CONCEPT PLAN
(VOLUME 1)

Employment Lands
(Huntingwood West)

for Landcom

LANDCOM
Creating Better Communities

November 2006

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(VOLUME 1)

Employment Lands (Huntingwood West)

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28 November, 2006

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TABLE OF CONTENTS

FIGURES

APPENDICES

See also

VOLUME 2 Environmental Assessment

VOLUME 3 Supporting Documents

1. PROJECT VISION

"Huntingwood West will become a state of the art green employment estate with a strong connection to the Western Sydney Parklands, incorporating best practice urban design and environmentally sustainable initiatives."

***Figure 1**: Artist's impression of the Employment land vision*

It will deliver a high quality employment estate that:

- Provides for a diverse range of employment opportunities to deliver up to 800 new jobs;
- Offers a seamless transition from the Western Sydney Parklands into the employment zone;
- Requires new buildings to seek excellence in architectural design;
- Features best practice Water Sensitive Urban Design schemes including a new wetland for the Parklands;
- Builds biodiversity by requiring Cumberland Plain Woodland landscape elements and contributing to revegetation in the adjoining Parklands;
- Provides extensive landscaping that enhances visual amenity to adjoining roads; and
- Offers excellent accessibility and connectivity to Sydney's regional road network, the adjoining employment zones and the Parklands.

To ensure efficient delivery of business and employment opportunities to Western Sydney, this Concept Plan will deliver a scheme attractive to smaller and larger scale enterprises.

2. THE CONCEPT

The principles underpinning this Concept Plan are:

- To deliver 'world's best practice';
- To create a high quality interface with the parklands;
- To provide future employees with a unique and pleasant working environment with easy access to Parkland facilities;
- To promote architectural excellence through a set of development design controls that apply to future development; and
- To promote easy access to the development.

The proposed subdivision (See **Appendix A**) is a result of a comprehensive analysis capitalising on the site's opportunities, on its proximity to the Western Sydney Parklands and Sydney's major transport network being the M7 and M4 motorways.

A number of subdivision layout options were explored as part of the planning exercise and these are presented in **Appendix B** of this Volume.

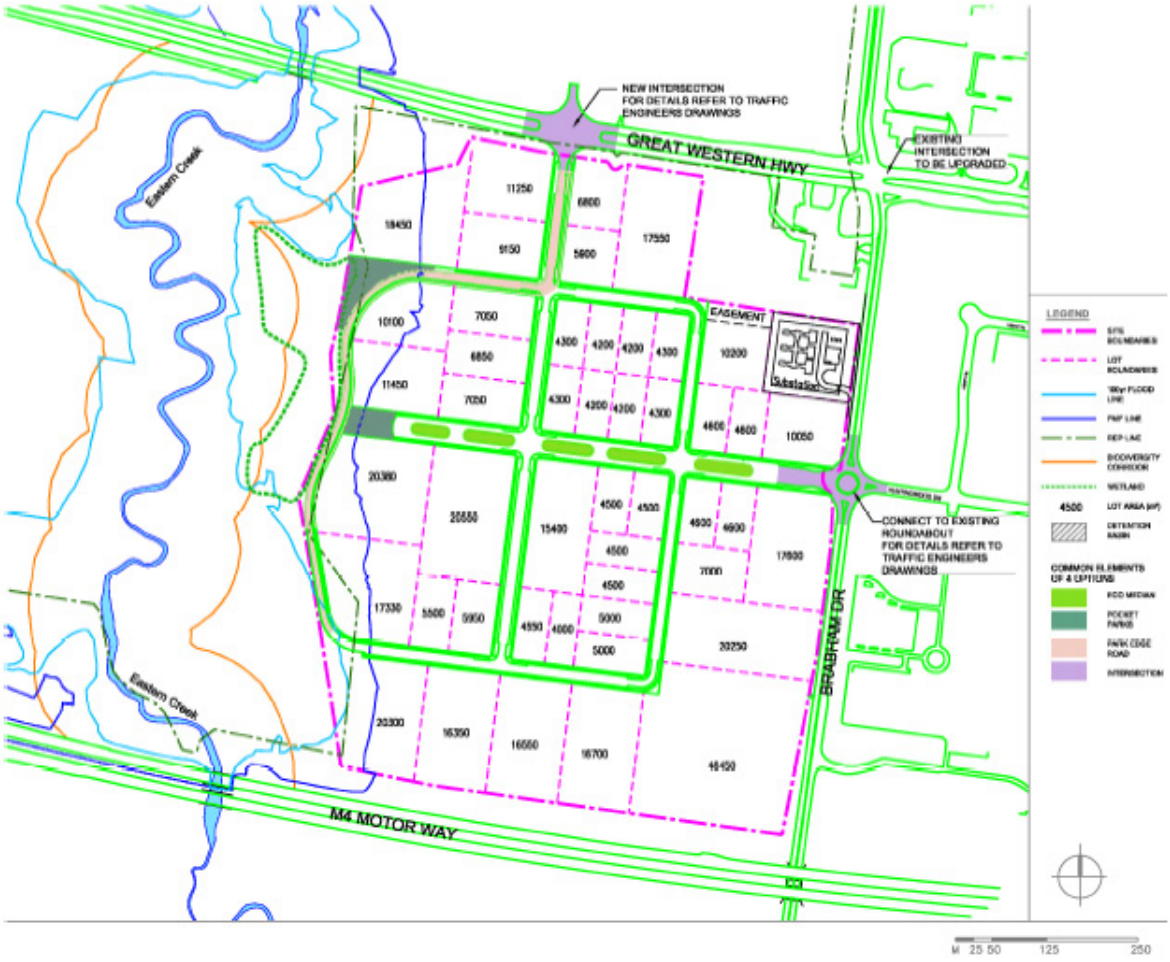


Figure 2 *Proposed subdivision plan*

3. KEY ELEMENTS

The following are the key elements proposed in the Concept Plan that will ensure the principles outlined in Section 1 are met.

3.1 GREAT WESTERN HIGHWAY CONNECTION (accessibility and connectivity)

A new four way intersection will be built on the Great Western Highway.

The new intersection will:

- Provide access to both the Huntingwood West Employment Land and the Western Sydney Parklands located to the north and south of the Great Western Highway;
- Improve performance of the existing Great Western Highway/Brabham Drive intersection; and
- Provide a safe and convenient pedestrian and cycle crossing connecting the Parklands areas located north and south of the highway.

3.2 ACCESS THE EXISTING BRABHAM DRIVE ROUNDABOUT (accessibility and connectivity, urban character, minimisation of environmental impacts)

An east-west collector road that connects to Brabham Drive at the existing roundabout with Huntingwood Drive, will:

- Provide site accessibility and connectivity to and from the existing industrial zone (east of the site);
- In conjunction with the new intersection on the Great Western Highway, reduce the traffic impacts on the existing intersection: Great Western Highway / Brabham Drive;
- Feature an eco-median that incorporates stormwater management within a landscape setting – i.e. an eco-median road;
- Create green streetscapes with strong visual identity, retaining existing trees and supporting an integrated network of access links catering for pedestrian and cycle links; and
- Create a visual corridor to the Parklands.

3.3 ECO-MEDIAN (urban character, minimisation of environmental impacts)

A 14.5 m wide central eco-median is proposed along the main road (east-west) that connects the site to the existing Brabham Drive roundabout.

The eco-median:

- Provides an opportunity to retain existing vegetation within the public domain to preserve biodiversity and maximise site amenity;
- Reinforces the 'green' character of the proposed employment estate;
- Forms part of the integrated landscape and WSUD strategy – bio retention system treating stormwater discharge from the site and the industrial upstream catchment;
- Brings the Parklands into the employment estate, providing a seamless transition between the landscaping and the Parklands vegetation.

***Figure 3**: Artist's impression of the proposed Eco-median*

3.4 PARK EDGE ROAD
(interface, accessibility and connectivity)

Its sinuous layout is deliberate and represents a transition between an active employment environment and more natural and contemplative surroundings.

The proposed park edge road will be limited to cars and light vehicles only, thus creating an appropriate interface with the Western Sydney Parklands.

Development Design Controls (DDC) have been designed to avoid the 'back of house' facing the internal roads and to encourage high quality facades presented to the Parklands.

***Figure 4:** Section through the Park Edge Road and proposed wetland*

3.5 WETLAND SYSTEM
(interface, minimisation of environmental impacts)

The principle consideration in the design of the drainage network is the integration and relationship with the Western Sydney Parklands.

The stormwater management strategy consists of gross pollutant traps (GPT's) and a downstream, off-site constructed wetland. The stormwater strategy is fully integrated with the landscape strategy.

GPT's will take the form of 'precinct parks' (three) located within the development. These will:

- retain gross pollutants;
- reduce the suspended solids load; and
- balance flood detention requirements.

The wetland was identified as an ideal feature of the Western Sydney Parklands, providing a suitable interface with the Parklands.

The wetland will:

- Protect water quality and provide flood storage;
- Overcome the higher risk of damage to on-site measures such as street scale bio retention systems in an industrial precinct;
- Provide a cost effective way to meet flood storage requirements to minimise post development stormwater discharge impacting Eastern Creek;
- Provide the potential to treat stormwater runoff from the site and adjoining industrial upstream catchments that drain through the site; and
- Provide passive recreational opportunities for employees.

The proposed subdivision is complemented by a robust landscape design (Appendix B) that responds to the opportunities of both the site and the Parklands.

The Western Sydney Parklands provides not only a parkland environment for 'Huntingwood West' but a 27km linear link to other areas of Western Sydney, ie pedestrian and cycle-based links for employees. At both a commuter and recreational level the Parklands provide a unique opportunity to promote healthy workers and healthy working environments.

Critical to this parkland association is the proposed extension of the ecological corridor vegetation into the streetscapes and eco-median of the main boulevard. The Parkland literally has finger extensions into the employment lands, as wildlife/bird conduits, as cycle and walkway conduits, as conduits of recreational and ecological expression into the employment zone.

Water from the site is expressed in swales and wetlands which provide best practice treatment prior to water entering Eastern Creek, safeguarding the emergent ecologies of the creek line and creating a landscape aesthetic which is informed by the creek line itself.

Consistent with 'working in the park' significant vegetative buffers are in place along the M4 and Great Western Highway boundaries so that buildings will always be viewed through a foil of significant fully structured plantings, and where both backdrop and foreground will always be expressed in the strongly vegetated form of 'the park'.

4. DRAFT STATEMENT OF COMMITMENTS

4.1 A DEVELOPMENT DESIGN CONTROL DOCUMENT

This Concept Plan commits to providing a DDC, in full, that provides details of the Concept Plan as follows:

4.1.1 Employment development

This Concept Plan commits to:

- A best practice employment zone that capitalises on its parkland setting incorporating quality design and environmental measures;
- Requiring excellence in architectural design to promote state of the art built form for high job creation industries;
- Creating an employment zone that has a high quality public domain integrating landscape treatments and built form; and
- Diverse land use opportunities through the provision of a range of lot sizes.

4.1.2 Relationship to the Western Sydney Parklands

This Concept Plan commits to:

- A green employment area that integrates with and builds the biodiversity values of the adjoining Western Sydney Parklands;
- A seamless transition through ecological, visual and access linkages from the Western Sydney Parklands to employment development;
- Providing an open space network in the form of wide verges, an eco-median and nominated on-site landscaping that connects to the Parklands.

4.1.3 Urban design

This Concept Plan commits to a set of Development Design Controls to which future development must adhere. This document has been based on a rigorous and thorough analysis of the site and its context, Western Sydney Parklands Ideas Competition and a review of high quality employment designs elsewhere.

This Concept Plan commits to the following urban design principles:

- High quality public domain with generous landscaping and well designed buildings addressing the street and the Parklands;
- Landscaped building set backs that flow onto the park;
- An Urban Footprint that allows for view lines into and out of the Parklands via landscaped fingers; and
- Water Sensitive Urban Design initiatives.

This Concept Plan commits to a design outcome creating a leading-edge employment development.

4.1.4 Landscaping

This Concept Plan commits to:

- Generously landscaped public domain that links to the Parklands in accordance with the Landscape Plan and specifications in the DDC;
- The planting of Cumberland Woodland species to promote the biodiversity values within the Parklands;
- Ensuring landscape treatments conform to Water Sensitive Urban Design principles;
- Preserving mature trees and landscaping features where practicable;
- Providing shade along pedestrian pathways and streets through the planting of street and park trees;
- Creating safe and open spaces that are overlooked by active building frontages;
- Minimising water usage and maintenance by selecting hardy drought tolerant native species, including those listed in the Sydney Water Plant Selector;
- Selecting plants that are non-invasive or indigenous;
- Treating stormwater through landscape techniques such as the wetland, eco-median, bio-retention systems and landscaped swales;
- Requiring foot and cycle paths as an integrated part of the open space network, and
- Requiring landscaping that can be easily maintained.

4.1.5 Utilities infrastructure

This Concept Plan commits to:

- The provision of the site for a new electrical substation that meets the needs of Integral Energy;
- Providing and funding all on site infrastructure and services; and
- Ensuring sufficient land is provided within road reserves for utilities. Land dedicated to Council will be at no cost to Council.

4.1.6 Traffic and transport

This Concept Plan commits to:

- The construction of a Park Edge Road;
- The construction of a new road into the site from the existing roundabout at Brabham Drive;

- The construction of a new intersection on the Great Western Highway that provides access to Huntingwood West and the Parklands;
- The construction of an internal road network in accordance with the DDC and current Blacktown Council standards; and
- Payment of a monetary contribution for local and regional roads as agreed with the RTA.

