	C	C	C
Pampas Grass	Cortaderia spp	C	C	C	C
Formosan Lily	Lilium formosanum	C	C	C	C
Bitou Bush	Chrysanthemoides monilifera	D	D	D	D
Asparagus Spp	Asparagus africanus, plumosus, aethiopicus	D	D	D	D
Morning Glory	Ipomoea cairica, indica, alba	D	D	D	D
Winter Senna and Smooth Senna	Senna pendula var.glabrata	D	D	D	D
Lantana spp	Lantana camara	D	D	D	D

Others: Polygala, Rubber Tree, Coolatai Grass, Giant Parramatta Grass, Giant Rats Tail Grass, Moth Vine, Wild Tobacco, Pterospermum rhombifolium, Ochna, Passiflora spp, Cape Honeysuckle.

- A – Weeds not currently present in the MNCWAC area
- B – Weeds present with limited distribution, several small infestations
- C – Weeds present with moderate distribution in the MNCWAC area, numerous to large partially dispersed areas
- D – Weeds that are widespread throughout the region



**Table 2.3 Prioritisation of Weeds in Riparian Landscapes.**

WEED Common Name	Scientific Name	Catchment Category			
		Macleay	Hastings Camden Haven	Manning	Great Lakes
Class 1 & 2 Noxious Weeds	(See Noxious Weeds List – Refer Table 2.1)	A	A	A	A
Athel Pine	Tamarix aphylla	A	A	A	A
Chinese Tallow	Triadica sebifera	A	A	A	A
Longleaf Willow Primrose	Ludwigia longifolia	A	A	B	B
Angels Trumpet	Brugmansia candida	A	A	A	A
Cats Claw Creeper	Macfadyena unguis cati	C	B	B	B
Madeira Vine	Anredera cordifolia	C	B	B	B
Willows	Salix spp.	B	B	B	B
Honey Locust	Gleditsia trianthos	B	B	B	B
Broad Leaf Pepper	Schinus terebinthifolius	B	B	B	B
Chinese Celtis	Celtis sinensis	A	B	B	B
African Olive	Olea europaea ssp cuspidata	B	B	B	B
Cockspur Coral Tree	Erythrina crista-galli	B	B	B	B
Salvinia	Salvinia molesta	B	B	B	B
Cabomba	Cabomba caroliniana	B	B	B	B
Water Hyacinth	Eichhornia crassipes	C	B	B	B
Rhizomatous Bamboo	Phyllostachys spp.	B	B	B	B
Balloon Vine	Cardiospermum grandiflorum	B	B	C	C
Groundsel Bush	Baccharis halimifolia	C	B	B	B
Prickly Pear	Opuntia spp.	C	C	C	C
Pampus Grass	Cortaderia spp.	B	B	B	C
Coolatai Grass	Hyparrhenia hirta	C	C	C	C
Golden Dodder	Cascula campestris	C	C	C	C
Giant Reed	Arundo donax	C	B	C	C
Cape Ivy	Delairea odorata	C	C	C	C
Green Cestrum	Cestrium parqui	B	B	C	C
Mysore Thorn	Caesalpinia decapetala	B	B	B	B
Mother of Millions	Bryophyllum spp	C	C	C	C

Others: Noogoora Burr, Bathurst Burr, Camphor Laurel, Privet spp., Wild Tobacco, Castor Oil, Lantana, Wandering Dew, Johnson Grass, Blackberry, Crofton Weed, Mistflower, Morning Glory, Senna spp., Cestrum Nocturnum.

- A – Weeds not currently present in the MNCWAC area
- B – Weeds present with limited distribution, several small infestations
- C – Weeds present with moderate distribution in the MNCWAC area, numerous to large partially dispersed areas
- D – Weeds that are widespread throughout the region



