



**Shoalhaven Starches Pty Ltd**  
**Development Consent 06\_0228**  
**Landscape and Vegetation Management Plan**

**Document Control**

<b>Revision No.</b>	<b>Date</b>	<b>Prepared By</b>	<b>Authorised By</b>	<b>Comments</b>
Original	14-9-2009	Coffey Environments	J. Parnell	
1.0.A	3-7-2013	Shoalhaven Starches	J. Studdert	
1.0.B	31-7-2015	Shoalhaven Starches	J. Studdert	Addition of Appendix A - Implementation Schedule
1.0.C	25-11-2016	Shoalhaven Starches	J. Studdert	Update of Appendix A - Implementation Schedule
1.0.D	30-4-2019	Shoalhaven Starches	J. Studdert & G. Lugg	Inclusion of site landscape plans. Updates to meet changes to Condition 43 and inclusion of previous Coffey 2009 landscape plan requirements.
1.0.E	27-3-2020	Shoalhaven Starches	J. Studdert	Addition of Appendix G and Appendix H, update of Table 5 and inclusion of MOD 16

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## 1. INTRODUCTION

This Landscape & Vegetation Management Plan (LVMP) has been developed to satisfy the requirements of Schedule 3, Condition 43, of Shoalhaven Starches Expansion Development Consent 06\_0228, approved by the NSW Department of Planning & Environment (DPE).

Condition 43 of the consent states:

The Applicant shall update the Vegetation Management Plan for the development as modified. This plan must:

- a. be prepared in consultation with DILW and Council;
- b. be approved by the Secretary prior to construction of each modification;
- c. be prepared in accordance with *DILW's Guidelines for Vegetation Management Plans on Waterfront Lands (2018)*;
- d. include:
  - a Landscape Plan for the development, which identifies screen plantings to minimise visual impacts, including additional planting between the DDG area and riverbank, and planting around the coal and woodchip stockpiles on the environmental farm and planting along the frontage of the BOC gas site;
  - detailed plans and procedures to:
    - restore and maintain the waterways and riparian zones of Shoalhaven River, Bomaderry Creek, Abernathy's Creek and Broughton Creek on the site;
    - manage weeds in the vicinity of the riparian zones;
    - integrate works into the proposed landscaping for the rest of the site;
    - manage impacts on fauna; and
    - monitor the performance of the proposed restoration works.

*Note: If a modification does not require an update of the plan, the Proponent shall provide written justification to the satisfaction of the Secretary.*

This LVMP has been developed and updated based on information contained in *Shoalhaven Starches Ethanol Plant Landscape & Vegetation Management Plan*, 26 May 2009, by Coffey Environments (Coffey's 2009), approved by the DPE on 8/4/2010, and should be read in conjunction with this plan.

## 2. PROJECT DESCRIPTION

Shoalhaven Starches operates primarily under one consolidated Development Consent 06\_0228 (the 'Consent') issued by the NSW Department of Planning on the 28<sup>th</sup> January 2009. The Consent consolidated all previous approvals for the site into the one Development Consent. **Table 1** provides a list of the project modifications (MODs) currently approved under Shoalhaven Starches Consent.

**Table 1**

Approval Number	Description	Date Issued
06_0228	Shoalhaven Starches Expansion Project	28-1-2009
06_0228 MOD 1	Deletion of Dried Distillers Grain (DDG) Pelletiser	30-9-2011
06_0228 MOD 2	Operational & Energy Efficiency Improvements	14-9-2012
06_0228 MOD 3	Relocation of car park	9-10-2012
06_0228 MOD 4	Modification to the footprint, design and location of Dried Distillers Grain (DDG) Pelletising Plant	25-3-2014
06_0228 MOD 5	Modification to the footprint, design and odour controls on the Dried Distillers Grain (DDG) Pelletising Plant	16-9-2015
06_0228 MOD 6	Modification to demolish a building and construct a temporary car park	25-11-2015
06_0228 MOD 7	Relocation of Starch Dryer No.5	18-1-2016
06_0228 MOD 8	Alterations to Existing Flour Mill	1-3-2016
06_0228 MOD 9	Packing Plant	8-3-2017

06_0228 MOD 10	Flour Mill B	18-4-2017
06_0228 MOD 11	DDGS Dryers	1-9-2017
06_0228 MOD 12	Beverage Grade Ethanol	1-9-2017
06_0228 MOD 13	Conversion of Boilers	18-1-2018
06_0228 MOD 14	Use of Paper Mill Site	27-4-2018
06_0228 MOD 15	Carbon Dioxide Plant	7-8-2018
06_0228 MOD 16	Flour, Gluten and Starch Increase	17-6-2019

### 3. CONDITIONS OF CONSENT

This LVMP has been developed in accordance with Shoalhaven Starches Development Consent 06\_0228 conditions of consent. The requirements for condition 43 (Landscape & Vegetation Management Plan), and where they are addressed within this plan, are shown in **Table 2** below.

**Table 2** Summary of LVMP Condition 43

Requirement	Section
Be prepared in consultation with DILW and Council;	Appendix H
Be approved by the Secretary prior to construction of each modification;	n/a
Be prepared in accordance with <i>DILW's Guidelines for Vegetation Management Plans on Waterfront Lands (2018)</i>	5
Include a Landscape Plan for the development, which identifies screen plantings to minimise visual impacts, including additional planting between the DDG area and riverbank, and planting around the coal and woodchip stockpiles on the environmental farm and planting along the frontage of the BOC gas site;	Appendix A – F & Table 5
Include detailed plans and procedures to:	
- restore and maintain the waterways and riparian zones of Shoalhaven River, Bomaderry Creek, Abernathy's Creek and Broughton Creek on the site;	Table 5
- manage weeds in the vicinity of the riparian zones;	7.2
- integrate works into the proposed landscaping for the rest of the site;	Table 5
- manage impacts on fauna; and	7.1 & Appendix G
- monitor the performance of the proposed restoration works.	8

### 4. OBJECTIVE

Specific objectives of this plan are to:

- Prepare a Landscape Plan for the project which identifies screen plantings to minimise visual impacts.
- Restore and maintain the waterways and riparian zones of Shoalhaven River, Bomaderry Creek, Abernathy's Creek and Broughton Creek on the site
- Manage weeds in the vicinity of the riparian zones
- Integrate works into the proposed landscaping for the rest of the site
- Manage impacts on fauna
- Monitor the performance of the proposed restoration works

### 5. GUIDELINES

This LVMP has been prepared in accordance with the following DILW guidelines (which have replaced the former DWE 2008 Guidelines):

- Guidelines for Vegetation Management Plans on Waterfront Land (2012)
- Guidelines for Controlled Activities on Waterfront land – Riparian Corridors (2018)