4.1.7 Stormwater management

This Concept Plan commits to:

- Constructing stormwater management controls to ensure that development does not result in any net impact on the water quality or quantity of Eastern Creek;
- Ensuring stormwater management is facilitated by best practice Water Sensitive Urban Design measures;
- Constructing an east west eco-median road that manages stormwater and improves water quality;
- Requiring 1.19 hectares of drainage reserve that are linked to the Western Sydney Parklands and the street network; and
- Requiring landscaped swales and/or bio-retention systems to manage stormwater in secondary roads.

4.2 A PUBLIC CONSULTATION PROCESS

This Concept Plan commits to a public consultation process that:

- Provides a Concept Plan built upon the results of the Western Sydney Parklands Ideas Competition to address interface design with the Parklands; and
- Provides information updates on a publicly accessible website (www.westernsydneyparklands.com.au) to keep the community informed of progress.

4.3 WETLAND

This Concept Plan commits to:

- Provision of a wetland landscape feature for the Parklands that incorporates a pedestrian access link between the Parklands and Huntingwood West.

4.4 DESIGN REVIEW PANEL

This Concept Plan commits to:

- The establishment of a Design Review Panel including representatives from Department of Planning, Blacktown City Council and Landcom. The panel will assess future development proposal to ensure consistency with the proposed Development Design Controls.

4.5 WATER SENSITIVE URBAN DESIGN

This Concept Plan commits to:

- The implementation of best practice Water Sensitive Urban Design measures; and
- Design of WSUD elements (i.e eco-medians) to comply with Council's requirements.

4.6 ENVIRONMENTAL MANAGEMENT PLAN

This Concept Plan commits to:

- The preparation of an Environmental Management Plan to address environmental mitigation measures including: salinity, soil erosion and sediment control, archaeological investigation, land filling protocols, air and water quality, noise attenuation and safety.

4.7 VEGETATION OFFSET STRATEGY

This Concept Plan commits to:

- A monetary contribution to the Parklands Trust that offsets the removal of 5.6 hectares of Cumberland Plain Woodland within Huntingwood West.

4.8 MEETING BLACKTOWN COUNCIL SPECIFICATIONS

This Concept Plan commits to:

- The design of roads and water sensitive urban design features to meet Blacktown Council's current specifications.

4.9 RUDDERS LANE

This Concept Plan commits to:

- Provide interpretative features to reinforce the original scenic qualities of the former Rudders Lane.

APPENDIX A
Proposed Subdivision Plans

APPENDIX B
Subdivision layout options

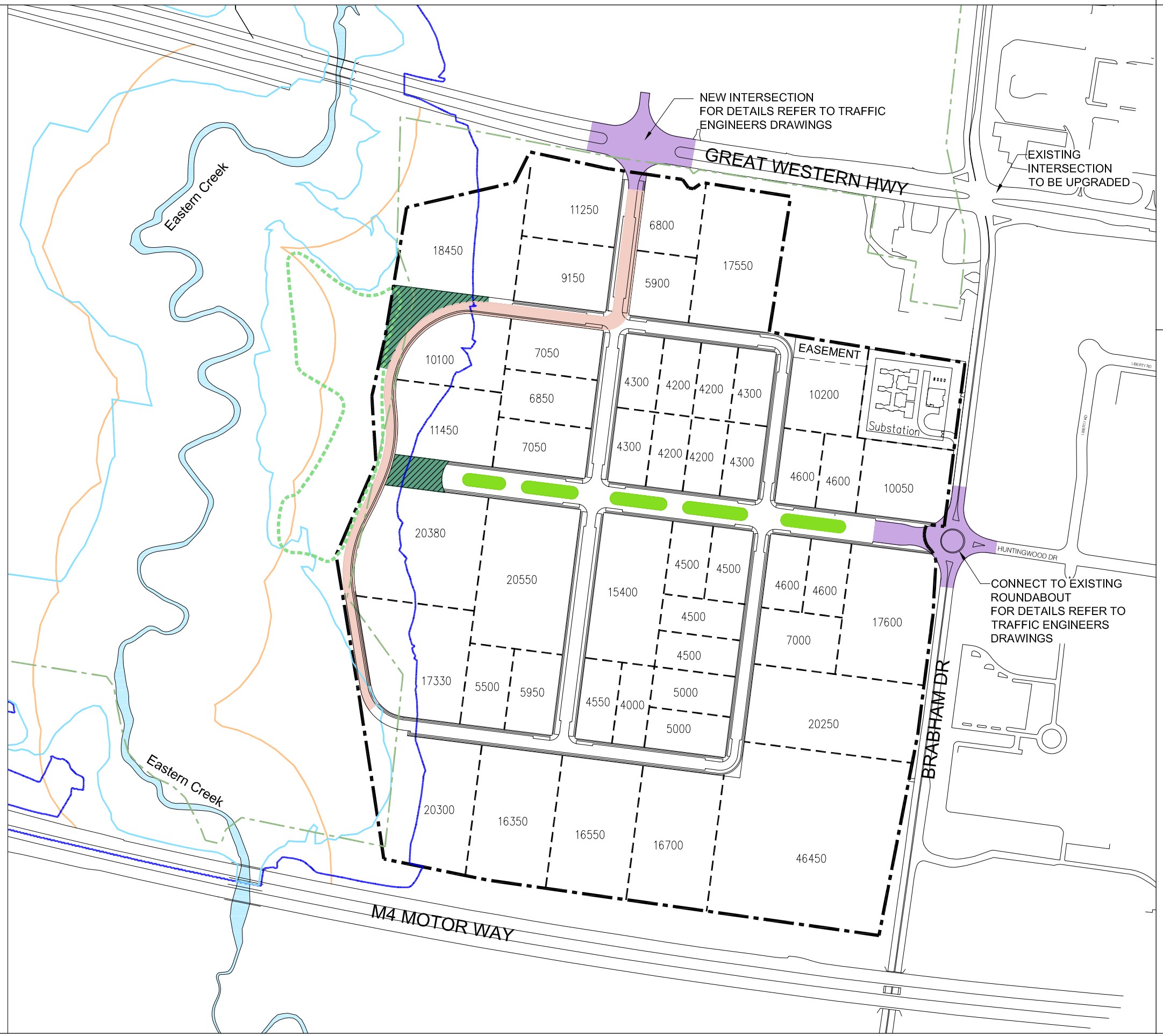
APPENDIX C
Development Design Controls

APPENDIX A
PROPOSED SUBDIVISION PLANS

APPENDIX A
Proposed Subdivision Plans

OPTION 3 – SMALL LOTS

	AREA (sqm)
TOTAL	568469
DEVELOPABLE AREA	467330
ROAD AREA	81050
SUBSTATION AREA	13200
OPEN SPACE	6889
	No.
LOT 0.4–1ha	31
LOT 1–2ha	12
LOT >2ha	4
	No.
STREET CAR PARK	660



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LEGEND

- SITE BOUNDARIES
- LOT BOUNDARIES
- 100yr FLOOD LINE
- PMF LINE
- REP LINE
- BIODIVERSITY CORRIDOR
- WETLAND
- 4500 LOT AREA (m²)
- DETENTION BASIN

COMMON ELEMENTS OF 4 OPTIONS

- ECO MEDIAN
- POCKET PARKS
- PARK EDGE ROAD
- INTERSECTION

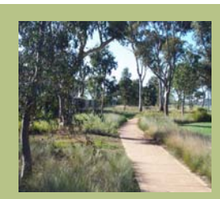
BUNGARRIBEE PRECINCT

M 25 50 125 250

DATE **21 November 2006** | Prepared for **DOP LANDCOM** | HUNTINGWOOD WEST PROPOSED SUBDIVISION PLAN | Scale 1:5000 @ A3 | Drawing No. 2203 | Revision I

Legend

- Huntingwood West Precinct
- Existing contours
- Building setback & Indicative Asset Protection Zone
- Existing trees
- Proposed Regional Path
- 1 in 100 year flood line
- Street tree mix - Entry planting
- Street tree mix - Bio Median Road
- Street tree mix - Collector Road
- Street tree mix - Park Edge Road
- Street tree - Circulation Road
- Accent planting
- Verge planting
- Carparking planting
- Private open space - planting
- Private open space - paving
- Wetland planting
- Wetland planting
- Detention basin planting
- Buffer planting
- Turf
- Open water
- Road
- Carparking
- Footpath



HUNTINGWOOD WEST INDUSTRIAL ESTATE TYPICAL PLANT SCHEDULE
Based on Cumberland Plain Woodland Species

Botanical Name	Common Name	Height	Spacing
TREES			
Angophora floribunda	Rough-barked Apple	15000	Copse
Eucalyptus amplifolia	Cabbage Gum	30000	Copse
Eucalyptus fibrosa	Red Ironbark	20000	Copse
Eucalyptus moluccana	Grey Box	25000	Copse
Eucalyptus crebra	Narrow Leaved Ironbark	15000	Copse
Eucalyptus tereticornis	Forest Red Gum	15000	Copse
Melaleuca decora		15000	Copse
Melaleuca nodosa	Melaleuca	2000	Copse
Melaleuca styphelioides	Prickly-leaved Paper-bark	8000	Copse
Tristaniopsis laurina	Water Gum	10000	Copse
SHRUBS			
Acacia falcata	Hickory Wattle	2500	2000
Acacia ulicifolia	Prickly Moses	1500	1200
Bursaria spinosa var.spinosa		1000	800
Chloris ventricosa	Plump Windmill Grass	1000	800
Davesia ulicifolia	Gorse bitter pea	2000	1500
Daviesia genistifolia		1500	1200
Daviesia ulicifolia		1500	1200
Dichelachne micrantha	Shorthair Plumegrass	1200	1000
Dillwynia juniperina		1500	1000
Dillwynia parvifolia		1000	800
Dillwynia sieberi		1000	800
Dodonaea viscosa ssp.cuneata	Wedge leaf Hopbush	1000	800
Echinopogon caespitosus	Bushy Hedgehog-grass	1500	1000
Grevillea juniperina	Juniper-leaf Grevillea	1000	800
Kunzea ambigua	White Kunzea	3000	2000
Lomandra longifolia	Spiny-headed mat-rush	1000	500
Pultenaea microphylla		2000	1000
Pultenaea parvifolia		1000	800
RIPARIAN			
(Refer also to WSUD Strategy Report)			
Alisma plantago-aquatica	Water plantain	300	200
Casuarina glauca	Swamp oak	20000	Copse
Carex appressa	Tall Flat Sedge	700	500
Carex gaudichadiana	Tufted sedge	400	300
Gahnia aspera	Rough Saw-sedge	1000	600
Juncus kraussii ssp.australiensis	Sea Rush	500	250
Juncus usitatus	Common Rush	800	300
Melaleuca styphelioides	Prickly-leaved Paper-bark	8000	Copse
Schoenoplectus validus		600	400
GROUNDCOVERS			
Dianella longifolia var.longifolia	Pale Flax Lily	600	400
Dianella 'Silver'	Silver Flax Lily	500	400
Dianella revoluta	Flax lily	1000	400
Hardenbergia violacea	Native sarsaparilla	200	300
Clematis glycinoides	Forest clematis	Climber	400
GRASSES			
Poa labillardieri	Tussock Grass	900	400
Eragrostis elongata	Clustered Lovegrass	800	300
Danthonia tenua	Elvera 'Lavender Grass'	800	300
Microlaena stipoides var. stipoides	Weeping Grass	400	250
Themeda australis	Kangaroo Grass	1000	500
Wahlenbergia gracilis	Native Blue Bell	200	100

REFERENCES

CONSULTANT	DRAWING ID	DATE OF ISSUE
Architectus	WH-park edge-wetland.section	17.08.06
Architectus	WH-street-sections	17.08.06
Architectus	masterplan	17.08.06
Ecological Engineering	WestHuntingwood_RB_ footprint	11.08.06

29.11.2006	I	Client Changes
28.11.2006	D	Client Changes
23.11.2006	C	Client Changes
21.09.2006	B	Client Changes
15.09.2006	A	100% Additional Option

Project: Huntingwood West

Client: Department of Planning NSW and Landcom

Drawing: Masterplan Option 3

BOTANICAL-INDUSTRIAL

Masterplan - small lot subdivision Option Three

Huntingwood West

Department of Planning NSW and Landcom

0 50 100 150 200 250 m

NOTES

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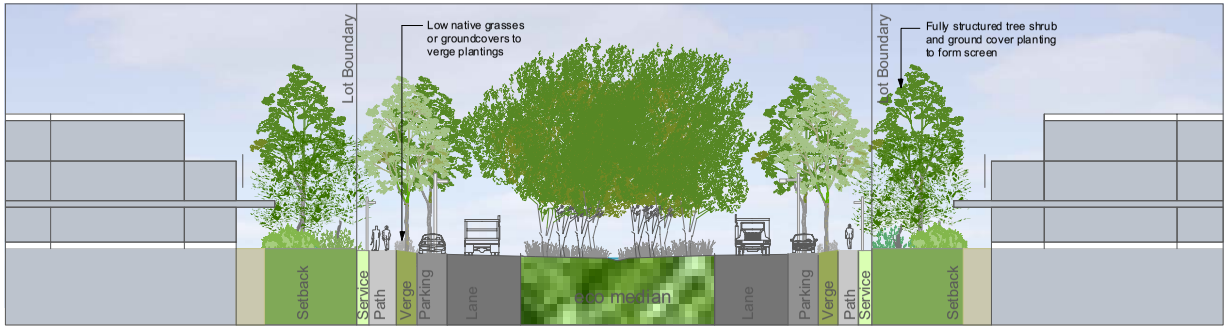