**Table 2.4 Prioritisation of Weeds in Forest Landscapes.**

WEED Common Name	Scientific Name	Catchment Category			
		Macleay	Hastings Camden Haven	Manning	Great Lakes
Class 1 & 2 Noxious Weeds	(See Noxious Weeds List –Refer Table 2.1)	A	A	A	A
Chilean Needle Grass	Nassella neesiana	A	A	A	A
Serrated Tussock	Nassella trichotoma	A	A	A	A
Scotch/English Broom	Cytisus scoparius	A	A	B	A
African Olive	Olea europaea spp cuspidata	A	A	A	B
St Johns Wort	Hypericum perforatum	A	A	B	B
Cats Claw Creeper	Macfadyena unguis cati	B	B	B	B
Pampas Grass	Cortaderia spp	B	B	B	B
Murraya	Murraya paniculata	B	B	B	B
Mysore Thorn	Caesalpinia decapetala	B	B	B	B
Duranta	Duranta repens	B	B	B	B
Green Cestrum	Cestrum parqui	B	B	C	B
Groundsel Bush	Baccharis halimifolia	C	B	B	B
Madeira Vine	Anredera cordifolia	C	B	B	B
Balloon Vine	Cardiospermum grandiflorum	B	B	C	C
Mother of Millions	Bryophyllum spp.	B	B	C	C
Privet	Ligustrum spp.	B	C	C	C
Asparagus species	Asparagus spp.	C	C	C	C
Giant Parramatta Grass	Sporobolus fertilis	C	C	C	C
Blackberry	Rubus fruticosus agg spp.	C	C	C	C
Lantana	Lantana camara	D	D	D	D
Crofton Weed	Ageratina adenophora	D	D	D	D
Mist Flower	Ageratina riparia	D	D	D	D

Others: Moth Vine, Cape Ivy and Formosa Lily.

Note: Pinus species have shown weedy characteristics when not managed. They are a commercial crop for Forests NSW and while they are not desired in all forest areas they are not considered particularly invasive, taking at least seven years to produce seed, they are killed by fire and their impact on forested areas is not high.

- A – Weeds not currently present in the MNCWAC area
- B – Weeds present with limited distribution, several small infestations
- C – Weeds present with moderate distribution in the MNCWAC area, numerous to large partially dispersed areas
- D – Weeds that are widespread throughout the region



**Table 2.5 Prioritisation of Weeds in Agricultural Landscapes.**

WEED Common Name	Scientific Name	Catchment Category			
		Macleay	Hastings Camden Haven	Manning	Great Lakes
Class 1 & 2 Noxious Weeds	(See Noxious Weeds List – Refer Table 2.1)	A	A	A	A
Serrated Tussock	Nassella trichotoma	A	A	A	A
Chilean Needle Grass	Nassella neesiana	A	A	A	A
St Johns Wort	Hypericum perforatum	A	A	B	B
Groundsel Bush	Baccharis halimifolia	B	B	B	B
Coolatai Grass	Hyparrhenia hirta	B	B	B	B
Prickly Pear	Opuntia spp.	B	B	B	B
Coral Trees	Erythrina crista-galli	B	B	B	B
Mother of Millions	Bryophyllum spp.	B	B	B	B
Cat Heads	Emex australis	B	B	B	B
Green Cestrum	Cestrum parqui	B	B	C	C
Golden Dodder	Cascutta spp.	B	B	B	B
Blackberry	Rubus fruticosus agg spp	C	C	C	C
Giant Rats Tail Grass	Sporobolus pyramidalis	C	C	C	C
Giant Parramatta Grass	Sporobolus fertilis	C	C	C	C
Noogoora Burr	Xanthium occidentale	C	C	C	C
Bathurst Burr	Xanthium spinosum	C	C	C	C
Lantana	Lantana camara	D	D	D	D
Crofton Weed	Ageratina adenophora	C	D	D	D
Johnson Grass	Sorghum halepense	D	C	C	C
Wild Tobacco Tree	Solanum murit	D	D	D	D
Narrow Leaf Cotton Bush	Gomphocarpus fruticosus	D	D	D	D
Bracken Fern	Pteridium esculentum	D	D	D	D
Fire Weed	Senecio madagascariensis	D	D	D	D
Thistles	(Various)	D	D	D	D

- A – Weeds not currently present in the MNCWAC area
- B – Weeds present with limited distribution, several small infestations
- C – Weeds present with moderate distribution in the MNCWAC area, numerous to large partially dispersed areas
- D – Weeds that are widespread throughout the region