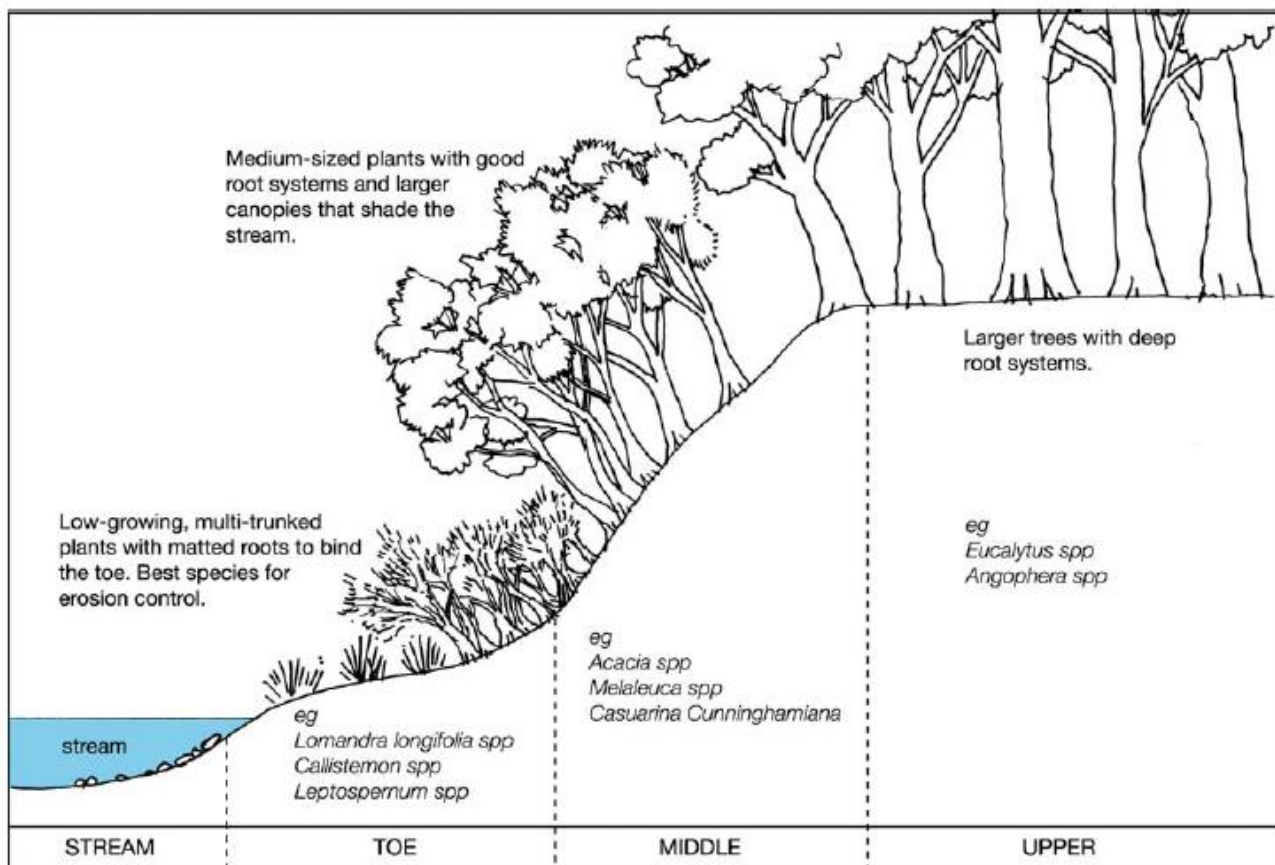
According to the Guidelines, the main objective of a Vegetated Management Plan is to provide a stable watercourse and riparian corridor which will emulate local native vegetation communities. **Figure 1** shows a typical riparian cross section.

A riparian corridor (RC) forms a transition zone between the land, also known as the terrestrial environment, and the river or watercourse or aquatic environment. Riparian corridors perform a range of important environmental functions such as:

- providing bed and bank stability and reducing bank and channel erosion
- protecting water quality by trapping sediment, nutrients and other contaminants
- providing diversity of habitat for terrestrial, riparian and aquatic plants (flora) and animals (fauna)
- providing connectivity between wildlife habitats
- conveying flood flows and controlling the direction of flood flows
- providing an interface or buffer between developments and waterways
- providing passive recreational uses.

The protection, restoration or rehabilitation of vegetated riparian corridors is important for maintaining or improving the shape, stability (or geomorphic form) and ecological functions of a watercourse.

**Figure 1 Typical riparian cross section**

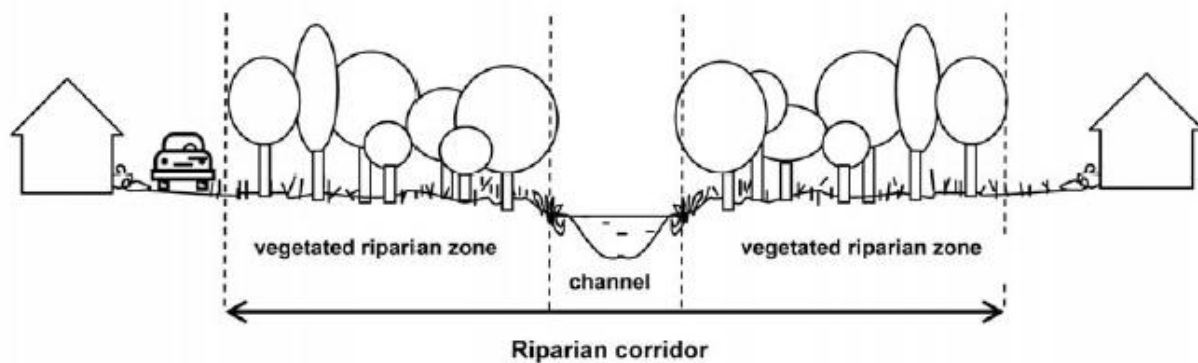


As depicted in **Figure 2**, the riparian corridor consists of:

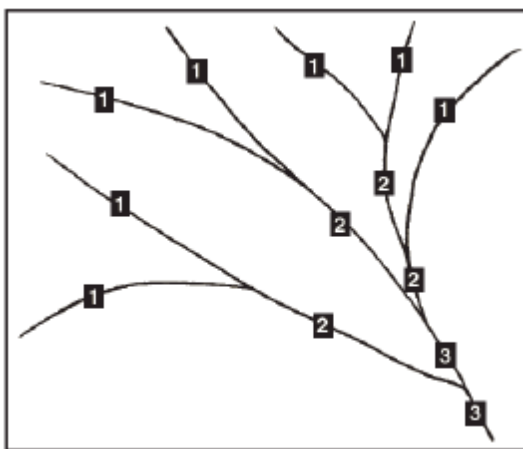
- the channel which comprises the bed and banks of the watercourse (to the highest bank) and
- the vegetated riparian zone (VRZ) adjoining the channel.

The Guidelines recommend a VRZ width based on watercourse order as classified under the Strahler System of ordering watercourses and using current 1:25 000 topographic maps (refer to **Figure 3** and **Table 3** below). The width of the VRZ should be measured from the top of the highest bank on both sides of the watercourse.

**Figure 2 - The riparian corridor**



**Figure 3 The Strahler System**



**Table 3 Recommended riparian corridor (RC) widths**

Watercourse type	VRZ width (each side of watercourse)	Total RC width
1 <sup>st</sup> order	10 metres	20 m + channel width
2 <sup>nd</sup> order	20 metres	40 m + channel width
3 <sup>rd</sup> order	30 metres	60 m + channel width
4 <sup>th</sup> order and greater (includes estuaries, wetlands and any parts of rivers influenced by tidal waters)	40 metres	80 m + channel width

Ideally the environmental functions of riparian corridors should be maintained or rehabilitated by applying the following principles:

- Identify whether or not there is a watercourse present and determine its order in accordance with the Strahler System.
- If a watercourse is present, define the RC/VRZ on a map in accordance with Table 3.
- Seek to maintain or rehabilitate a RC/VRZ with fully structured native vegetation in accordance with Table 3.
- Seek to minimise disturbance and harm to the recommended RC/VRZ.
- Minimise the number of creek crossings and provide perimeter road separating development from the RC/VRZ.
- Locate services and infrastructure outside of the RC/VRZ. Within the RC/VRZ provide multiple service easements and/or utilise road crossings where possible.
- Treat stormwater run-off before discharging into the RC/VRZ.

The recommended VRZ and total RC widths for the 4 watercourses identified at the Shoalhaven Starches site using the above classification guidelines are shown in **Table 4**.

**Table 4 Watercourse classification and recommended riparian buffer zones**

Watercourse	Category	VRZ Width	Total RC Width
Shoalhaven River	3 <sup>rd</sup> order	30 metres	60 metres + channel width
Bomaderry Creek	2 <sup>nd</sup> order	20 metres	40 metres + channel width
Broughton Creek	2 <sup>nd</sup> order	20 metres	40 metres + channel width
Abernethy's Creek	2 <sup>nd</sup> order	20 metres	40 metres + channel width

With the exception of the confluence of Shoalhaven River and Bomaderry Creek and Abernethy's Creek north of Bolong Road, the existing infrastructure and buildings at the factory limit the available space necessary to meet the above recommended riparian buffer zones.

In addition, some foreshore areas along Broughton Creek are utilised as part of the farm for stock refuge and road access to the pivots, which also limit the space necessary to meet the recommended buffer zones. Due to these restrictions, this plan focuses on improving bank stability and riparian diversity and health within the foreshore areas available. Where it is feasible to do so, the long term objective is to extend riparian zones to meet the recommendations of the Guidelines.

## 6. MANAGEMENT ZONES

Management zones have been developed to allow the prioritisation of actions in the riparian corridors of the four watercourses (refer to **Figures 4 – 7**). The management zones only apply to riparian areas, the landscaping component of this plan is dealt with separately.