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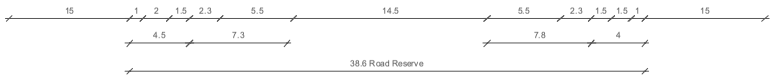
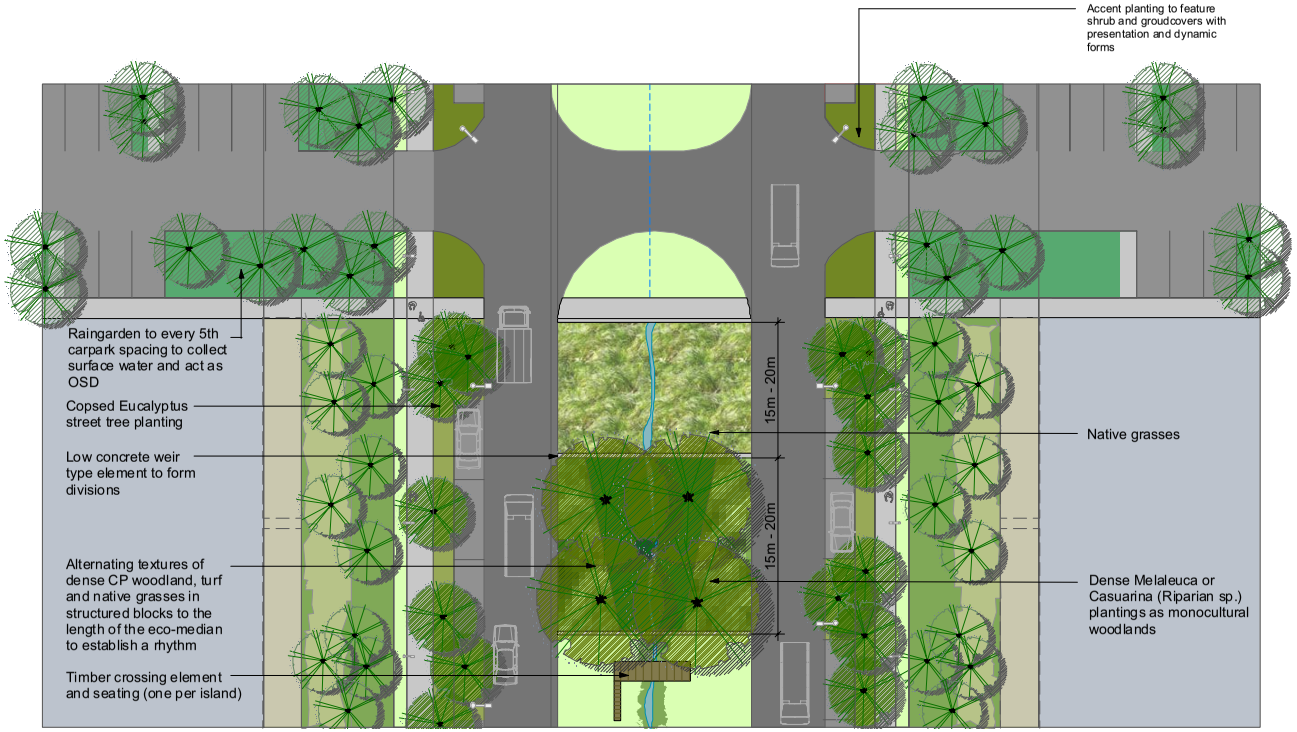


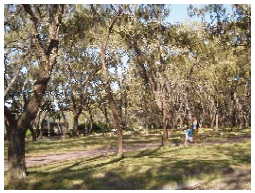


Plan

View of streetscape

Legend

- Feature tree
- Street tree
- Accent planting
- Verge planting
- Raingarden carparks
- Private open space - planting
- Private open space - paving
- Bio-median planting - trees
- Bio-median planting - native grasses
- Turf
- Road
- Carparking
- Footpath



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14.09.2006	G	Client Changes
13.09.2006	F	Client Changes
01.09.2006	E	100% complete
30.08.2006	D	Client Issue and Review
21.08.2006	C	Client Issue
17.08.2006	B	Client Issue
16.08.2006	A	Client Issue

Project: Huntingwood West

Client: Department of Planning NSW and Landcom

Drawing: Landscape Plan - Eco Median Road

Landscape Plan - Eco Median Road

Huntingwood West

Department of Planning NSW and Landcom

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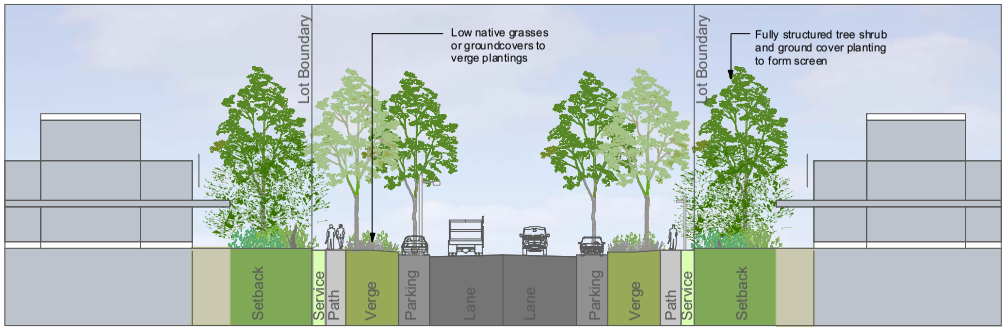

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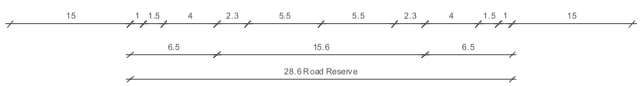

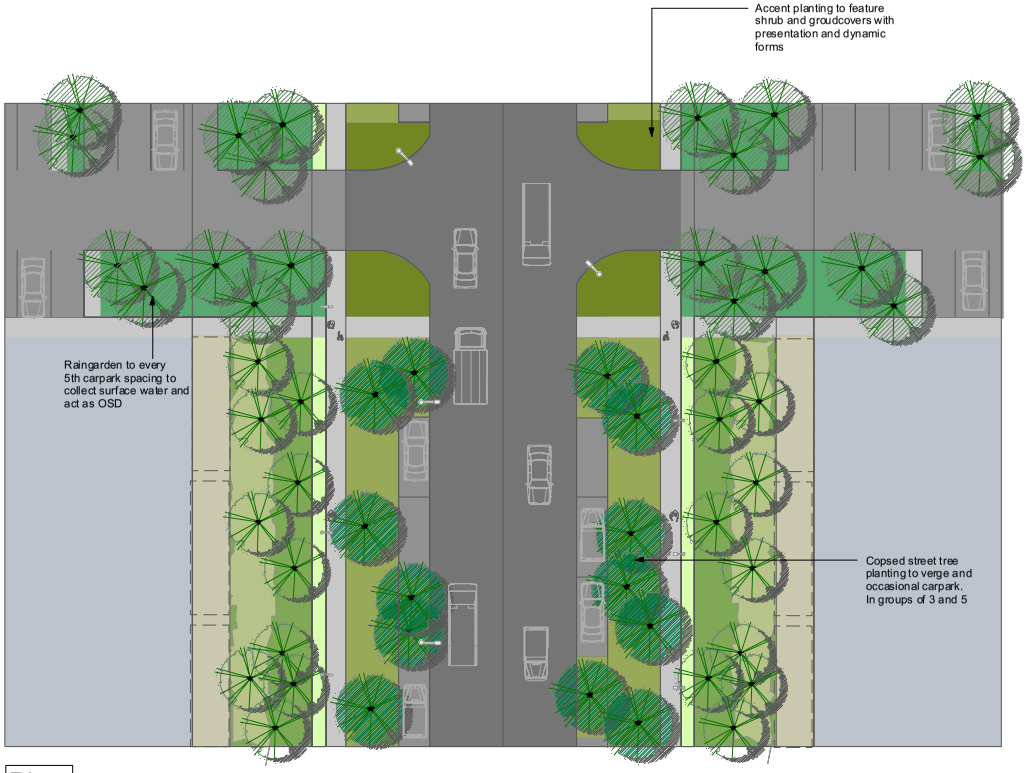

Plan

Legend

- Street tree
- Accent planting
- Verge planting
- Raingarden carparks
- Private open space - planting
- Private open space - paving
- Turf
- Road
- Carparking
- Footpath

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Project: Huntingwood West

Client: Department of Planning NSW and Landcom

Drawing: Landscape Plan - Collector Road

Landscape Plan - Collector Road

Huntingwood West

Department of Planning NSW and Landcom

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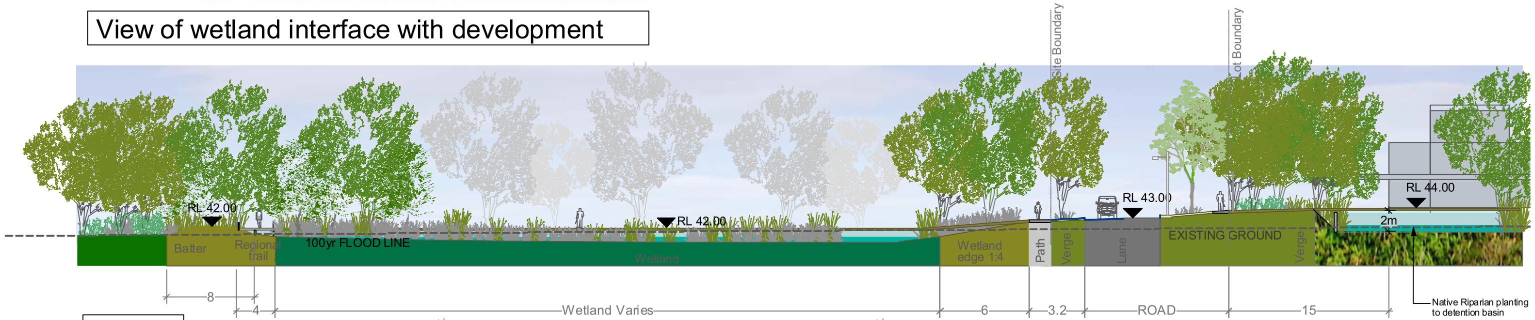
View of wetland interface with development

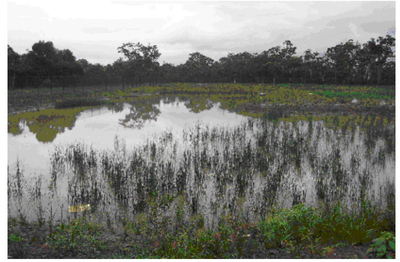


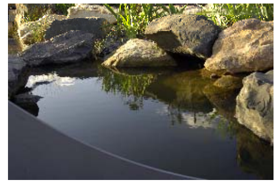
Section

Plan

Legend

- Proposed tree
- Street tree
- Accent planting
- Verge planting
- Raingarden carparks
- Private open space - planting
- Private open space - paving
- Wetland planting
- Detention basin planting
- Turf
- Open Water
- Road
- Carparking
- Footpath
- Timber boardwalk
- Regional Trail





REFERENCES

CONSULTANT	DRAWING ID	DATE OF ISSUE
Architectus	WH-park edge-wetland.section	17.08.06
Architectus	WH-street-sections	17.08.06
Architectus	masterplan	17.08.06
Ecological Engineering	WestHuntingwood_RB_ footprint	11.08.06

21.09.2006	H	Client Changes
14.09.2006	G	Client Changes
13.09.2006	F	Client Changes
01.09.2006	E	100% complete
30.08.2006	D	Client Issue and Review
21.08.2006	C	Client Issue
17.08.2006	B	Client Issue
16.08.2006	A	Client Issue

Project: Huntingwood West

Client: Department of Planning NSW and Landcom

Drawing: Landscape Plan - Park Edge Road

Landscape Plan - Park Edge Road

Huntingwood West

Department of Planning NSW and Landcom

NOTES

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SUNSHINE COAST

ASIA
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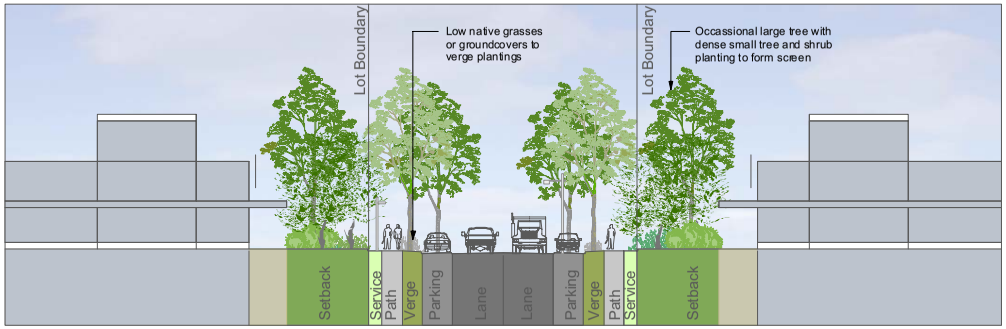
Scale	1:500@A3
Project No.	06047
Drawn	MS

SK07H

A.B.N. 37 003 886 306 QA 2-12(1)N



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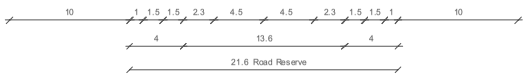