**Table 2.6 Prioritisation of Weeds in Urban Landscapes.**

WEED Common Name	Scientific Name	Catchment Category			
		Macleay	Hastings Camden Haven	Manning	Great Lakes
Class 1 & 2 Noxious Weeds	(See Noxious Weeds List – Refer Table 2.1)	A	A	A	A
Groundsel Bush	Baccharis halimifolia	A	A	A	A
Lippia	Phyla spp.	A	A	A	A
Chinese Celtis	Celtis sinensis	B	B	B	B
Broad Leaf Pepper	Schinus terebinthifolius	B	B	B	B
Glory Lily	Gloriosa superba	B	B	B	B
Cats Claw Creeper	Macfadyena unius-cati	B	B	B	B
Rhus Tree	Toxicodendron succedaneum	B	B	B	B
Taro	Colocasia esculenta	B	B	B	B
Pampas Grass	Cortaderia spp.	B	B	B	B
Murraya	Murraya paniculata	B	B	B	B
Salvinia	Salvinia molesta	B	B	B	B
Water Hyacinth	Eichhornia crassipes	B	B	B	B
Cabomba	Pistia stratiotes	B	B	B	B
Angels Trumpet	Brugmansia candida	B	B	B	B
Chinese Tallow	Triadica subifera	C	C	C	C
Black Locust	Robinia pseudoacacia	C	C	C	C
Coral Tree	Erythrina crista-galli	C	C	C	C
Madeira Vine	Anredera cordifolia	C	C	C	C
Honey Locust	Gleditsia triacanthos	C	C	C	C
Green Cestrum	Cestrum parqui	C	C	C	C
Yellow Bells	Tecoma stans	C	C	C	C
Golden Rain Tree	Koelreuteria elegans	C	C	C	C
African Tulip Tree	Spathodea campanulata	C	C	C	C
Bamboo (Rhizomatous)	Phyllostachys spp.	C	C	C	C
Willows	Salix spp.	C	C	C	C

Others: Fish Bone Fern, Canna Lily, Pyracantha, Cotoneaster, Oleander, Arum Lily, Gaura, Duranta, Canada Golden Rod, Ochna, Morning Glory, Cocos Palm, Indian Hawthorn, Asparagus spp, Feathergrass, China Doll, Camphor Laurel, Passiflora spp.

- A – Weeds not currently present in the MNCWAC area
- B – Weeds present with limited distribution, several small infestations
- C – Weeds present with moderate distribution in the MNCWAC area, numerous to large partially dispersed areas
- D – Weeds that are widespread throughout the region



**Table 2.7 Prioritisation of Weeds in Tablelands Landscapes.**

WEED Common Name	Scientific Name	Catchment Category			
		Macleay	Hastings Camden Haven	Manning	Great Lakes
Class 1 & 2 Noxious Weeds	(See Noxious Weeds List –Refer Table 2.1)	A	A	A	A
Chilean Needle Grass	Nassella neesiana	A	A	A	A
Groundsel Bush	Baccharis halimifolia	A	A	A	A
Serrated Tussock	Nassella trichotoma	B	A	B	A
St Johns Wort	Hypericum perforatum	B	A	B	A
Sweet Briar	Rosa rubiginosa	B	A	B	A
Honey Locust	Gleditsia triacanthos	B	B	B	B
African Love Grass	Eragrostis curvula	C	B	C	B
African Box Thorn	Lycium ferocissium	C	B	C	B
Giant Parramatta Grass	Sporobolus fertilis	B	B	B	B
Coolatai Grass	Hyparrhenia hirta	C	C	C	C
Nodding Thistle	Carduus nutans	C	B	C	B
Scotch/English Broom	Cytisus scoparius	C	B	C	B
Black Locust	Robinia pseudoacacia	C	C	C	C
Pyracantha	Pyracantha spp.	C	C	C	C
Pattersons Curse	Echium plantagineum	D	C	D	C
Blackberry	Rubus fruticosus agg. spp.	D	D	D	D
Feral Fruit Trees	Prunus spp	D	D	D	D
Rhizomatous Bamboo	Phyllostachys spp	D	C	D	C
Privet	Ligustrum spp	D	D	D	D

- A – Weeds not currently present in the MNCWAC area
- B – Weeds present with limited distribution, several small infestations
- C – Weeds present with moderate distribution in the MNCWAC area, numerous to large partially dispersed areas
- D – Weeds that are widespread throughout the region



Scotch Broom flower



Blackberry flower



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APPENDIX D EVIDENCE OF CONSULTATION

# MINUTES & ACTIONS



**Issue date** Monday 17<sup>th</sup> December 2012  
**Subject** PMHC Meeting on Community Display  
**Reference** ABL0001-OH2K-M-01 PMHC Meeting on Community Display  
**Client** Roads and Maritime Services  
**Attendees** Shane Higgins (SH) – SHJV Peter Cameron (PC) – PMHC  
 Peter Wood (PW) – RMS Cliff Toms (CT) - PMHC  
 Jessica Hedge (JH) - SHJV

**Apologies**

Minutes arising from the meeting with Port Macquarie Hastings Council (PMHC) that was held at PMHC on Friday 14<sup>th</sup> December at 10am to discuss the updates to the OH2K project that was discussed and on display with the community.