The following provides a summary of the management zones:

- **Zone A** management areas - address priority bank stability issues and recommended actions aimed at a) improving bank stability, and b) creating and/or enhancing native vegetation communities through new plantings and weed eradication
- **Zone B** management areas - address riparian vegetation health and recommended actions aimed at enhancing native vegetation through restoration works (fill-in planting, thinning etc) and weed eradication and/or control
- **Zone C** management areas - address riparian vegetation health and recommended actions aimed at controlling weeds and assisting native regeneration

The management zones are indicative of the requirement of action only. Currently there are several areas along Broughton Creek that are excellent examples of structurally and floristically diverse riparian vegetation on the Shoalhaven Floodplain and farm management has been protecting them since 1997.

It is imperative that these areas continue to be protected and maintained. However, as they do not require major works, they have been designated as Zone C.

It is anticipated that Zone A areas would transition to Zone B areas, and Zone B areas would transition to Zone C areas and so on, within 2-3 years of the commencement of restoration works.

**Table 5** provides a summary of actions for each management zone, extracted from the Coffey's 2009 LVMP, including an updated implementation status for each area. Additional landscaping works as required by subsequent project approval MODs is also shown in Table 5.



**Table 5 LVMP Summary of Actions**

ASPECT / FORESHORE	MANAGEMENT ZONE	AREA	ACTIONS	IMPLEMENTATION SCHEDULE	STATUS	REFERENCE
Phase 1						
Landscaping	-	Fermenters	Plant Casuarina Glauca at 1.5m spacing to screen fermenters		Complete	Appendix A
		New Packaging Plant <sup>1</sup>	Remove weeds and plant Melaleuca, Eucalyptus and Casuarina species between packaging plant and Bolong Rd.	On completion of construction works	Incomplete (Packing Plant Not Constructed)	Appendix C
Shoalhaven River	Zone A	Emergency Revetment	Removal immature coral trees from revetment and adjacent area		Complete	Figure 4
			Complete revegetation of revetment IAW landscaping plan (Appendix B)			
			Plant fast growing Casuarina glauca at rear of revetment	On completion of construction works at flour mill	Complete	
			Plant Eucalyptus and Melaleuca canopy species, and Lomandra as a groundcover at rear of revetment			
		Confluence Shoalhaven River and Bomaderry Creek to 10m behind the bank	Slash and spray Kikuyu grass		Complete	Figure 4
			Eradicate African Boxthorn and remove Lantana			
			Plant out waterline with Grey Mangroves and Juncas Krausii			
			Plant fast growing native species at the top of the bank and canopy species at the rear of the bank, and fill in with groundcovers			
Bomaderry Creek	Zone A	Confluence with Shoalhaven River to 250m upstream	Slash and spray Kikuyu grass		Complete	Figure 5
			Plant top of bank with canopy species and midstorey species			
			Fill in with groundcovers			
Abernethy's Creek	Zone A	Western bank, north of Bolong Rd <sup>1</sup>	Slash and spray Kikuyu grass	To be completed when once Packing Plant is constructed.	Incomplete (Packing Plant Not Constructed)	Figure 6 and Appendix C
			Plant full list of riparian species at rear of bank			
			Plant top of bank with Melaleuca erificifolia and other listed species			
			Fill in the Lomandra and Dianella spp.			
Broughton Creek	Zone A	Stock flood refuge area to 10m behind bank	Slash and spray Kikuyu grass		Complete	Figure 7
			Plant canopy and midstorey species at rear of bank			
			Plant scattered Casuarina glauca and Myoporum acuminatum on bank (but not the waterline)			

			Erect temporary barriers when area is used as flood refuge			
		Embankments with no canopy or midstorey	Slash and spray Kikuyu grass		Complete	
			Plant canopy and midstorey species at rear of bank			
			Plant scattered Casuarina glauca and Myoporum acuminatum on bank (but not the waterline)			
Phase 2						
Shoalhaven River	Zone B	Dense area of Acacia mearnsii	Clear 10m x 10m plots and replant with other canopy species at 2m spacing		Complete	Figure 4
			Remove acacia seedlings and monitor success of plantings			
		Grassy area behind crib shed	Whipper-snip and spray Kikuyu grass	Commence by December 2019	Incomplete	
			Plant toe with water line species			
			Plant canopy and midstorey species at top of bank			
			Fill in with groundcovers			
	Zone C	Eastern boundary to revetment	Spray lantana		Complete	
			Plant out with groundcover species (Lomandra)			
		West of Abernethy's	Remove lantana using mosaic approach		Complete	
			Suppress African Boxthorn and Blackberry			
	Unzoned	Between crib shed and revetment	Geotechnical assessment of bank stability to assess potential of removing Coral trees from bank	Coral trees are to remain	Complete	
Bomaderry Creek	Zone B	Upstream and downstream embankment	Remove Lantana using mosaic approach		Complete	Figure 5
			Eradicate African boxthorn and Blackberry			
			Frill privet			
Abernethy's Creek	Zone B	Eastern bank, north of Bolong Rd <sup>1</sup>	Remove Lantana using mosaic approach	To be completed when once Packing Plant is constructed.	Incomplete (Packing Plant Not Constructed)	Figure 6
			Assist natural regeneration, or supplementary plantings			
		Both banks, south of Bolong Rd to electrical easement	Spray weeds on embankments	Commence by December 2019.	In progress	
			Dense plantings of groundcover species			
		Both banks, south of electrical	Suppress Privet and spray other weeds	Estimate 2 - 3 years to complete	Incomplete	
			Plant eastern bank with selection of midstorey species			

		easement to outflow <sup>2</sup>				
Broughton Creek	Zone A	Stock flood refuge area to 10m behind bank	Plant out waterline with suitable mangrove species		Complete	Figure 7
		Embankments with no canopy or midstorey	Plant out waterline with suitable mangrove species		Complete	
	Zone B	Transition areas	Slash and spray and Kikuyu grass		Complete	
			Plant suitable upper bank canopy and midstorey species			
Phase 3 Additional Landscaping Works 2011 - 2019						
ASPECT / FORESHORE	PA 06_0228 Approval	AREA	ACTIONS	IMPLEMENTATION SCHEDULE	STATUS	REFERENCE
Landscaping	MOD 2	Bolong Rd - DME Storage / Ethanol Loadout	Screen plantings as per Landscape Plan Appendix 2B (MP06_0228 MOD 2)		Complete	Appendix A
		Bolong Rd - Fermenters / Cooling Towers	Screen plantings as per Landscape Plan Appendix 2B (MP06_0228 MOD 2)		Complete	
		Bolong Rd - Ethanol Distillery	Screen plantings as per Landscape Plan Appendix 2B (MP06_0228 MOD 2)		Complete	
		Bolong Rd - Fermenters to Mid-section of Open Paddock	Screen plantings as per Landscape Plan Appendix 2B (MP06_0228 MOD 2)		Complete	
Landscaping	MOD 3	Bolong Rd - Open Paddock to ex. Dairy Farmers site	Screen plantings as per Landscape Plan Appendix 2C (MP06_0228 MOD 3)		Complete	Appendix B
Landscaping	MOD 9	Packing Plant <sub>1</sub>	Screen plantings as per Landscape Plan MN262-002	On completion of construction works	Incomplete (Packing Plant Not Constructed)	Appendix C & Figure 6
Landscaping	MOD 11	Coal & Woodchip	Screen plantings as per Landscape Plan MN6638-102	Complete by December 2019	Complete	Appendix D

		Storage at Farm				
Landscaping	MOD 14	Former Paper Mill Site	Screen plantings as per Landscape Plan MN6416-001	Complete by end of June 2018	Complete	Appendix E
Landscaping	MOD 15	SupaGas Plant at ex. Dairy Farmers site	Screen plantings in front of CO2 Plant	On completion of CO2 Plant (estimate August 2019)	Complete	Appendix F
Landscaping	MOD 16	BOC Gas site	Provide screening landscaping to the south of the proposed new indoor electrical sub-station along the frontage of Bolong Road. Refer to Plan MN6531-010	On completion of Indoor Electrical Substation (estimate Dec 2021)	Incomplete	Appendix G

Notes:

1. Phase 1 & Phase 2 landscape screening & riparian plantings along Abernathy's Creek north of Bolong Rd has not been completed due to the new Packing Plant (MOD 9) project being placed on hold (any plantings will likely be impacted by construction works)
2. Some Phase 2 riparian plantings along Abernathy's Creek south of Bolong Rd towards the Shoalhaven River have been completed; this area will be given priority in the next 3 years.
3. Revegetation and maintenance works will be conducted according to Shoalhaven Starches Ethanol Plant Landscape and Vegetation Management Plan by Coffey Environments (dated 2009).
4. Revegetation works will include planting species chosen from those recommended for canopy, midstorey and groundcover from Attachment A of the Plan by Coffey Environments (dated 2009).
5. Revegetation and weed control works would be conducted by a qualified restoration contractor.