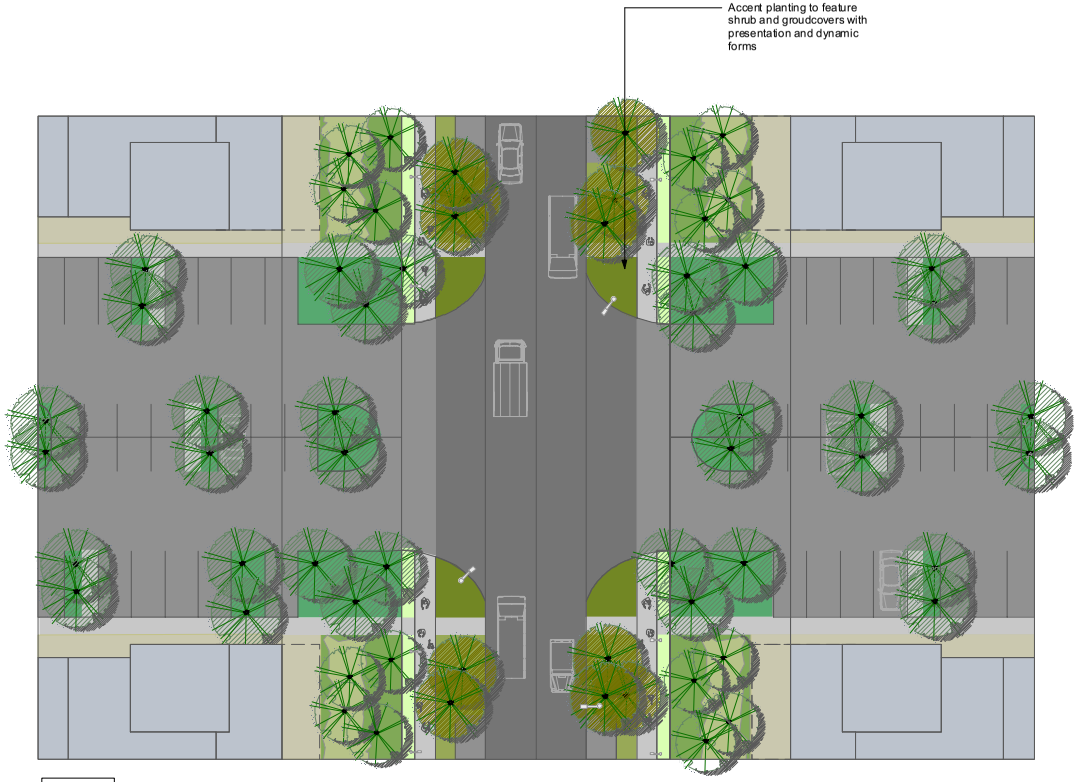

Plan

Legend

- Street tree
- Accent planting
- Verge planting
- Raingarden carparks
- Private open space - planting
- Private open space - paving
- Turf
- Road
- Carparking
- Footpath

REFERENCES

CONSULTANT	DRAWING ID	DATE OF ISSUE
Architectus	WH-park edge-wetland section	17.08.06
Architectus	WH-street-sections	17.08.06
Architectus	masterplan	17.08.06
Ecological Engineering	WestHuntingwood_RB_ footprint	11.08.06

21.09.2006	H	Client Changes
14.09.2006	G	Client Changes
13.09.2006	F	Client Changes
01.09.2006	E	100% complete
30.08.2006	D	Client Issue and Review
21.08.2006	C	Client Issue
17.08.2006	B	Client Issue
16.08.2006	A	Client Issue

Project	Huntingwood West
Client	Department of Planning NSW and Landcom
Drawing	Landscape Plan - Circulation Road

Landscape Plan - Local Road

Huntingwood West

Department of Planning NSW and Landcom

0 5 10 15 20 m

NOTES

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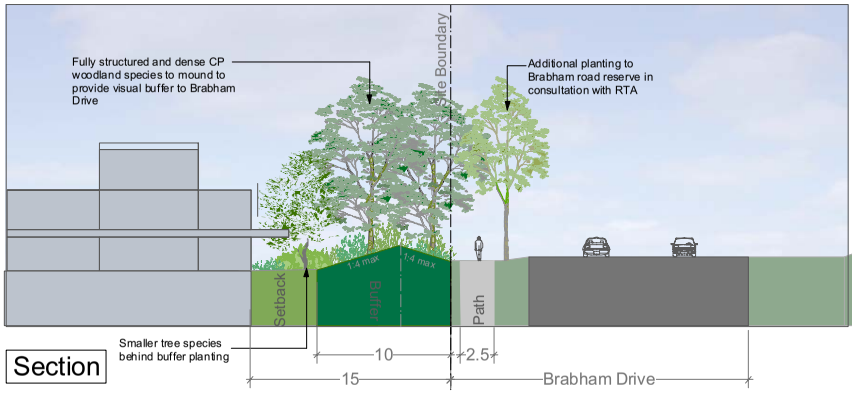
Scale	1:400@A3
Project No.	06047
Drawn	MS

SK05H

A.B.N. 37 003 886 306
QA 2-12(1)N



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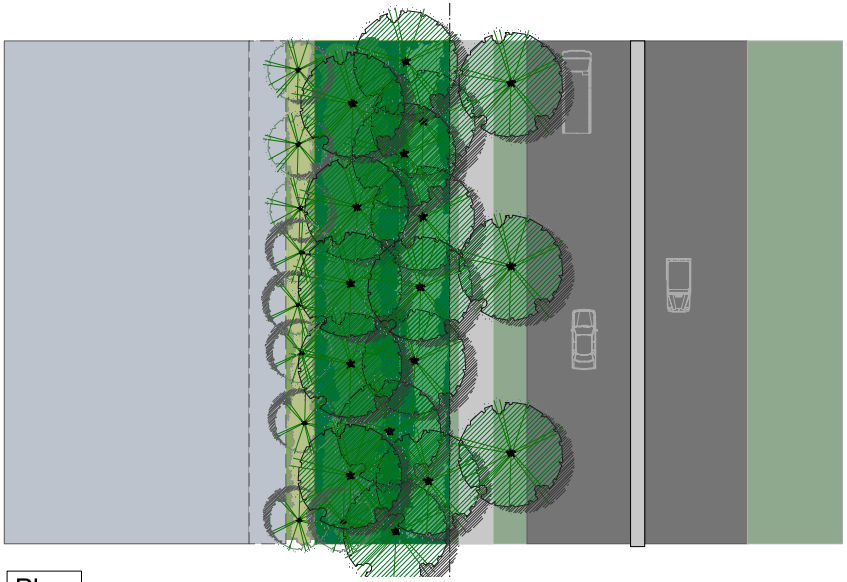

Plan

Legend

- Buffer tree planting
- Buffer planting
- Private open space - planting
- RTA property
- RTA Road
- Secondary Road
- Footpath

REFERENCES

CONSULTANT	DRAWING ID	DATE OF ISSUE
Architectus	WH-park edge-wetland.section	17.08.06
Architectus	WH-street-sections	17.08.06
Architectus	masterplan	17.08.06
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14.09.2006	G	Client Changes
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30.08.2006	D	Client Issue and Review
21.08.2006	C	Client Issue
17.08.2006	B	Client Issue
16.08.2006	A	Client Issue

Project: Huntingwood West

Client: Department of Planning NSW and Landcom

Drawing: Landscape Plan - Brabham Edge Road

Landscape Plan - Brabham Drive

Huntingwood West

Department of Planning NSW and Landcom

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Scale	1:400@A3
Project No.	06047
Drawn	MS

SK08H

A.B.N. 37 003 886 306
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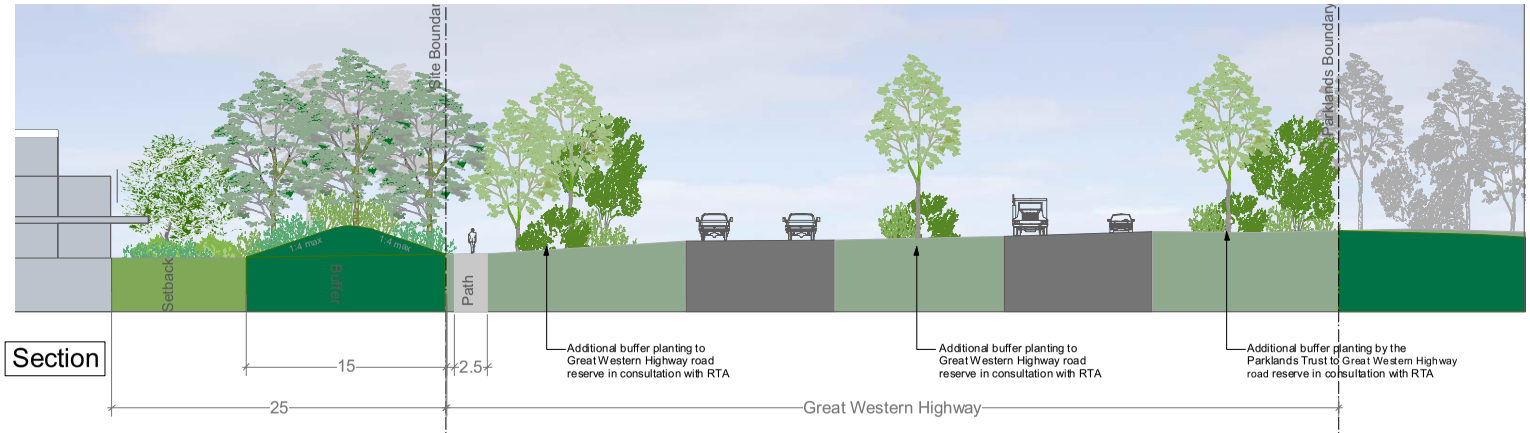

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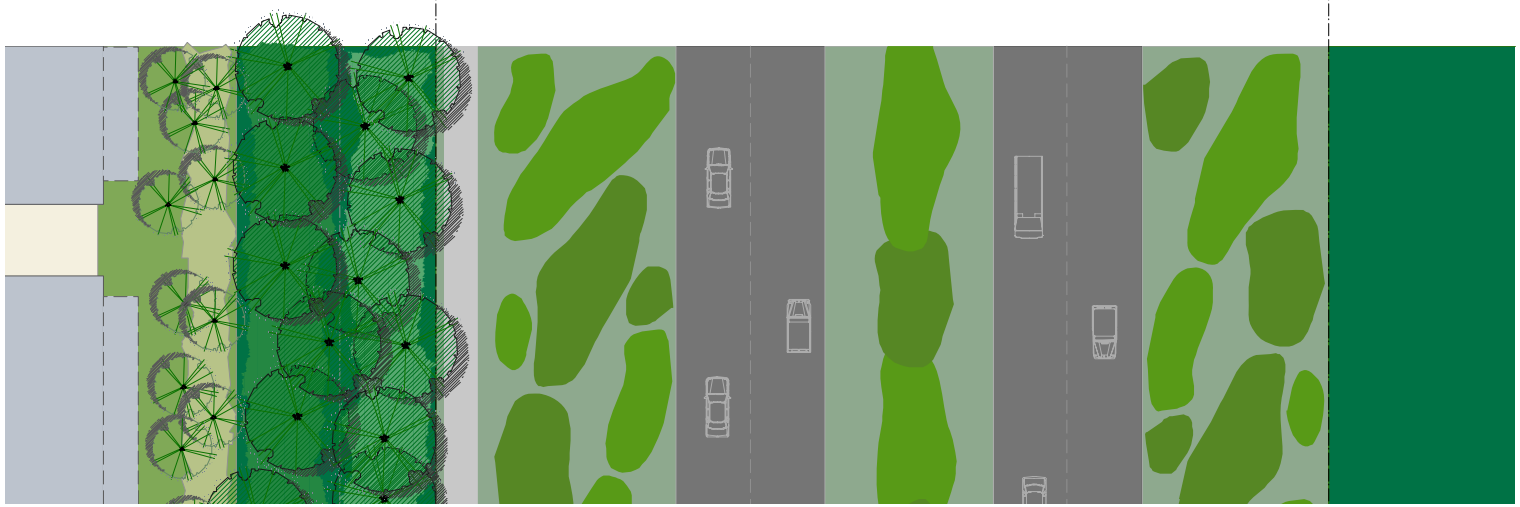

Plan

Legend

- Buffer tree planting
- Buffer planting
- Private open space - planting
- RTA verge
- RTA Road
- Secondary Road

REFERENCES

CONSULTANT	DRAWING ID	DATE OF ISSUE
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Architectus	masterplan	17.08.06
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13.09.2006	F	Client Changes
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30.08.2006	D	Client Issue and Review
21.08.2006	C	Client Issue
17.08.2006	B	Client Issue
16.08.2006	A	Client Issue

Project: Huntingwood West

Client: Department of Planning NSW and Landcom

Drawing: Landscape Plan - Western Hwy

Landscape Plan - Great Western Hwy

Huntingwood West

Department of Planning NSW and Landcom

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Scale	1:400@A3
Project No.	06047
Drawn	MS