Ref #	Discussion	By Whom	By When
1	Staging: Kempsey Bypass; construction to be completed April 2013 Kundabung to Kempsey (K2K): constructed to begin early 2014 Oxley Highway to Kundabung (D&C section): construction to begin mid 2014	Noted	Noted
2	The D&C section allows for risk to be shared between the contractor and RMS. The northern section is expected to be relatively straight forward, hence a construct only contract.	Noted	Noted
3	There is public misconception as to what is being constructed, as the staging was only explained in text and not on the sketches in the EA public display.	Noted	Noted
4	The revised Blackmans Point Interchange provides a Gateway into Port Macquarie from the north. The service road design tie in could be looked at to encourage vehicles to slow down.	Noted	Noted
5	RMS are currently finalising State Forest land acquisition, however State Forest have had no objection to the widened median.	Noted	Noted
6	The increase in flood immunity factors looks at Climate Change through the pavement lifecycle (approximately 40 years). If in 2050 climate change is an impact, then the pavement may require maintenance treatments.	Noted	Noted

7	Haulage of the project's material could cause impact to the local roads. An audit report before construction should take place to assess the existing highway and road condition, to assist in the handover of roads to council.	Noted	Noted
8	PMHC and Kempsey council boundaries confirmed at Mingaletta Road.	Noted	Noted
9	After consultation with the community, it is likely that the u-turns may need to be refined.	Noted	Noted
10	PMHC General Manager to have received a letter in the mailout for community display	Noted	Noted
11	Council to provide RMS with the Flood report, so that the SHJV can capture any issues with the re-zoning near the Birdon and Marine industrial area.	CT	21/12/12
12	SHJV to confirm which culverts at Sancrox are to provide fauna connectivity.	SH	21/12/12
13	If highway is to be closed, the alternative route at the south of the project would be through Bushlands Drive.	Noted	Noted
14	Investigate the opportunities for PMHC to have information and tourist signage in the Rest Areas. PW to discuss with Wes options.	PW	21/12/12

# MINUTES



**Issue date** 23<sup>rd</sup> August 2012  
**Issued by** David Robertson  
**Subject** OH2K Discussion with RMS Port Macquarie Maintenance Staff  
**Reference** ABC0002-OH2K-N-02  
**Client** RMS  
**Meeting date** 15<sup>th</sup> August 2012  
**Time** 10am  
**Location** RMS Port Macquarie  
**Present**  
**RMS**  
 Peter Wood Steve Dalley Brad Hartley  
 Steven Mitchell-Hill Greg Pollard  
**SHJV**  
 Michael Corrigan David Robertson  
**Copies**  
**SHJV**  
 Paul Hunter Craig Sutton Sue Taylor  
 Anthony de Jongh Arthur Yeung Irene Scott  
 Mike Freeman (MIE) Lisa Samways Tim Jennings  
 HBO+EMTB

Item	Description	Action
1	<b>Construction</b>	
	<ul style="list-style-type: none"> <li>BH noted that contract documents should include provision/consideration for access for maintenance during construction. MF</li> <li>Contract documents need to capture who is responsible for maintenance of what infrastructure during construction (ie what will RMS be maintaining and what will the contractor be maintaining). MF</li> </ul>	
2	<b>Sedimentation basins:</b>	
	<ul style="list-style-type: none"> <li>BH advised that sedimentation basins are cleaned very rarely. More attention is paid to them if a property owner is using them as a source of water and they get silted up and lose capacity. SHJV to review maintenance free elements. MC/DR</li> <li>The design vehicle for access to basins is a 12.5 single unit truck. Note</li> <li>The design vehicle needs to be able to get down to the basin and turn around, and also needs to be able to get into a position where a backhoe can load sediment into the truck. SHJV to review turning areas. MC/DR</li> <li>The access track should be gravel/all-weather with a suitable grade. Note</li> <li>DR/MC advised that the basins do not have bio-filtration or any other special lining at this stage. Note</li> <li>BH's understanding is that basins do not require fauna fencing in relevant areas, but a later check of the project brief reveals that they are in fact required. Note</li> <li>BH agreed that vehicles requiring access to the basins could park in the shoulder and use traffic control if necessary. Given the low frequency of maintenance this seems appropriate. Note</li> <li>BH advised that it is not practical to partially dismantle and lower wire rope barriers to</li> </ul>	