The map shows the Shoalhaven River flowing through an industrial area. The river is divided into four color-coded management zones: Zone A (green), Zone B (red), Zone C (yellow), and Unzoned (blue). A red box highlights Zone B with the text "Zone B / Unzoned Incomplete. All other zones completed." An orange arrow labeled "P10" indicates the plate perspective view from the riverbank. Various industrial facilities are shown, including proposed gas lines, water pipelines, cooling towers, and storage areas. A legend in the bottom right corner defines the zone colors and the plate perspective symbol. A scale bar at the bottom right indicates distances up to 100 meters.



Figure 5 Bomaderry Creek Management Zones



Figure 6 Abernethy's Creek Management Zones

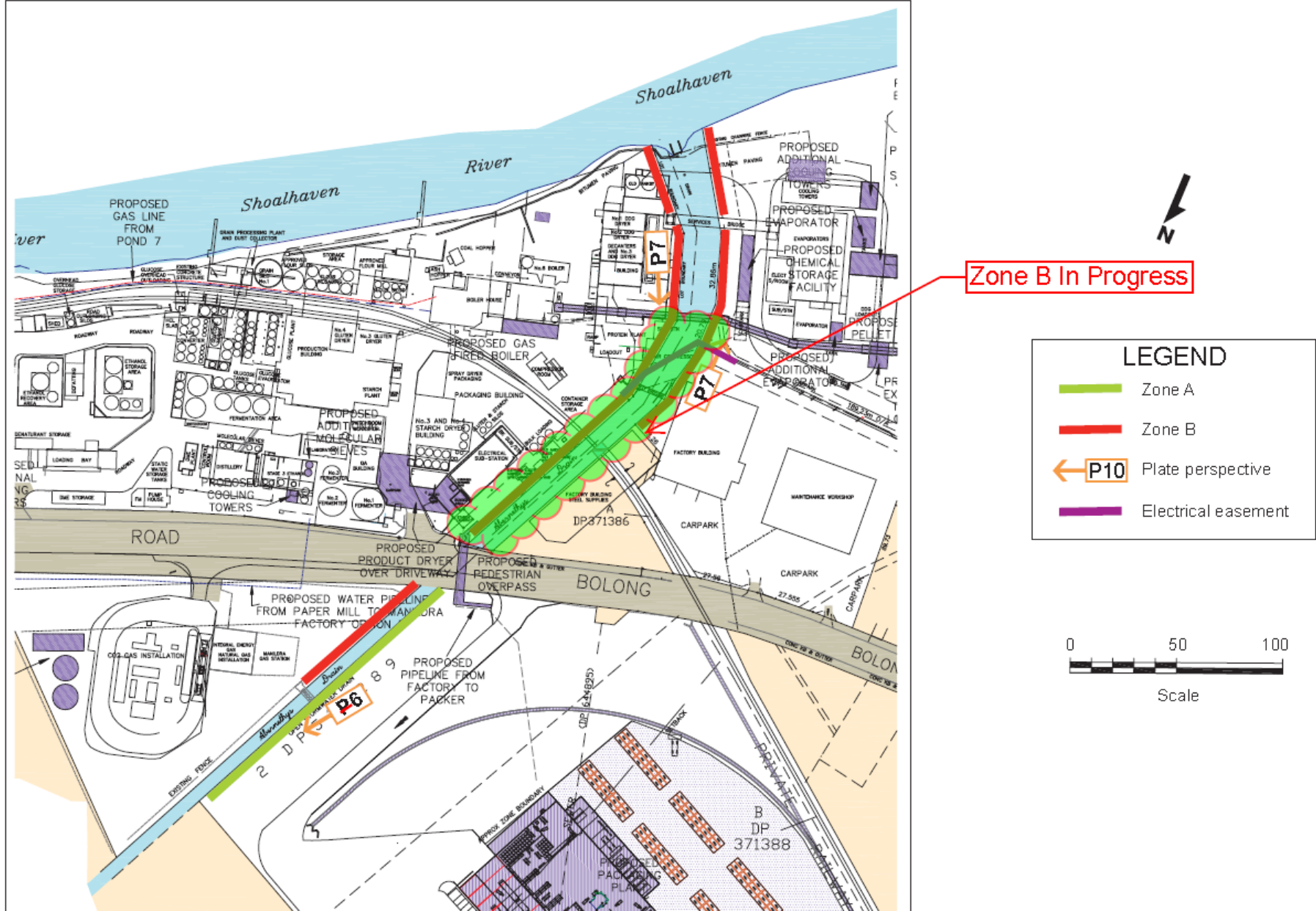




Figure 7 Broughton Creek Management Zones





## 7. IMPLEMENTATION

### 7.1 LANDSCAPING & VEGETATION WORKS

Landscaping contractors are engaged on a progressive basis to perform the required landscape plantings and vegetation work. Vegetation species composition, planting layout and densities are in accordance with approved landscape plans where specified. The plant composition and density will vary depending on the areas to be planted, but will generally consist of trees, shrubs and groundcover species.

All landscaping works will be undertaken by experienced landscaping and bush regeneration contractors, and will follow established planting techniques and methodologies. Detailed information can be found in the Coffey's 2009 plan.

It is not advisable to remove the Lantana all at once, rather a staged mosaic approach (where Lantana is sprayed in a chequered pattern and removed in stages so some plants remain to provide soil cover and fauna habitat) is recommended. This will allow birds species to relocate more readily as habitat is reduced.

For plant screening requirements, trees such as Casuarina Glauca, or other native tree of similar size, should be used.

### 7.2 WEED CONTROL

Ongoing site maintenance of landscaping and weed control around the factory site and riparian areas is completed in accordance with the weekly lawn & weed maintenance schedule.

Shoalhaven Starches weed control program is provided by external contractors with professional qualifications. The weed control contractor inspects, monitors and treats as agreed targeted areas of the site as per the service agreement and maintenance schedule.

Methods used to control weeds include:

- Regular mowing of lawns and whipper snipping of lawn edges to reduce opportunity for weed growth to germinate.
- Mulching of garden beds and removal of weeds by hand, ensuring minimal soil disturbance.
- Planting out site boundaries and riparian areas with native trees/shrubs.
- Removal of accumulated soil and debris from sealed areas and edges of buildings (e.g. road sweeping)
- On-going road and pathway sealing program.
- Targeted weed spraying.

To ensure that weed spraying is effective a number of factors are considered prior to use. This includes:

- Such as spraying when the weed is young and prior to going to seed.
- Consider weather conditions – the chemical label will outline the desired weather conditions for spraying.
- Spraying should be undertaken in a manner to maximise the amount of herbicide reaching the target weeds and minimise drift.
- Bioactive Round-up is to be used around Riparian areas and used sparingly to minimise impact on the surrounding waterways.

### 7.3 RESPONSIBILITIES

For new projects requiring development approval, the Shoalhaven Starches Project Manager is responsible for preparing & submitting the required landscape & vegetation management plans to the relevant planning authorities for approval.

Once the plans are approved, the QA & Environmental Coordinator and the Environmental Scientist are responsible for ensuring the Landscape & Vegetation Management Plan (LVMP) is implemented and maintained.

The approved landscape plans for the various Project Approval 06\_0228 modifications are shown in **Appendix A to Appendix G**.

## **8. REVIEW & MONITORING**

Monitoring & reporting on the performance of the landscape and restoration works is included in Shoalhaven Starches Annual Environmental Management Report submitted to the DPE.

Monthly inspections and maintenance of plant screenings and the effectiveness of the weed control program are conducted by specialist contractors. Riparian Rehabilitation Works reports completed by specialist landscape contractors are provided to track the progress of the restoration works in the riparian zones..