SK09H

A.B.N. 37003886 306

QA 2-12(1)N

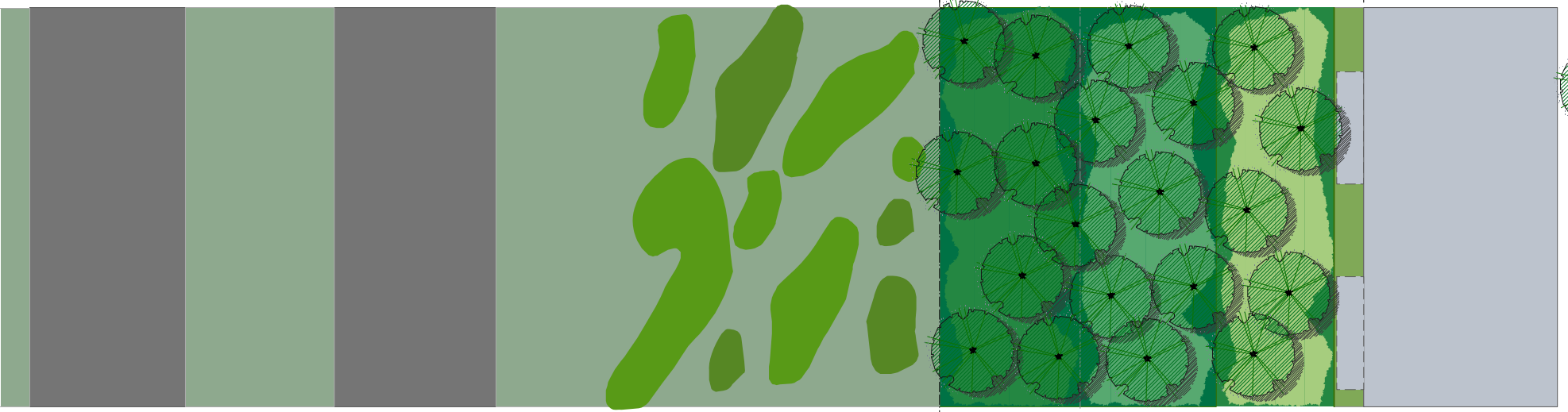
Section

Additional buffer planting to M4 Motorway road reserve in consultation with RTA

Existing buffer planting to M4 Motorway road reserve

26

40



Plan

Legend

- Buffer tree planting
- Buffer planting
- Private open space - planting
- RTA verge
- Existing vegetation
- RTA Road
- Secondary Road

REFERENCES

CONSULTANT	DRAWING ID	DATE OF ISSUE
Architectus	WH-park edge-wetland section	17.08.06
Architectus	WH-street-sections	17.08.06
Architectus	masterplan	17.08.06
Ecological Engineering	WestHuntingwood_RB_ footprint	11.08.06

21.09.2006	H	Client Charges
14.09.2006	G	Client Charges
13.09.2006	F	Client Charges
01.09.2006	E	100% complete
30.08.2006	D	Client Issue and Review
21.08.2006	C	Client Issue
17.08.2006	B	Client Issue
16.08.2006	A	Client Issue

Project: Huntingwood West

Client: Department of Planning NSW and Landcom

Drawing: Landscape Plan - M4

Landscape Plan - M4 Motorway

Huntingwood West

Department of Planning NSW and Landcom

0 5 10 15 20m

NOTES

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Scale	1:400@A3
Project No.	06047
Drawn	MS

SK10H

A.B.N. 37 003 886 306
QA 2-12(1)N

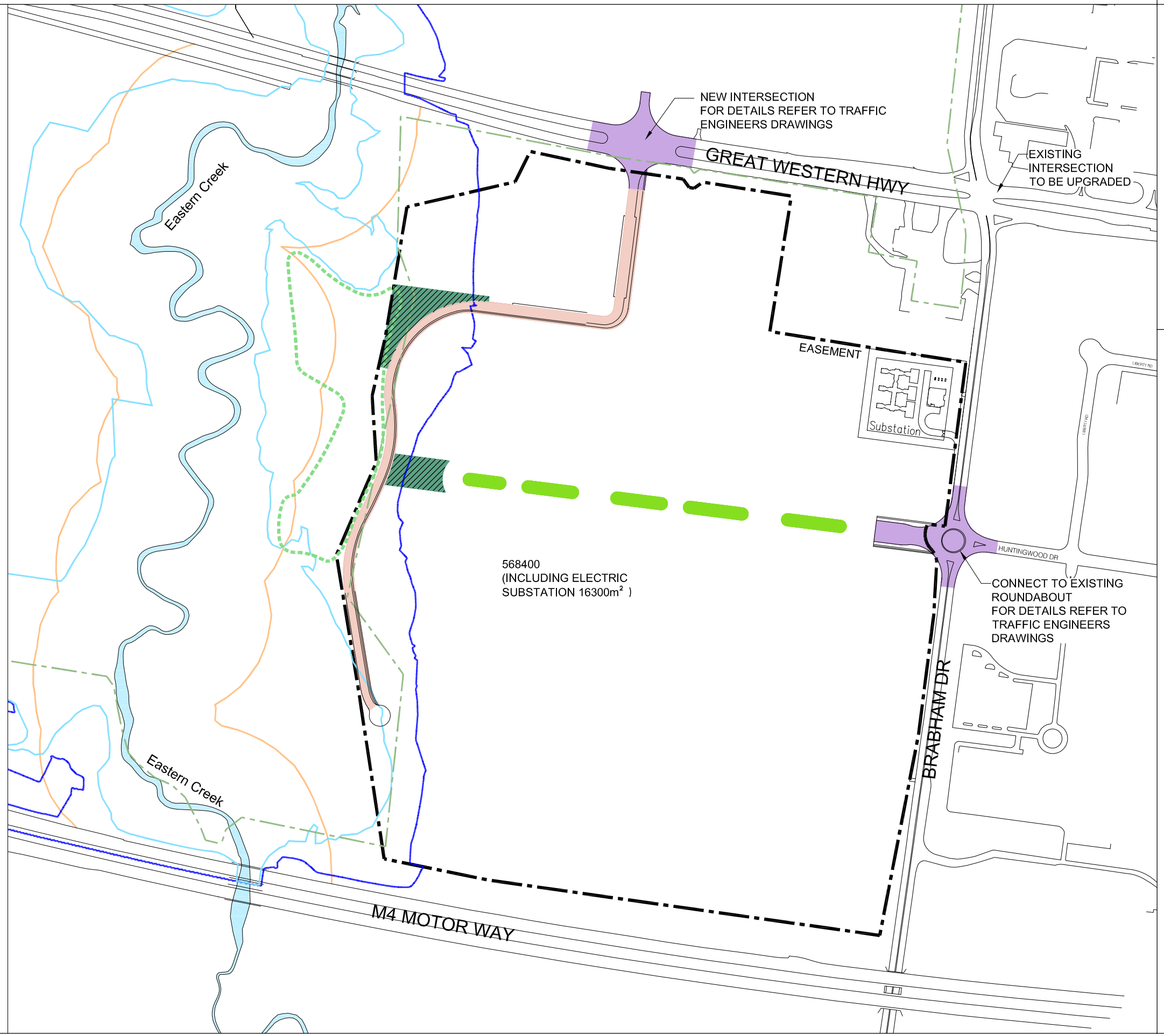
APPENDIX B
SUBDIVISION LAYOUT OPTIONS

APPENDIX B
Subdivision layout options

OPTION 4 – SUPER LOT

	AREA (sqm)
TOTAL	568469
DEVELOPABLE AREA	555269
ROAD AREA	17210 *
SUBSTATION AREA	13200
OPEN SPACE (STORMWATER INFILTRATION)	6889 *
	No.
STREET CAR PARK	220 *

Note:
* The open space is within the lot
* All roads are within the lot
* All street car park are within the lot



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LEGEND

- SITE BOUNDARIES
- LOT BOUNDARIES
- 100yr FLOOD LINE
- PMF LINE
- REP LINE
- BIODIVERSITY CORRIDOR
- WETLAND
- 4500 LOT AREA (m²)
- DETENTION BASIN

COMMON ELEMENTS OF 4 OPTIONS

- ECO MEDIAN
- POCKET PARKS
- PARK EDGE ROAD
- INTERSECTION

M 25 50 125 250

BUNGARRIBEE PRECINCT

DATE **21 November 2006** | Prepared for **DOP LANDCOM** | HUNTINGWOOD WEST **- SUPER LOT OPTION** | Scale 1:5000 @ A3 | Drawing No. 2204 | Revision F

Legend

- Huntingwood West Precinct
- Existing contours
- Building setback & Indicative Asset Protection Zone
- Existing trees
- Proposed Regional Path
- 1 in 100 year flood line
- Street tree mix - Entry planting
- Street tree mix - Bio Median Road
- Street tree mix - Collector Road
- Street tree mix - Park Edge Road
- Street tree - Circulation Road
- Accent planting
- Verge planting
- Carparking planting
- Private open space - planting
- Private open space - paving
- Wetland planting
- Wetland planting
- Detention basin planting
- Buffer planting
- Turf
- Open water
- Road
- Carparking
- Footpath

HUNTINGWOOD WEST INDUSTRIAL ESTATE TYPICAL PLANT SCHEDULE
Based on Cumberland Plain Woodland Species

Botanical Name	Common Name	Height	Spacing
TREES			
Angophora floribunda	Rough-barked Apple	15000	Copse
Eucalyptus amplifolia	Cabbage Gum	30000	Copse
Eucalyptus fibrosa	Red Ironbark	20000	Copse
Eucalyptus moluccana	Grey Box	25000	Copse
Eucalyptus crebra	Narrow Leaved Ironbark	15000	Copse
Eucalyptus tereticornis	Forest Red Gum	15000	Copse
Melaleuca decora		15000	Copse
Melaleuca nodosa	Melaleuca	2000	Copse
Melaleuca styphelioides	Prickly-leaved Paper-bark	8000	Copse
Tristaniopsis laurina	Water Gum	10000	Copse
SHRUBS			
Acacia falcata	Hickory Wattle	2500	2000
Acacia ulicifolia	Prickly Moses	1500	1200
Bursaria spinosa var.spinosa		1000	800
Chloris ventricosa	Plump Windmill Grass	1000	800
Davesia ulicifolia	Gorse bitter pea	2000	1500
Daviesia genistifolia		1500	1200
Daviesia ulicifolia		1500	1200
Dichelachne micrantha	Shorthair Plumegrass	1200	1000
Dillwynia juniperina		1500	1000
Dillwynia parvifolia		1000	800
Dillwynia sieberi		1000	800
Dodonaea viscosa ssp.cuneata	Wedge leaf Hopbush	1000	800
Echinopogon caespitosus	Bushy Hedgehog-grass	1500	1000
Grevillea juniperina	Juniper-leaf Grevillea	1000	800
Kunzea ambigua	White Kunzea	3000	2000
Lomandra longifolia	Spiny-headed mat-rush	1000	500
Pultenaea microphylla		2000	1000
Pultenaea parvifolia		1000	800
RIPARIAN			
(Refer also to WSUD Strategy Report)			
Alisma plantago-aquatica	Water plantain	300	200
Casuarina glauca	Swamp oak	20000	Copse
Carex appressa	Tall Flat Sedge	700	500
Carex gaudichadiana	Tufted sedge	400	300
Gahnia aspera	Rough Saw-sedge	1000	600
Juncus kraussii ssp.australiensis	Sea Rush	500	250
Juncus usitatus	Common Rush	800	300
Melaleuca styphelioides	Prickly-leaved Paper-bark	8000	Copse
Schoenoplectus validus		600	400
GROUNDCOVERS			
Dianella longifolia var.longifolia	Pale Flax Lily	600	400
Dianella 'Silver'	Silver Flax Lily	500	400
Dianella revoluta	Flax lily	1000	400
Hardenbergia violacea	Native sarsaparilla	200	300
Clematis glycinoides	Forest clematis	Climber	400
GRASSES			
Poa labillardieri	Tussock Grass	900	400
Eragrostis elongata	Clustered Lovegrass	800	300
Danthonia tenua	Elvera 'Lavender Grass'	800	300
Microlaena stipoides var. stipoides	Weeping Grass	400	250
Themeda australis	Kangaroo Grass	1000	500
Wahlenbergia gracilis	Native Blue Bell	200	100

REFERENCES

CONSULTANT	DRAWING ID	DATE OF ISSUE
Architectus	WH-park edge-wetland.section	17.08.06
Architectus	WH-street-sections	17.08.06
Architectus	masterplan	17.08.06
Ecological Engineering	WestHuntingwood_RB_ footprint	11.08.06

29.11.2006	I	Client Channes
21.09.2006	F	Client Changes
15.09.2006	E	Amendment
14.09.2006	D	100% Client Changes
13.09.2006	C	Client Changes
01.09.2006	B	100 % complete
30.08.2006	A	Client Issue and Review

Project: Huntingwood West

Client: Department of Planning NSW and Landcom

Drawing: Masterplan Option 4

BOTANICAL-INDUSTRIAL

Masterplan - Super lot subdivison Option Four

Huntingwood West

Department of Planning NSW and Landcom

0 50 100 150 200 250 m

NOTES

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Scale	1:5000@A3
Project No.	06047
Drawn	MS