Item	Description	Action
	gain access to the basins, and therefore has a preference for gaps in the barriers. <ul style="list-style-type: none"> <li>Man proof fencing of basins is to be assessed on a risk basis – i.e. how likely public access is to any particular basin. MC/DR</li> <li>BH commented that it is not uncommon for a basin to need to be clean within the first few years after construction. This is due to erosion occurring until the vegetation takes hold. SD suggested that the tender documents be reviewed to ensure basins are handed over at completion having just been cleaned. G38 has some words on this, but perhaps something more definitive could be included. MF</li> </ul>	
3	<b>Fauna fencing</b>	
	<ul style="list-style-type: none"> <li>BH pointed out that several different details have been used where open drains pass underneath fauna fences, with varying degrees of success. The solution needs to be something simple that will last. SHJV to investigate. MC/DR</li> <li>BH also pointed out that open drains and fauna fences should be located knowing that vegetation will accumulate along the base of the fauna fence, and may affect the ability of water to get to the open drains. This has apparently caused scour in the past. Note</li> <li>BH also noted that there are different types of fauna fences used, depending on what species exist in the area. SHJV to investigate MC/DR</li> <li>SMH requested that gates be provided in fauna fencing to allow access to structures. MC/DR</li> <li>BH explained that there is generally 3m clearing on either side of the fauna fences. Note</li> </ul>	
	<b>Culverts</b>	
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9	<b>Pavements</b> <ul style="list-style-type: none"> <li>MC advised the areas of potential pavement re-use on the existing Pacific Highway for the mainline carriageways.</li> </ul>	Note
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# MINUTES



**Issue date** 23<sup>rd</sup> August 2012  
**Issued by** David Robertson  
**Subject** OH2K Discussion with RMS Port Macquarie Maintenance Staff  
**Reference** ABC0002-OH2K-N-02  
**Client** RMS  
**Meeting date** 15<sup>th</sup> August 2012  
**Time** 10am  
**Location** RMS Port Macquarie  
**Present**  
**RMS**  
 Peter Wood Steve Dalley Brad Hartley  
 Steven Mitchell-Hill Greg Pollard  
**SHJV**  
 Michael Corrigan David Robertson  
**Copies**  
**SHJV**  
 Paul Hunter Craig Sutton Sue Taylor  
 Anthony de Jongh Arthur Yeung Irene Scott  
 Mike Freeman (MIE) Lisa Samways Tim Jennings  
 HBO+EMTB

Item	Description	Action
1	<b>Construction</b>	
	<ul style="list-style-type: none"> <li>BH noted that contract documents should include provision/consideration for access for maintenance during construction. MF</li> <li>Contract documents need to capture who is responsible for maintenance of what infrastructure during construction (ie what will RMS be maintaining and what will the contractor be maintaining). MF</li> </ul>	
2	<b>Sedimentation basins:</b>	
	<ul style="list-style-type: none"> <li>BH advised that sedimentation basins are cleaned very rarely. More attention is paid to them if a property owner is using them as a source of water and they get silted up and lose capacity. SHJV to review maintenance free elements. MC/DR</li> <li>The design vehicle for access to basins is a 12.5 single unit truck. Note</li> <li>The design vehicle needs to be able to get down to the basin and turn around, and also needs to be able to get into a position where a backhoe can load sediment into the truck. SHJV to review turning areas. MC/DR</li> <li>The access track should be gravel/all-weather with a suitable grade. Note</li> <li>DR/MC advised that the basins do not have bio-filtration or any other special lining at this stage. Note</li> <li>BH's understanding is that basins do not require fauna fencing in relevant areas, but a later check of the project brief reveals that they are in fact required. Note</li> <li>BH agreed that vehicles requiring access to the basins could park in the shoulder and use traffic control if necessary. Given the low frequency of maintenance this seems appropriate. Note</li> <li>BH advised that it is not practical to partially dismantle and lower wire rope barriers to</li> </ul>	

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	<ul style="list-style-type: none"> <li>gain access to the basins, and therefore has a preference for gaps in the barriers. Note</li> <li>Man proof fencing of basins is to be assessed on a risk basis – i.e. how likely public access is to any particular basin. MC/DR</li> <li>BH commented that it is not uncommon for a basin to need to be clean within the first few years after construction. This is due to erosion occurring until the vegetation takes hold. SD suggested that the tender documents be reviewed to ensure basins are handed over at completion having just been cleaned. G38 has some words on this, but perhaps something more definitive could be included. MF</li> </ul>	
3	<b>Fauna fencing</b>	
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