This LVMP is reviewed on at least an annual basis as part of Shoalhaven Starches Document Control System and prior to the construction of each project modification under Shoalhaven Starches Development Consent 06\_0228.

**ELEVATION Not to Scale**

**Shoalhaven River**

**EXISTING - BLACK.  
PROPOSED - RED**

**Plate 3 - Complete**

**Plate 1 - Complete**

**Plate 2 - Complete**

**To remain clear for Fire services access**

**PLANT SCHEDULE FOR MATRIX PLANTING**

Bushes	Name	Size	Plant Size	NOS.
TREES				
CC	Callistemon salignus	5m x 3m	20mm	71
BR	Banksia integrifolia	5m x 3m	20mm	66
SP	Sporobolus virginicus	15m x 10m	400	36
LP	Lonicera xylosteum	5m x 3m	20mm	34
LC	Lycium fraxinoides	15m x 10m	700	52
WF	Weinmannia borbonica	15m x 10m	400	34

Bushes	Name	Common Name	Size	Plant Size	NOS.
AGM	Azalea arbutifolia	Coral Tree	5m x 3m	75mm	66
BE	Banksia ericifolia	Coral Banksia	5m x 3m	-	104
CC	Callistemon salignus	Corolla Banksia	5m x 3m	-	104
CC	Callistemon salignus	Corolla Banksia	5m x 3m	-	36
CC	Callistemon salignus	Corolla Banksia	5m x 3m	-	14
MH	Mitrasacme thymifolia	HZ Callistemon Bush	5m x 3m	-	60
SA	Syzygium australis	Crash Tree	5m x 3m	-	104

**DESIGN NOTES**

Landscape contractor must show extreme care in protecting services and works by other contractors. This will include all paths and structures.

**MOUNDING OF GARDEN BEDS**

Landscape contractor is to allow to install extra soil to provide mounding to the planting bed to a maximum height of 400mm. This will provide a medium for good growth.

**CULTIVATION OF EXISTING GROUND**

See specification for rates.

**GARDEN EDGING**

Timber edging shall be installed along the boundary fence to deter grass invading the planting beds.

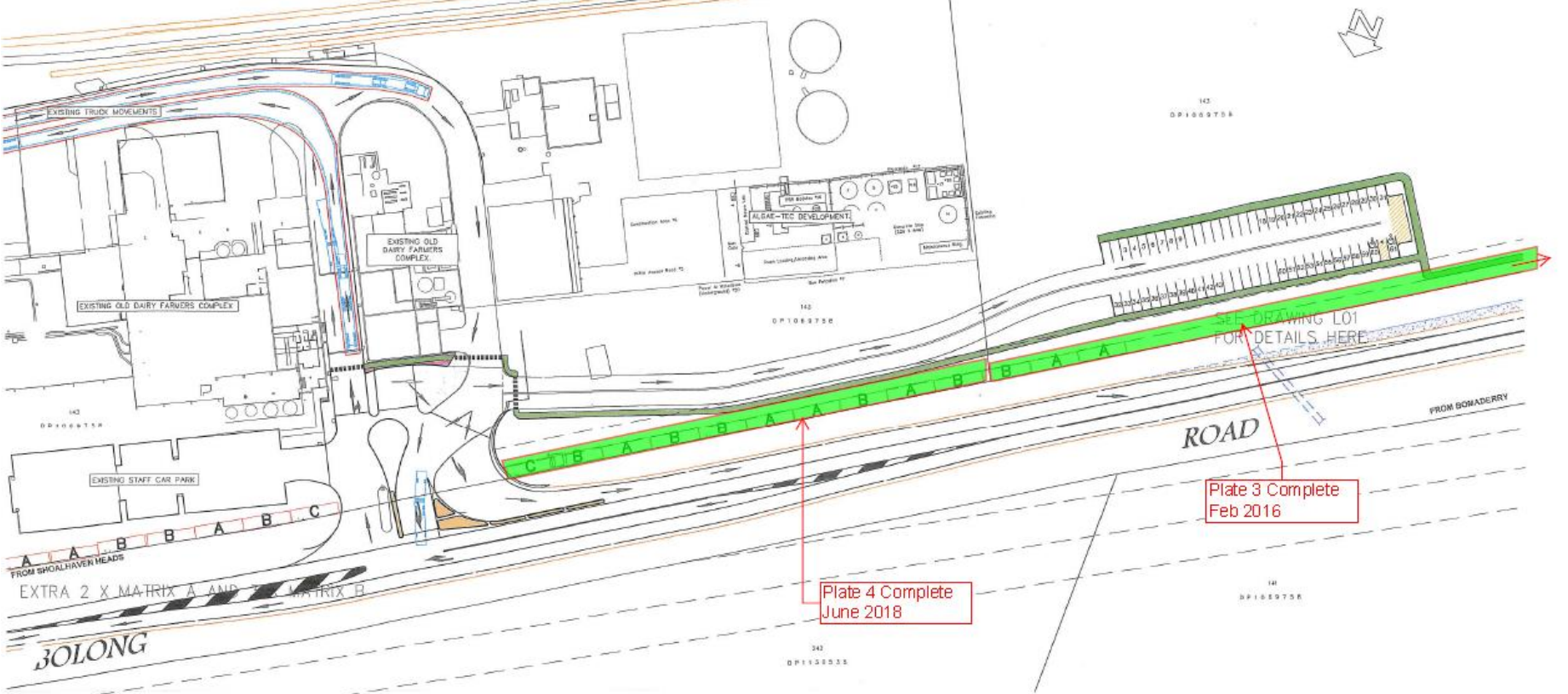
**TITLE:** MANILDRA GROUP NOWRA  
LANDSCAPE SCREEN.  
SITE PLAN.

**PPLA**  
Polar  
Philips  
Landscapes  
Architecture

**MANILDRA GROUP**  
100% AUSTRALIAN

**ISS DATE ZONE**  
A 03-05-2012 ALL Council Submission PP PP  
CHANGE AMENDMENTS BY CKD

Appendix B Approved Landscape Plan MOD 3 (Car park relocation)



LANDSCAPE PLAN

PLANT SCHEDULE FOR MATRIX PLANTING

Symbol	Name	Name	Size	Pot Size	NO.
TREES					
CS	Callistemon salignus	Callistemon Pink Tip	8m x 3m	200mm	47
ER	Elaeagnus reticulatus	Blueberry Ash	8m x 3m x 75b x 45 x 200mm		58
HF	Hydrangea paniculata	Native frangipani	15m x 6m	450	24
LP	Laportea paniculata	Lemon Scented Tea Tree	5m x 6m	200mm	22
LC	Laportea paniculata	Shrub	15m x 10m	750	34
WF	Walteria paniculata	Weeping Lily Pilly	15m x 6m	450	22

Symbol	Name	Common Name	Size	Pot Size	NO.
SHRUBS					
ASM	Acacia smithii Minor	Dwarf Lilly Pilly	5m x 3m	75mm	45
BE	Banksia ericifolia	Coastal Banksia	5m x 3m		46
CC	Callistemon chinensis Endeavour	Endeavour Softleaved	3m x 3m		80
CS	Callistemon chinensis Endeavour	Endeavour Softleaved	3m x 3m		32
MS	Metrosideros thomsonii	NZ Christmas Bush	4m x 2m		12
MT	Metrosideros thomsonii	NZ Christmas Bush	8m x 4m		62
SA	Syringium australae	Brush Box			69
GRASSES + GROUNDCOVERS					
DR	Diuris liliifolia	Flax Lily	0.5m x 0.5m	75mm	248
LL	Lomandra longifolia	Matt Rush	1m x 1m		136
LT	Lomandra longifolia	Dwarf Matt Rush	75mm x 75mm		230
MS	Microseris alpestris	Weeping Grass	1m x 1m		217
PE	Poa exilis	Blue Tussock Grass	75mm x 75mm		194

DESIGN NOTES

Landscape contractor must show extreme care in protecting services and works by other contractors. This will include all paths and structures.

MOUNDING OF GARDEN BEDS

Landscape contractor is to allow to install extra soil to provide mounding to the planting bed to a maximum height of 400mm. This will provide a medium for good growth. Existing ground is to be ripped and cultivated to a depth of 200mm minimum with gypsum to be incorporated.

CULTIVATION OF EXISTING GROUND

See specification for rates.