SK03J

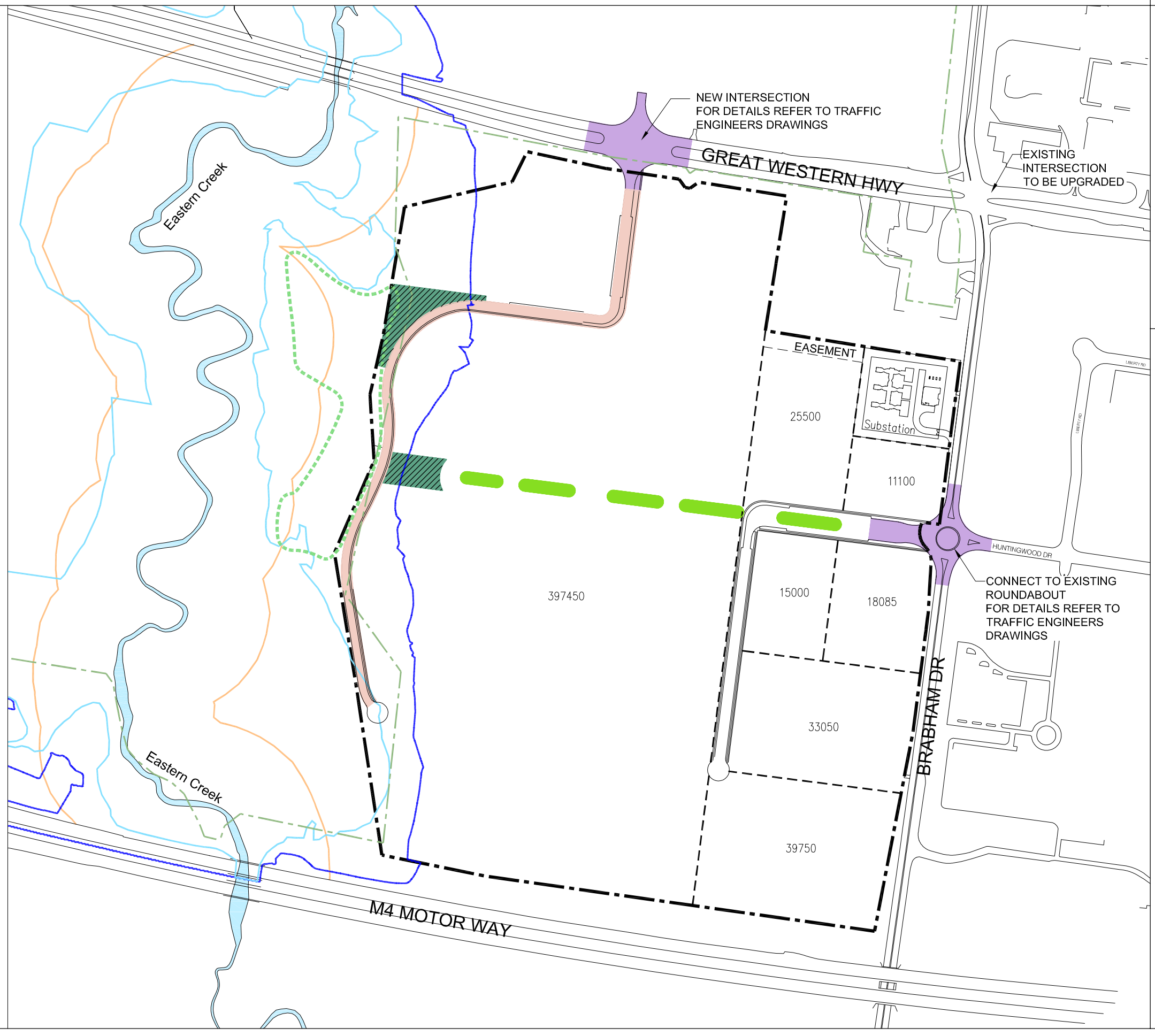
A.B.N. 37 003 886 306 QA 2-12(1)N

OPTION 1 – LARGE LOTS

	AREA (sqm)
TOTAL	568469
DEVELOPABLE AREA	539908
ROAD AREA	30548 *
SUBSTATION AREA	13200
OPEN SPACE (STORMWATER INFILTRATION)	6889 *
	No.
LOT 0.4–1ha	0
LOT 1–2ha	3
LOT >2ha	4
	No.
STREET CAR PARK	220 *

Note:

* The open space is within the 36ha lot
* 14380sqm of the total road area is within the 36ha lot
* 100 street car park are within the 36ha lot



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LEGEND

- SITE BOUNDARIES
- LOT BOUNDARIES
- 100yr FLOOD LINE
- PMF LINE
- REP LINE
- BIODIVERSITY CORRIDOR
- WETLAND
- 4500 LOT AREA (m²)
- DETENTION BASIN

COMMON ELEMENTS OF 4 OPTIONS

- ECO MEDIAN
- POCKET PARKS
- PARK EDGE ROAD
- INTERSECTION

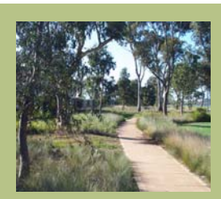
BUNGARRIBEE PRECINCT

M 25 50 125 250

DATE	21 November 2006	Prepared for DOP LANDCOM	HUNTINGWOOD WEST - LARGE LOTS OPTION	Scale 1:5000 @ A3	Drawing No. 2201	Revision I

Legend

- Huntingwood West Precinct
- Existing contours
- Building setback & Indicative Asset Protection Zone
- Existing trees
- Proposed Regional Path
- 1 in 100 year flood line
- Street tree mix - Bio Median treatment
- Street tree mix - Circulation Road
- Street tree mix - Park Edge Road
- Accent planting
- Verge planting
- Carparking planting
- Private open space - planting
- Private open space - paving
- Macrophyte Marsh Zone
- Ephemeral Zone
- Precinct Pond and Wetland Inlet planting
- Buffer planting
- Turf
- Water
- Road
- Carparking
- Footpath








HUNTINGWOOD WEST INDUSTRIAL ESTATE TYPICAL PLANT SCHEDULE
Based on Cumberland Plain Woodland Species

Botanical Name	Common Name	Height	Spacing
TREES			
Angophora floribunda	Rough-barked Apple	15000	Copse
Eucalyptus amplifolia	Cabbage Gum	30000	Copse
Eucalyptus fibrosa	Red Ironbark	20000	Copse
Eucalyptus moluccana	Grey Box	25000	Copse
Eucalyptus crebra	Narrow Leaved Ironbark	15000	Copse
Eucalyptus tereticornis	Forest Red Gum	15000	Copse
Melaleuca decora		15000	Copse
Melaleuca nodosa	Melaleuca	2000	Copse
Melaleuca stypheloides	Prickly-leaved Paper-bark	8000	Copse
Tristaniopsis laurina	Water Gum	10000	Copse
SHRUBS			
Acacia falcata	Hickory Wattle	2500	2000
Acacia ulicifolia	Prickly Moses	1500	1200
Bursaria spinosa var.spinosa		1000	800
Chloris ventricosa	Plump Windmill Grass	1000	800
Davesia ulicifolia	Gorse bitter pea	2000	1500
Daviesia genistifolia		1500	1200
Daviesia ulicifolia		1500	1200
Dichelachne micrantha	Shorthair Plumegrass	1200	1000
Dillwynia juniperina		1500	1000
Dillwynia parvifolia		1000	800
Dillwynia sieberi		1000	800
Dodonaea viscosa ssp.cuneata	Wedge leaf Hopbush	1000	800
Echinopogon caespitosus	Bushy Hedgehog-grass	1500	1000
Grevillea juniperina	Juniper-leaf Grevillea	1000	800
Kunzea ambigua	White Kunzea	3000	2000
Lomandra longifolia	Spiny-headed mat-rush	1000	500
Pultenaea microphylla		2000	1000
Pultenaea parvifolia		1000	800
RIPARIAN			
(Refer also to WSUD Strategy Report)			
Alisma plantago-aquatica	Water plantain	300	200
Casuarina glauca	Swamp oak	20000	Copse
Carex appressa	Tall Flat Sedge	700	500
Carex gaudichadiana	Tufted sedge	400	300
Gahnia aspera	Rough Saw-sedge	1000	600
Juncus kraussii ssp.australiensis	Sea Rush	500	250
Juncus usitatus	Common Rush	800	300
Melaleuca stypheloides	Prickly-leaved Paper-bark	8000	Copse
Schoenoplectus validus		600	400
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Dianella longifolia var.longifolia	Pale Flax Lily	600	400
Dianella 'Silver'	Silver Flax Lily	500	400
Dianella revoluta	Flax lily	1000	400
Hardenbergia violacea	Native sarsaparilla	200	300
Clematis glycinoides	Forest clematis	Climber	400
GRASSES			
Poa labillardieri	Tussock Grass	900	400
Eragrostis elongata	Clustered Lovegrass	800	300
Danthonia tenua	Elvera 'Lavender Grass'	800	300
Microlaena stipoides var. stipoides	Weeping Grass	400	250
Themeda australis	Kangaroo Grass	1000	500
Wahlenbergia gracilis	Native Blue Bell	200	100

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Ecological Engineering	WestHuntingwood_RB_ footprint	11.08.06

29.11.2006	I	Client Changes
23.11.2006	I	Client Changes
21.09.2006	H	Client Changes
14.09.2006	G	Client Changes
13.09.2006	F	Client Changes
01.09.2006	E	100% complete
30.08.2006	D	Client Issue and Review
21.08.2006	C	Client Issue
17.08.2006	B	Client Issue
16.08.2006	A	Client Issue

Project: Huntingwood West

Client: Department of Planning NSW and Landcom

Drawing: Masterplan Option 1

BOTANICAL-INDUSTRIAL

Masterplan - Large lot subdivison Option One

Huntingwood West

Department of Planning NSW and Landcom

0 50 100 150 200 250 m

NOTES

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Project No.	06047
Drawn	MS

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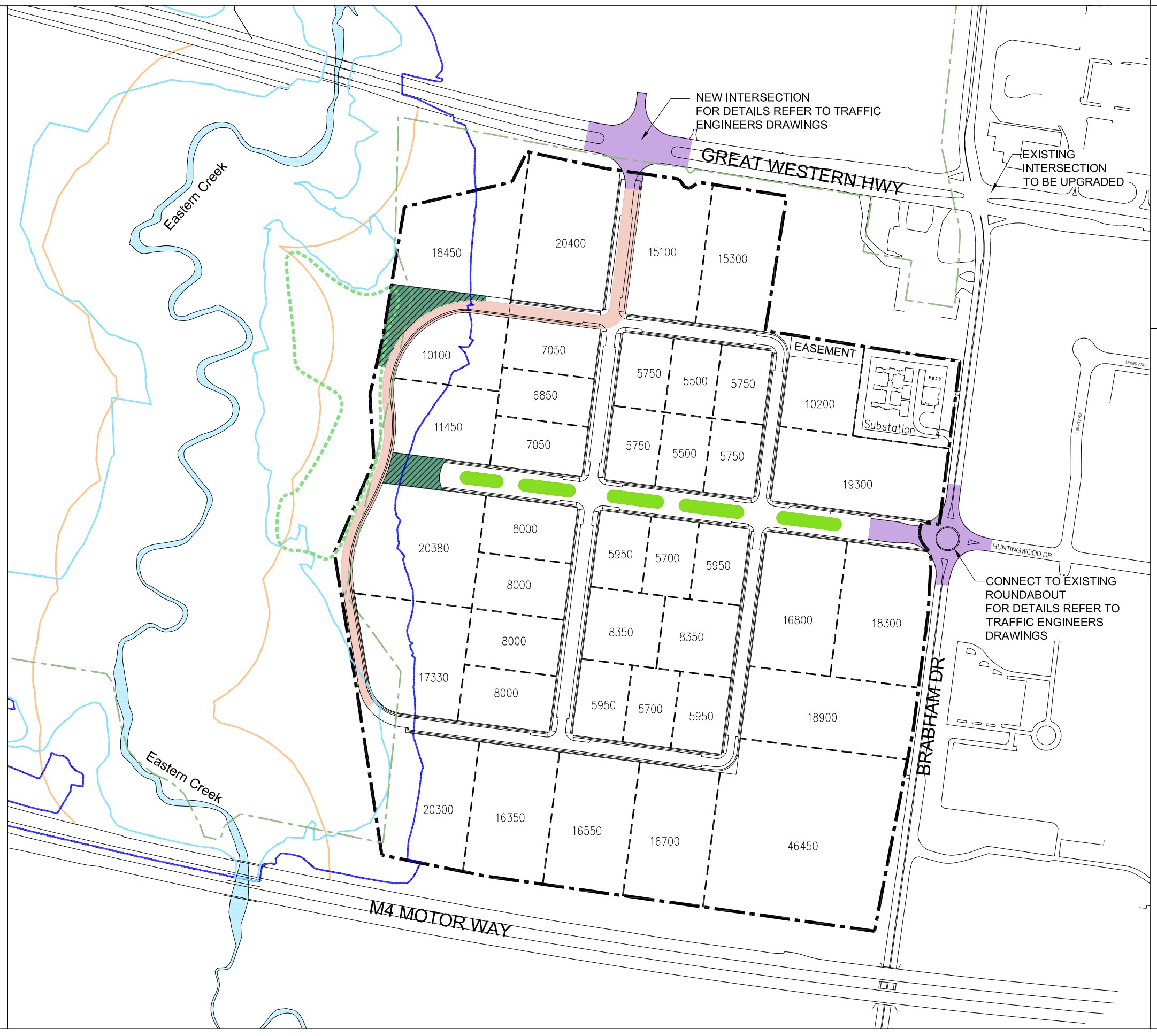
OPTION 2 – MEDIUM LOTS

	AREA (sqm)
TOTAL	568469
DEVELOPABLE AREA	467330
ROAD AREA	81050
SUBSTATION AREA	13200
OPEN SPACE	6889
	No.
LOT 0.4–1ha	22
LOT 1–2ha	14
LOT >2ha	3
	No.
STREET CAR PARK	700



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LEGEND

- SITE BOUNDARIES
- LOT BOUNDARIES
- 100yr FLOOD LINE
- PMF LINE
- REP LINE
- BIODIVERSITY CORRIDOR
- WETLAND
- 4500 LOT AREA (m²)
- DETENTION BASIN

COMMON ELEMENTS OF 4 OPTIONS

- ECO MEDIAN
- POCKET PARKS
- PARK EDGE ROAD
- INTERSECTION

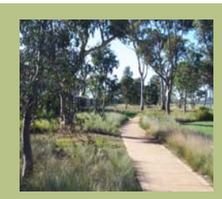
BUNGARRIBEE PRECINCT

M 25 50 125 250

DATE	**21 November 2006**	Prepared for **DOP LANDCOM**	HUNTINGWOOD WEST - MEDIUM LOTS OPTION	Scale 1:5000 @ A3	Drawing No. 2202	Revision I

Legend

- Huntingwood West Precinct
- Existing contours
- Building setback & Indicative Asset Protection Zone
- Existing trees
- Proposed Regional Path
- 1 in 100 year flood line
- Street tree mix - Entry planting
- Street tree mix - Bio Median Road
- Street tree mix - Collector Road
- Street tree mix - Park Edge Road
- Street tree - Circulation Road
- Accent planting
- Verge planting
- Carparking planting
- Private open space - planting
- Private open space - paving
- Wetland planting
- Wetland planting
- Detention basin planting
- Buffer planting
- Turf
- Open water
- Road
- Carparking
- Footpath



HUNTINGWOOD WEST INDUSTRIAL ESTATE TYPICAL PLANT SCHEDULE
Based on Cumberland Plain Woodland Species

Botanical Name	Common Name	Height	Spacing
TREES			
Angophora floribunda	Rough-barked Apple	15000	Copse
Eucalyptus amplifolia	Cabbage Gum	30000	Copse
Eucalyptus fibrosa	Red Ironbark	20000	Copse
Eucalyptus moluccana	Grey Box	25000	Copse
Eucalyptus crebra	Narrow Leaved Ironbark	15000	Copse
Eucalyptus tereticornis	Forest Red Gum	15000	Copse
Melaleuca decora		15000	Copse
Melaleuca nodosa	Melaleuca	2000	Copse
Melaleuca styphelioides	Prickly-leaved Paper-bark	8000	Copse
Tristaniopsis laurina	Water Gum	10000	Copse
SHRUBS			
Acacia falcata	Hickory Wattle	2500	2000
Acacia ulicifolia	Prickly Moses	1500	1200
Bursaria spinosa var.spinosa		1000	800
Chloris ventricosa	Plump Windmill Grass	1000	800
Davesia ulicifolia	Gorse bitter pea	2000	1500
Daviesia genistifolia		1500	1200
Daviesia ulicifolia		1500	1200
Dichelachne micrantha	Shorthair Plumegrass	1200	1000
Dillwynia juniperina		1500	1000
Dillwynia parvifolia		1000	800
Dillwynia sieberi		1000	800
Dodonaea viscosa ssp.cuneata	Wedge leaf Hopbush	1000	800
Echinopogon caespitosus	Bushy Hedgehog-grass	1500	1000
Grevillea juniperina	Juniper-leaf Grevillea	1000	800
Kunzea ambigua	White Kunzea	3000	2000
Lomandra longifolia	Spiny-headed mat-rush	1000	500
Pultenaea microphylla		2000	1000
Pultenaea parvifolia		1000	800
RIPARIAN			
(Refer also to WSUD Strategy Report)			
Alisma plantago-aquatica	Water plantain	300	200
Casuarina glauca	Swamp oak	20000	Copse
Carex appressa	Tall Flat Sedge	700	500
Carex gaudichadiana	Tufted sedge	400	300
Gahnia aspera	Rough Saw-sedge	1000	600
Juncus kraussii ssp.australiensis	Sea Rush	500	250
Juncus usitatus	Common Rush	800	300
Melaleuca styphelioides	Prickly-leaved Paper-bark	8000	Copse
Schoenoplectus validus		600	400
GROUNDCOVERS			
Dianella longifolia var.longifolia	Pale Flax Lily	600	400
Dianella 'Silver'	Silver Flax Lily	500	400
Dianella revoluta	Flax lily	1000	400
Hardenbergia violacea	Native sarsaparilla	200	300
Clematis glycinoides	Forest clematis	Climber	400
GRASSES			
Poa labillardieri	Tussock Grass	900	400
Eragrostis elongata	Clustered Lovegrass	800	300
Danthonia tenua	Elvera 'Lavender Grass'	800	300
Microlaena stipoides var. stipoides	Weeping Grass	400	250
Themeda australis	Kangaroo Grass	1000	500
Wahlenbergia gracilis	Native Blue Bell	200	100

REFERENCES

CONSULTANT	DRAWING ID	DATE OF ISSUE
Architectus	WH-park edge-wetland.section	17.08.06
Architectus	WH-street-sections	17.08.06
Architectus	masterplan	17.08.06
Ecological Engineering	WestHuntingwood_RB_ footprint	11.08.06

29.11.2006	I	Client Changes
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30.08.2006	D	Client Issue and Review
21.08.2006	C	Client Issue
17.08.2006	B	Client Issue
16.08.2006	A	Client Issue

Project: Huntingwood West

Client: Department of Planning NSW and Landcom

Drawing: Masterplan Option 3

BOTANICAL-INDUSTRIAL

Masterplan - medium lot subdivision Option Two

Huntingwood West

Department of Planning NSW and Landcom

0 50 100 150 200 250 m

NOTES

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APPENDIX C
DEVELOPMENT DESIGN CONTROLS

APPENDIX C
Development Design Controls

architectus™

Huntingwood West employment lands

November 2006

Prepared for Landcom

Development Design Controls

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Contents

Quality Assurance

Reviewed by

.....
Michael Harrison
Director
Urban Design and Planning
Architectus Sydney Pty Ltd

.....
Date
This document is for discussion purposes only unless signed.

Figures

1 Introduction

1.1 Background

The land known as Huntingwood West and subject to these Development Design Controls was identified by the NSW Department of Planning as 'Interface Land' because it is land that adjoins the Western Sydney Parklands. Development of the Interface Land will raise funds to be returned to the Parklands Trust.

The entire Western Sydney Parklands covers 5,500 hectares of land in Sydney's west and stretches 27km from Quakers Hill to Leppington. The Parklands corridor contains existing recreation facilities such as the Olympic Equestrian, Shooting and Baseball Centres, Prospect Reservoir and Eastern Creek Raceway.

The component of the Western Sydney Parklands corridor that adjoins Huntingwood West is known as the Bungarribee Precinct and covers 300 hectares from Eastern Road, Doonside in the north to the M4 in the south. Eastern Creek flows from south to north through the middle of the Parklands corridor and adjoins the western boundary of Huntingwood West.

Huntingwood West is strategically located at the intersection of the Great Western Highway and Brabham Drive, and near the intersection of the M4 and the M7. Huntingwood West is entirely within the Blacktown City Local Government Area. It adjoins existing employment/industrial land at Huntingwood to the east and its convenient location makes Huntingwood West strategic for a number of employment sectors.

The NSW Department of Planning as the landowner and Landcom as the development manager aim to encourage high quality innovative development which meets the needs of industry, provides opportunities for employment and which provides an appropriate interface with the Western Sydney Parklands.

1.2 Purpose and aims of the DDCs

The purpose of this document is to outline the development objectives and controls for the development of the employment/industrial land at Huntingwood West.

The aims of these DDCs are to:

- Facilitate the economic and orderly development of the employment/industrial land for the purpose of employment generating development whilst maintaining the ability to provide flexibility in the range of lot sizes to meet market demand;
- Ensure a positive visual, environmental and management relationship with the adjoining Western Sydney Parklands;
- Ensure Ecologically Sustainable Development principles are integrated into developments;
- Ensure Water Sensitive Urban Design principles are integrated into the built and landscape elements of the development;
- Enable the provision of a high quality innovative and integrated industrial area particularly in terms of built form and landscaping;
- Provide areas of landscaped public domain that are compatible with the built environment and to ensure that the landscape design

guidelines are implemented to a high standard;

- Provide an effective traffic network within the industrial area and connections to the arterial road system; and
- Promote the on-site collection and re-use of stormwater.

1.3 Development vision

The vision for Huntingwood West is intended to shape the planning, design and management of the future development.

The overall vision for Huntingwood West is to:

- Develop a high quality employment zone within a parkland setting that incorporates best practice design and environmental measures and which has a strong integration with the Western Sydney Parklands.
- Develop employment generating uses in a way that provides the best development outcome for the site.
- Develop the employment/industrial land in a way that creates the most appropriate interface with the Western Sydney Parklands.
- Provide a high quality built environment that will attract high job creation industries.
- Offer a diverse range of lot sizes to accommodate a dynamic market.
- Create an employment area within a landscape setting that integrates with the adjoining Western Sydney Parkland's natural and conservation values and that has a strong urban character and sense of place.
- Integrate new development with the Western Sydney Parklands and encourage visual and access links.
- Integrate new development with the existing industrial area at Huntingwood and encourage visual and access links.
- Manage water cycle impact, flood/fill impact and incorporate Water Sensitive Urban Design principles and practices where possible.
- Incorporate best practice environmental planning and design, particularly techniques for conserving the consumption of energy and water in all buildings and the control of noise and emissions.
- Provide public domain and vegetation/drainage corridors that are interconnected with a high level of well-lit pedestrian and cycle access routes and that link into the surrounding environment.
- Implement quality architectural standards and guidelines as well as appropriate environmentally sensitive building design.
- Create a well connected and legible street network.
- Incorporate quality development where businesses enjoy high levels of accessibility by customers and are supported by an attractive public domain that is both pedestrian friendly and efficient.
- Encourage the provision of transport links including a bus route.

1.4 Land to which the DDC applies

This plan applies to the parcel of land at Huntingwood West bounded by the M4 in the south, the Western Sydney Parklands to the west, Great Western Highway to the north and Brabham Drive to the east as shown on Figure 1.

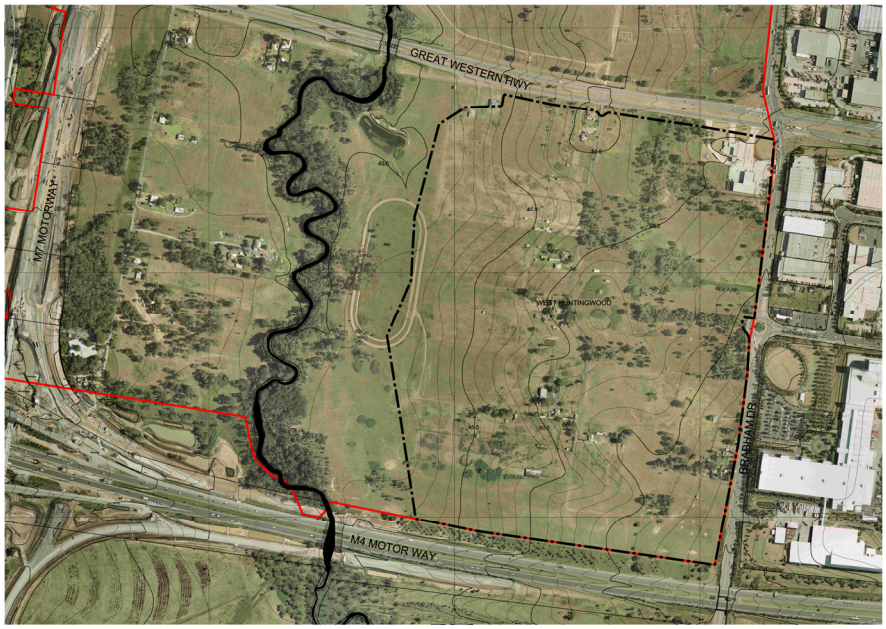


Figure 1: Land to which the DDC applies
Huntingwood West is indicated in the black dashed line and is bounded by Great Western Highway, Brabham Drive, the M4 and the Western Sydney Parklands. The land is 61ha

1.5 How to use this document

Section 1 – Introduction

This section identifies the nature and extent of this plan and outlines the vision and aims for Huntingwood West.

Section 2 – Site characteristics and development principles

This section identifies the key planning issues for the site and constraints that have informed the preparation of the Proposed Subdivision Plan and articulates the principles on which the future development of Huntingwood West will be based.

Section 3 – Framework Plan and environmental management strategies

This section describes the Framework Plan for Huntingwood West. The Framework Plan conceptually illustrates how the proposed development of Huntingwood West will respond to the development principles outlined in Section 2.

Section 4 – Subdivision design and built form controls

This section contains specific objectives and development guidelines/controls for subdivision design, the design, layout and siting of buildings and environmental management.

2 Site characteristics and development principles

2.1 Topography and natural features

The site has a shallow fall westwards toward Eastern Creek. There is an overall fall of some 15m between Brabham Drive and the banks of Eastern Creek.

The most prominent natural features on the site are riparian vegetation along Eastern Creek and a high point at the Great Western Highway mid way between the eastern and western edges of the site.

The existing lot pattern as shown on Figure 2 is rectilinear with the majority of lots 2-3hectares in area on average. There is an easement for Rudders Lane which dissects the site in a north south direction with a dog leg mid way and a westward direction on its southern extremity. Existing uses on the site are small rural lot holders with horse agistment. The existing Huntingwood industrial estate lies to the east of the site.

Major views to the site are available from the M4 and from the intersection of Great Western Highway and Doonside Road/Brabham Drive as shown on Figure 3.