GARDEN EDGING

Timber edging shall be installed along the boundary fence to deter grass invading the planting beds.

ISSI	DATE	ZONE	AMENDMENT	BY	CHKD
B	22.08.12	ALL	Grain Storage Deleted	RP	PP
A	22.05.12	ALL	Council Submission	PP	PP



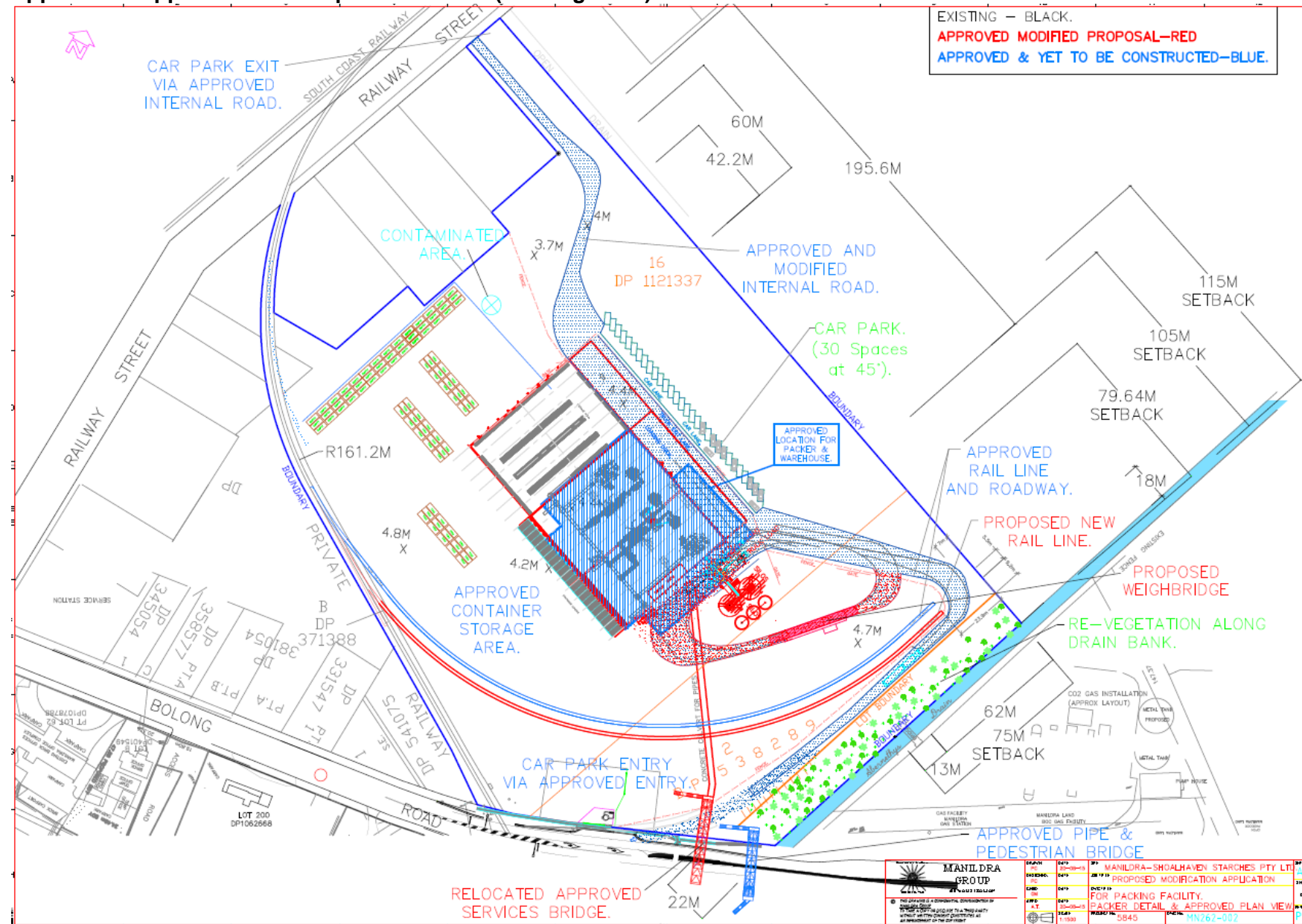
MANILDRA GROUP  
100% AUSTRALIAN

TITLE: MANILDRA GROUP  
LANDSCAPE SCREEN PLANTING  
SITE PLAN

PPLA	100% AUSTRALIAN
Peter Phillips Landscape Architecture	PROJECT: PROPOSED MODIFICATION TO DAIRY FACTORY MANILDRA GROUP NOWRA
LANDSCAPE PLAN	SCALE: 1:500 A1
DATE: Nov 2012	DESIGN: Peter Phillips



## Appendix C Approved Landscape Plan MOD 9 (Packing Plant)



EXISTING ESTABLISHED PLANT SCREENING & LANDSCAPE.

HANICANS LANE

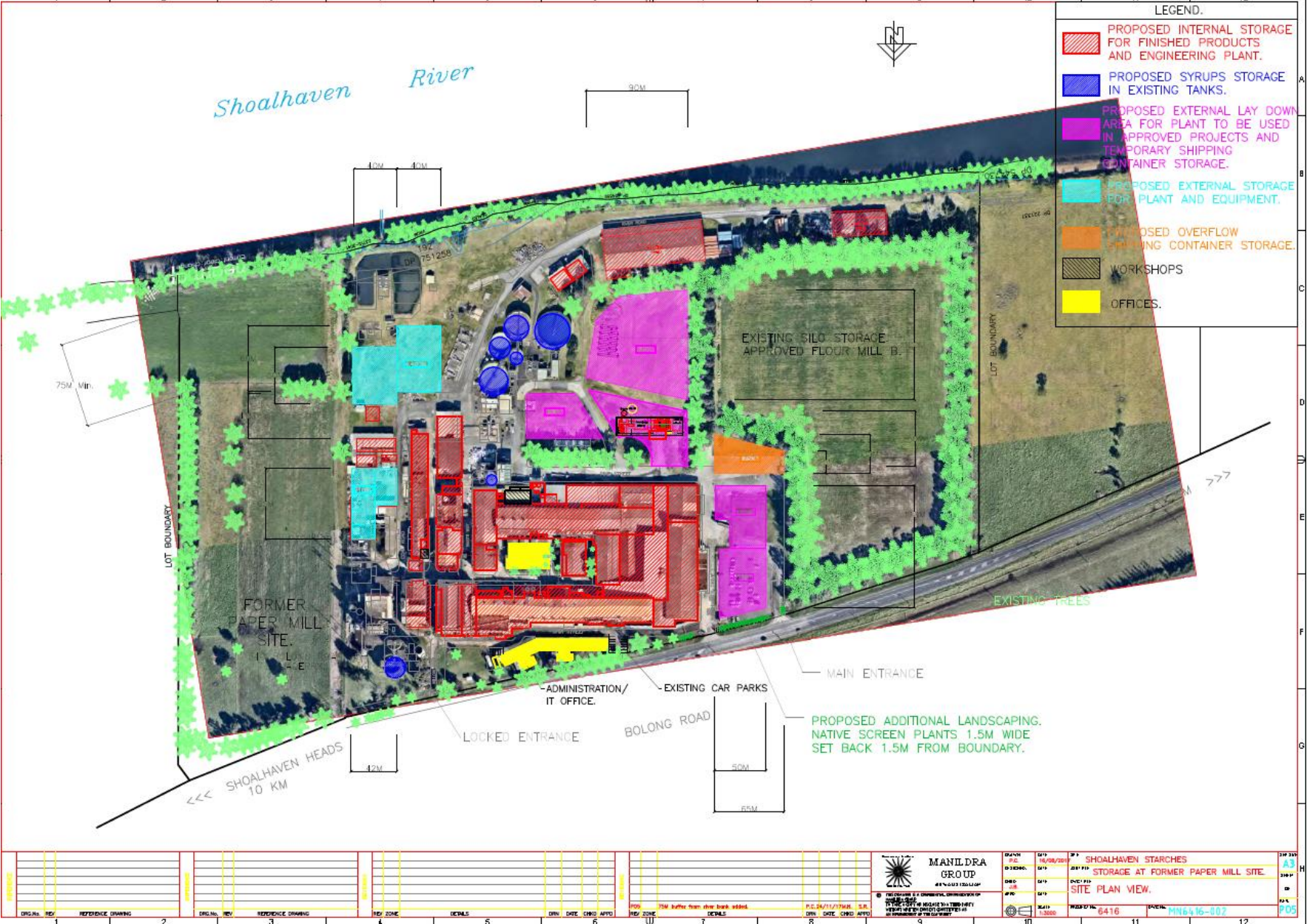
BOLONG RD.

nearmap

ESTABLISHING PLANT SCREENING & LANDSCAPE.

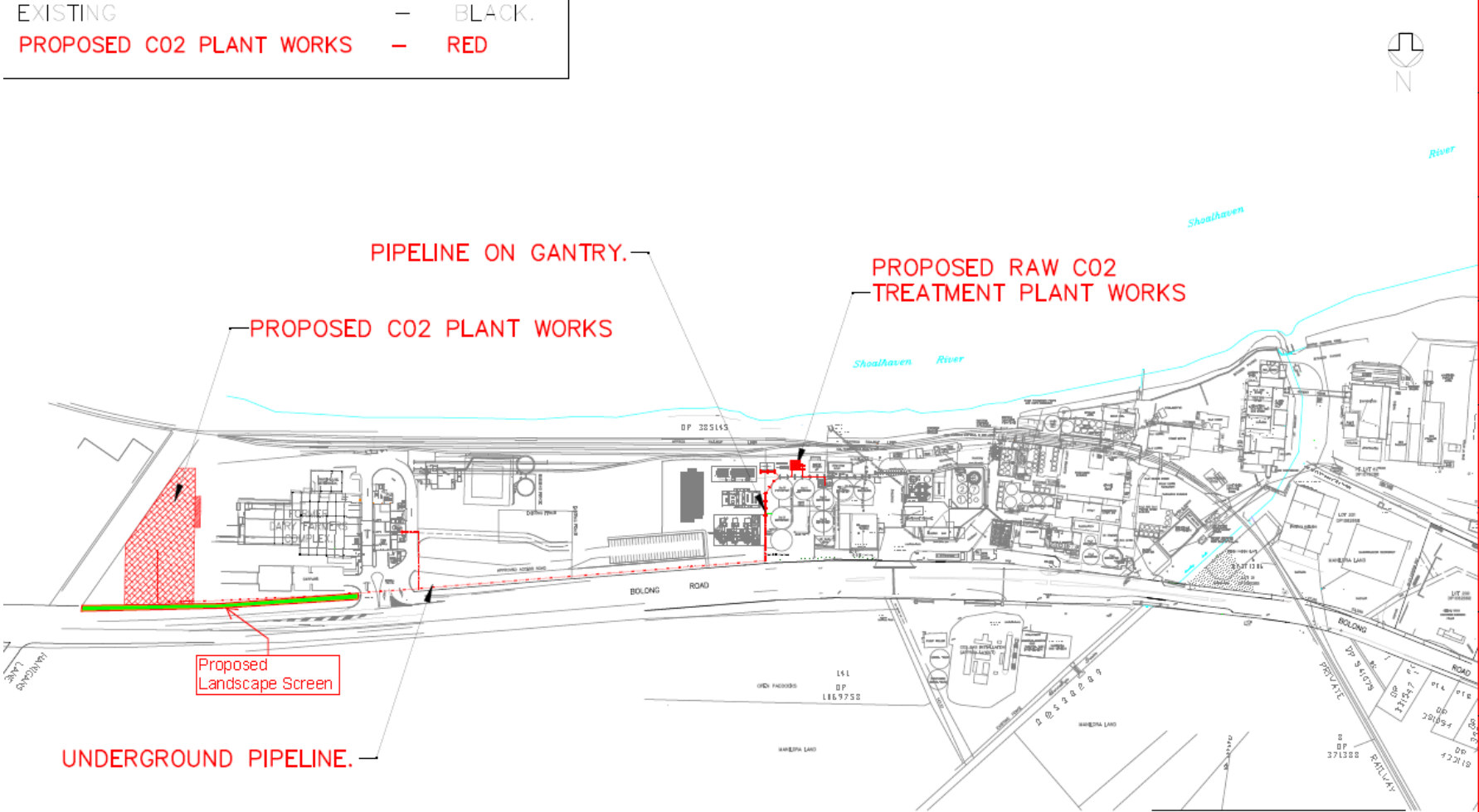


Appendix E Landscape Plan MOD 14 (Use of Paper Mill site)



Appendix F Landscape Plan MOD 15 (CO2 Plant)

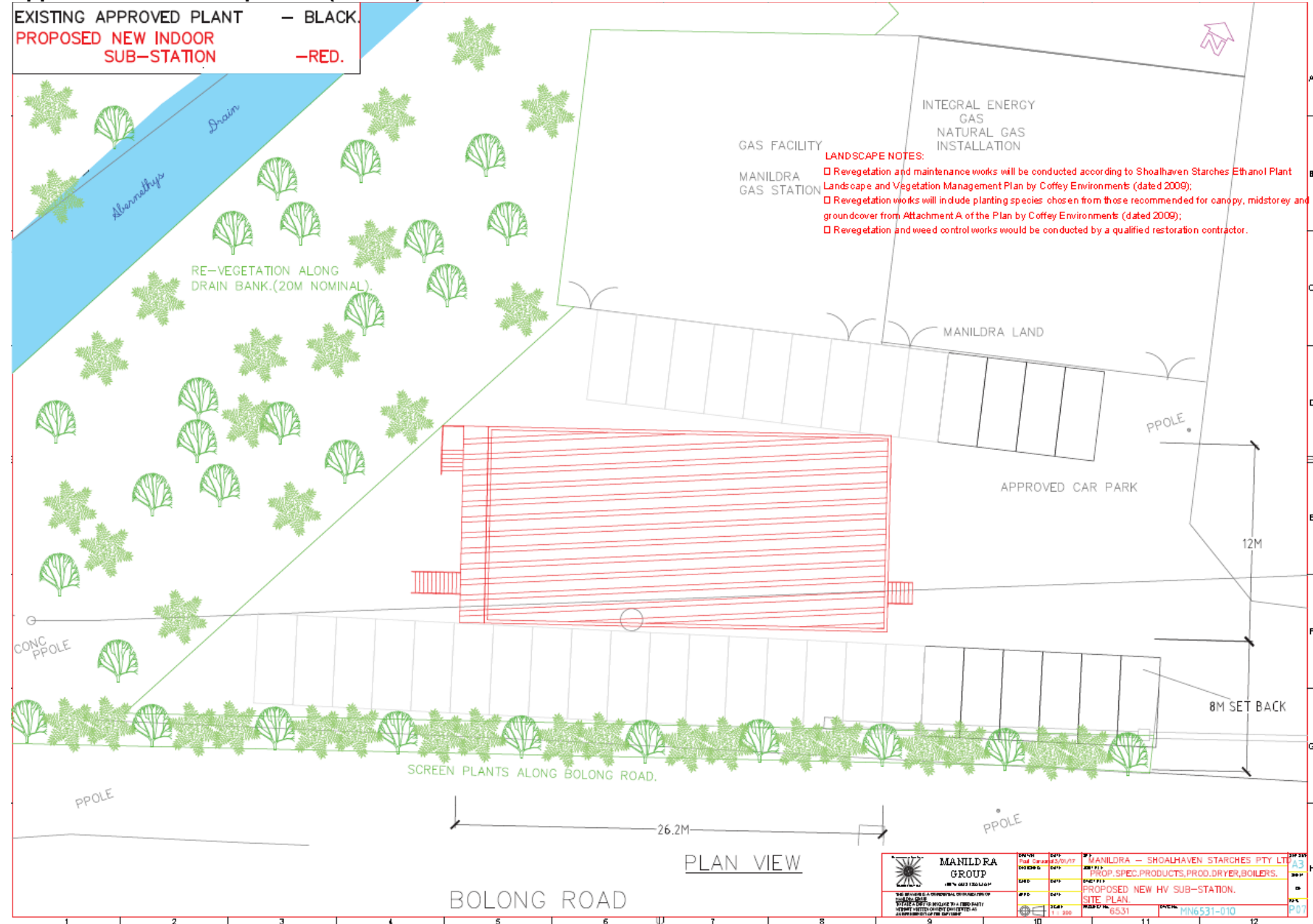
EXISTING	—	BLACK.
PROPOSED CO2 PLANT WORKS	—	RED



				 COMMITTED TO SUSTAINABILITY <b>MANILDRA GROUP</b> 100% AUSTRALIAN	DRAWN P.C.	DATE 29/03/18	JOB TITLE SHOALHAVEN STARCHES, BOMADERRY, NSW	SHT NO A3
					CHKD B.H.	DATE 29/03/18	DWG TITLE PROPOSED CO2 PLANT, SITE PLAN.	REV.
					APPD	DATE	PROJECT No. 6518	DWG No. MN6518-001
REV. ALL	PROPOSAL	P.C.	29/03/18	B.H.				
REV. ZONE	DETAILS	DRN	DATE	CHKD	APPD			P01



## Appendix G – Landscape Plan (MOD 16) Electrical Substation



## Appendix H – Evidence of Consultation

### Landscape and Vegetation Management Plan rev. 1.0.D

A copy of this plan has been submitted to David Zerafa at the NSW Department of Primary Industry – Office of Water (DPI) and Kay Murray at Shoalhaven City Council (Council) on 25<sup>th</sup> March 2019 seeking their comments.

At the date of finalising this plan (30-4-2019) no comments have been received from DPI or Council. Evidence of consultation and Council comments received on the 15th May 2019 are shown below.

Hi Andre,

Thanks for the feedback.

We have already submitted the revised plan to the Department of Planning for approval.

The Council recommendations will be incorporated into the next revision of the plan and sent to Council for comment.

Regards,

**John Studdert** | Quality Assurance & Environmental Coordinator  
160 Bolong Rd Bomaderry, NSW 2541  
P: +61 2 4423 8254 | M: 0417 209 851  
E: [john.studdert@manildra.com.au](mailto:john.studdert@manildra.com.au)  
[manildra.com.au](http://manildra.com.au)



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**From:** Andre Vernez [<mailto:Andre.Vernez@shoalhaven.nsw.gov.au>]  
**Sent:** Wednesday, 15 May 2019 1:43 PM  
**To:** John Studdert <[John.Studdert@manildra.com.au](mailto:John.Studdert@manildra.com.au)>  
**Cc:** Deana Burn <[Deana.Burn@planning.nsw.gov.au](mailto:Deana.Burn@planning.nsw.gov.au)>  
**Subject:** RE: Shoalhaven Starches Landscape & Vegetation Management Plan  
**Importance:** High

Good afternoon John,

Apologies for the delay in response.

In order to provide clear guidance to contractors and staff, Council recommends that the plan be updated to reflect the works already completed within each area by updating the management zone (i.e. Zone A, B or C) along with new proposed actions and implementation schedule to achieve the objectives of each zone.

Council also notes that bank stabilisation works have not been effective in some locations along the Shoalhaven River with large sections of bank being eroded by the river. An adaptive management strategy may be required in these locations and discussed in annual reports submitted to DPE.

If you require clarification of the matters raised within this email please contact me either via phone or email [council@shoalhaven.nsw.gov.au](mailto:council@shoalhaven.nsw.gov.au).

Regards,

**Andre Vernez**  
**Senior Development Planner**  
Shoalhaven City Council

02 4429 3111  
Bridge Rd (PO Box 42) Nowra NSW 2541  
[council@shoalhaven.nsw.gov.au](mailto:council@shoalhaven.nsw.gov.au)

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**RESPECT | INTEGRITY | ADAPTABILITY | COLLABORATION**

Hi David,

An updated Landscape & Vegetation Management Plan is required under condition 43 of Shoalhaven Starches Project Approval 06\_0228.

Condition 43 states:

The Proponent shall update the Vegetation Management Plan for the project as modified. This plan must:

- a. be prepared in consultation with DPI and Council;
- b. be approved by the Secretary prior to construction of each modification;
- c. be prepared in accordance with *DWE's Guidelines for Controlled Activities – Vegetation Management Plans*; and
- d. include:
  - a Landscape Plan for the project, which identifies screen plantings to minimise visual impacts, including additional planting between the DDG area and riverbank, and planting around the coal and woodchip stockpiles on the environmental farm;
  - detailed plans and procedures to:
    - restore and maintain the waterways and riparian zones of Shoalhaven River, Bomaderry Creek, Abemathy's Creek and Broughton Creek on the site;
    - manage weeds in the vicinity of the riparian zones;
    - integrate works into the proposed landscaping for the rest of the site;
    - manage impacts on fauna; and
    - monitor the performance of the proposed restoration works.

*Note: If a modification does not require an update of the plan, the Proponent shall provide written justification to the satisfaction of the Secretary.*

Please see attached Shoalhaven Starches Landscape & Vegetation Management Plan for your review and comments.

Please provide any comments back by 2<sup>nd</sup> April 2019.

Regards,

**John Studdert** | Quality Assurance & Environmental Coordinator  
160 Bolong Rd Bomaderry, NSW 2541  
P: +61 2 4423 8254 | M: 0417 209 851  
E: john.studdert@manildra.com.au  
[manildra.com.au](http://manildra.com.au)



## Landscape and Vegetation Management Plan rev. 1.0.E

A copy of this plan, rev. 1.0.E, was submitted to David Zerafa at the NSW Department of Primary Industry – Office of Water (DPI) and Shoalhaven City Council (Council) on 2<sup>nd</sup> March 2020 seeking their comments.

At the date of finalising this plan no comments have been received from DPI. Comments received from Council on the 26-3-20 are shown below. The landscaping notes have been added Table 5 and Appendix G of this plan.

**From:** Development <Development@shoalhaven.nsw.gov.au>  
**Sent:** Thursday, 26 March 2020 12:04 PM  
**To:** John Studdert  
**Subject:** RE: Shoalhaven Starches Landscape & Vegetation Management Plan update

**Importance:** High

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Good morning John,

Apologies for the delay in response.

Council recommends that notes be added to Table 5 and Appendix G of the submitted Plan (Revision No. 1.0.E, dated 02/03/2020) including:

- *Revegetation and maintenance works will be conducted according to Shoalhaven Starches Ethanol Plant Landscape and Vegetation Management Plan by Coffey Environments (dated 2009);*
- *Revegetation works will include planting species chosen from those recommended for canopy, midstorey and groundcover from Attachment A of the Plan by Coffey Environments (dated 2009);*
- *Revegetation and weed control works would be conducted by a qualified restoration contractor.*

If you require clarification of the matters raised within this email please contact me either via phone or email [council@shoalhaven.nsw.gov.au](mailto:council@shoalhaven.nsw.gov.au).

Regards,

**Andre Vernez**  
**Senior Development Planner**  
Shoalhaven City Council

02 4429 3111  
Bridge Rd (PO Box 42) Nowra NSW 2541  
[council@shoalhaven.nsw.gov.au](mailto:council@shoalhaven.nsw.gov.au)

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**RESPECT | INTEGRITY | ADAPTABILITY | COLLABORATION**

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**From:** John Studdert <John.Studdert@manildra.com.au>  
**Sent:** Monday, 2 March 2020 3:35 PM  
**To:** Council Email <Council@shoalhaven.nsw.gov.au>  
**Cc:** Andre Vernez <Andre.Vernez@shoalhaven.nsw.gov.au>; Brian Hanley <brian.hanley@manildra.com.au>; Ming Leung <ming.leung@manildra.com.au>  
**Subject:** Shoalhaven Starches Landscape & Vegetation Management Plan update

Dear Andre,

An updated Landscape & Vegetation Management Plan is required under condition 43 of Shoalhaven Starches Development Consent 05\_0228 for each modification (MOD)

Condition 43a of the consent states the plan '*must be prepared in consultation with DILW and Council*'.

In accordance with condition 43a, please see attached Shoalhaven Starches Landscape & Vegetation Management Plan, Rev. 1.0.E, updated to include MOD 16 (including a track changes copy)

Please provide any comments back via email by Friday 13<sup>th</sup> March 2020.

Regards,

**John Studdert** | Quality Assurance & Environmental Coordinator  
160 Bolong Rd Bomaderry, NSW 2541  
P: +61 2 4423 8254 | M: 0417 209 851  
E: [john.studdert@manildra.com.au](mailto:john.studdert@manildra.com.au)  
[manildra.com.au](http://manildra.com.au)