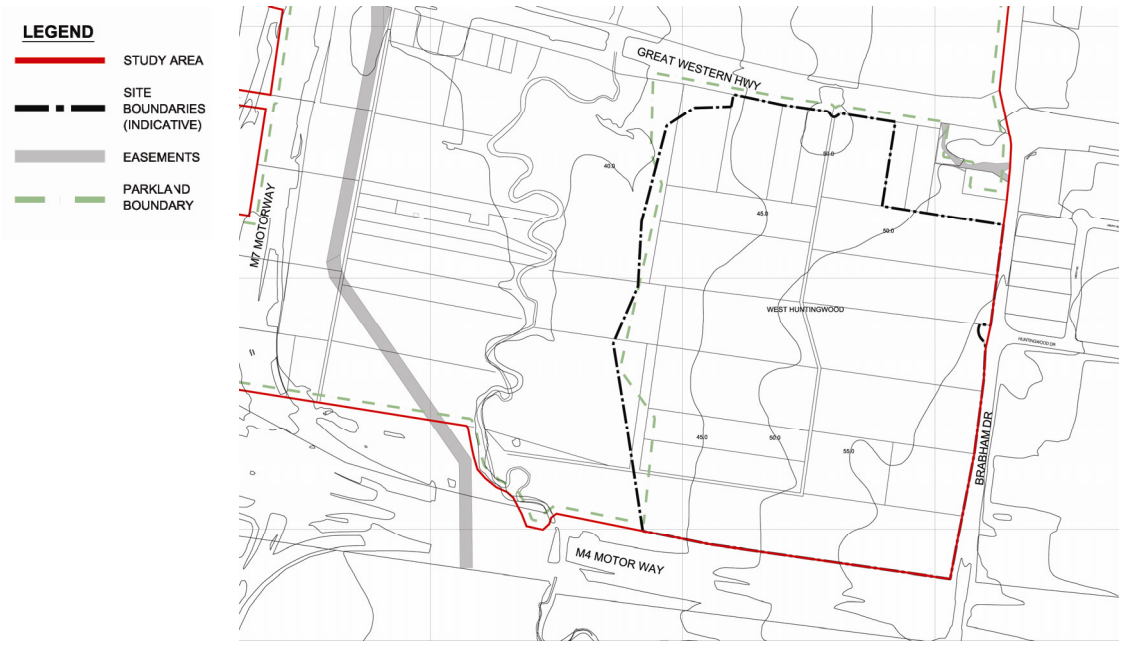


Figure 2: Topography, boundaries and easements

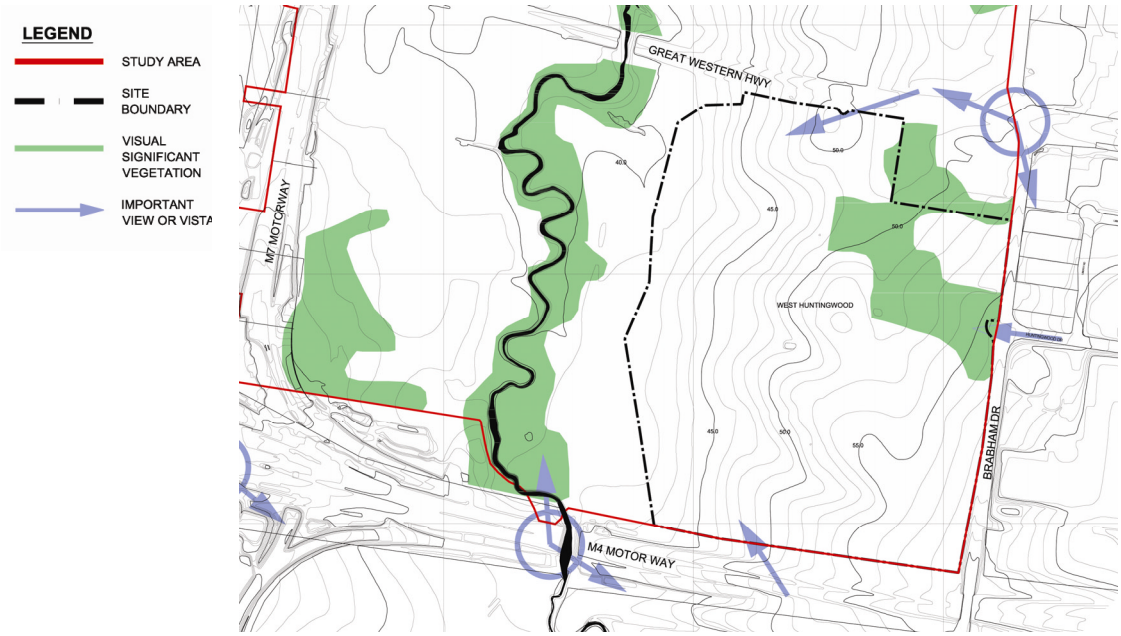


Figure 3: Landscape features and views

2.2 Vegetation and biodiversity

Three vegetation communities exist on the site and are indicated on Figure 4.

- Exotic grassland
- Shale Plains Woodland (part of the Cumberland Plain Woodland and listed as an Endangered Ecological Community under the Threatened Species Act 1995 and the federal Environment Protection and Biodiversity Conservation Act 1999.)

Figure 5 indicates the relative conservation values of these vegetation communities and Figure 6 below indicates their value as fauna habitat.

Figure 4: Vegetation types found on the site
(Source: Eco Logical Australia Pty Ltd 2006a)

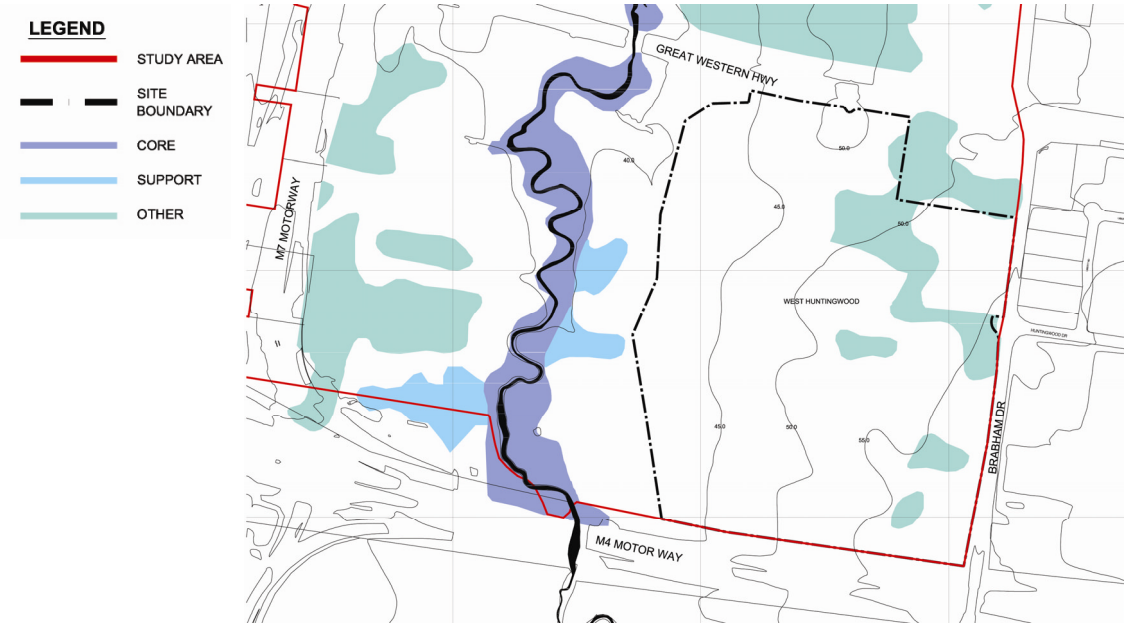


Figure 5: Conservation significance assessment

(Source: Eco Logical Australia Pty Ltd 2006a)

Figure 6: Ecological constraint
(Source: Eco Logical Australia Pty Ltd 2006a)

2.3 Infrastructure and services

The site is well located with respect to road infrastructure – the M4 and the Great Western Highway border the site and the M7 lies just west of Eastern Creek. (Figure 7).

A public bus service runs to Blacktown along Huntingwood Drive, Brabham Drive and Doonside Road during peak hours.

Services will need to be extended into the site and a substation is proposed. (Figure 8)

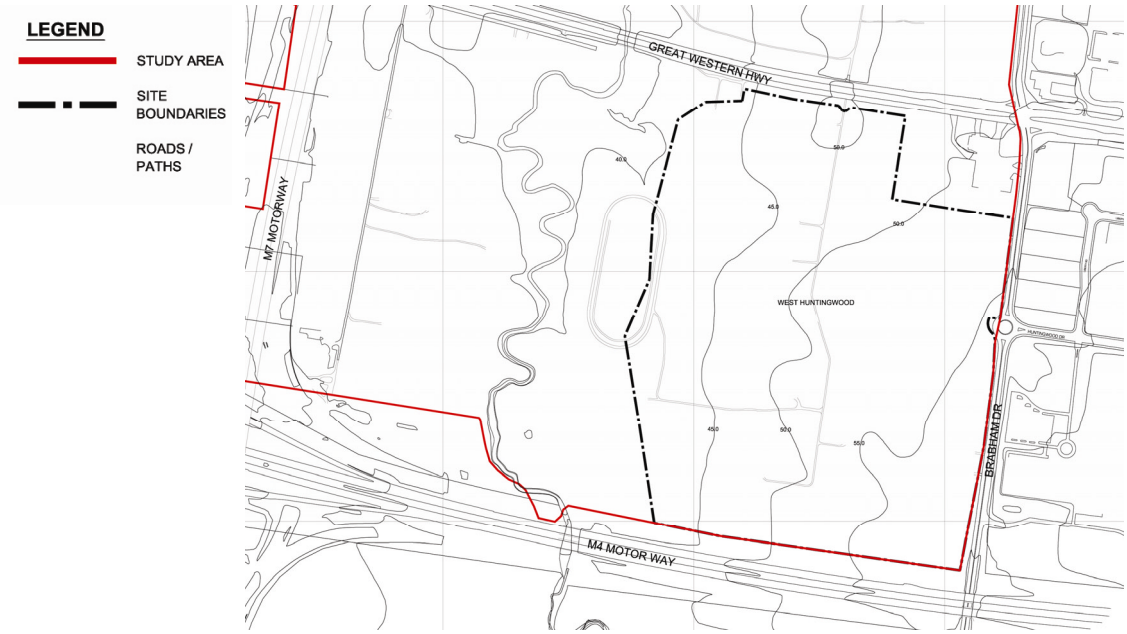


Figure 7: Roads

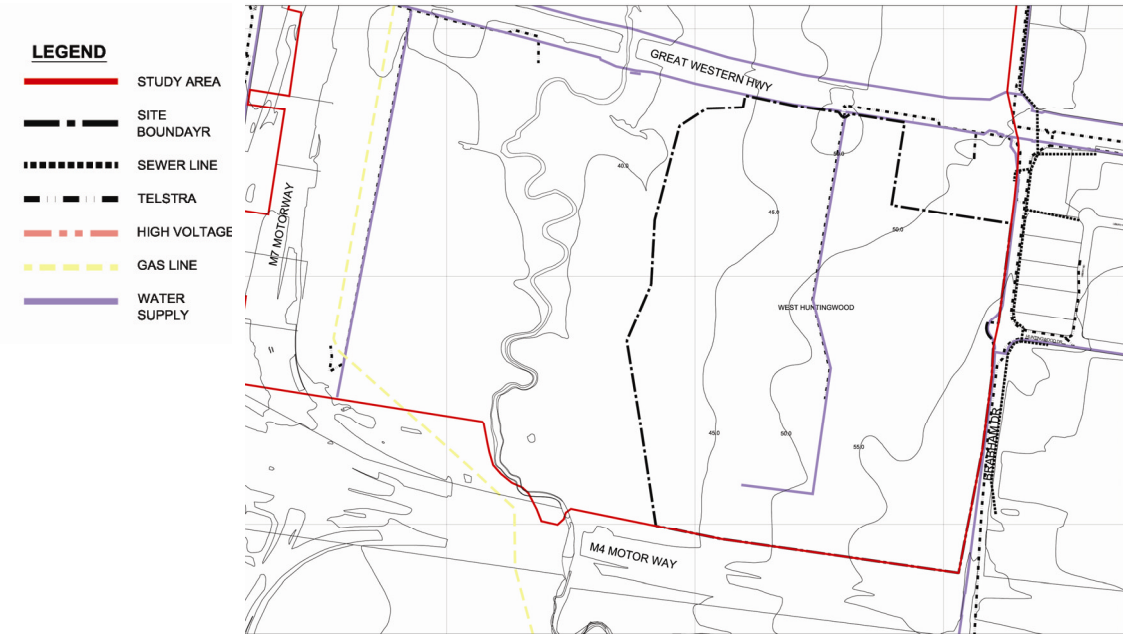


Figure 8: Services

2.4 Indigenous and non-indigenous heritage

There are no non-indigenous heritage items as defined by the Heritage Act 1977 (NSW) on the site. There are however elements of potential archaeological significance and potential heritage significance which are shown on Figure 9 below. Refer to the Heritage Impact Statement prepared by Godden Mackay Logan, dated August 2006 for further information.

In terms of indigenous heritage there are 3 newly recorded surface sites as shown on the diagram below and a zone of good Potential Archaeological Deposit (PAD). It is proposed that the Bungarribee precinct of the Western Sydney Parklands will have an Indigenous heritage conservation strategy and outcome. This strategy, based on scientific and cultural values, will identify a conservation zone that encompasses a range of representative landscapes with the best conservation potential. It is anticipated that this conservation zone will be centred on the riparian zone of Eastern Creek north of the Great Western Highway. This represents the most meaningful management outcome and has the result that land which falls outside the conservation zone should be considered developable. The developable lands should be managed on the basis of the sensitivity mapping and the defined management principles. These include:

- no further archaeological investigation is required within the Huntingwood West development parcel,
- the opportunity for local Aboriginal land councils and traditional owners to collect surface artefacts prior to their destruction.

Figure 9: Indigenous and non-indigenous heritage

2.5 Land capability

Adjacent to the site is the 1 in 100 flood area associated with Eastern Creek as shown on Figure 10. The site is subject to salinity. (Figure 11) Existing vegetation on the site requires asset protection zones. (Figure 12)

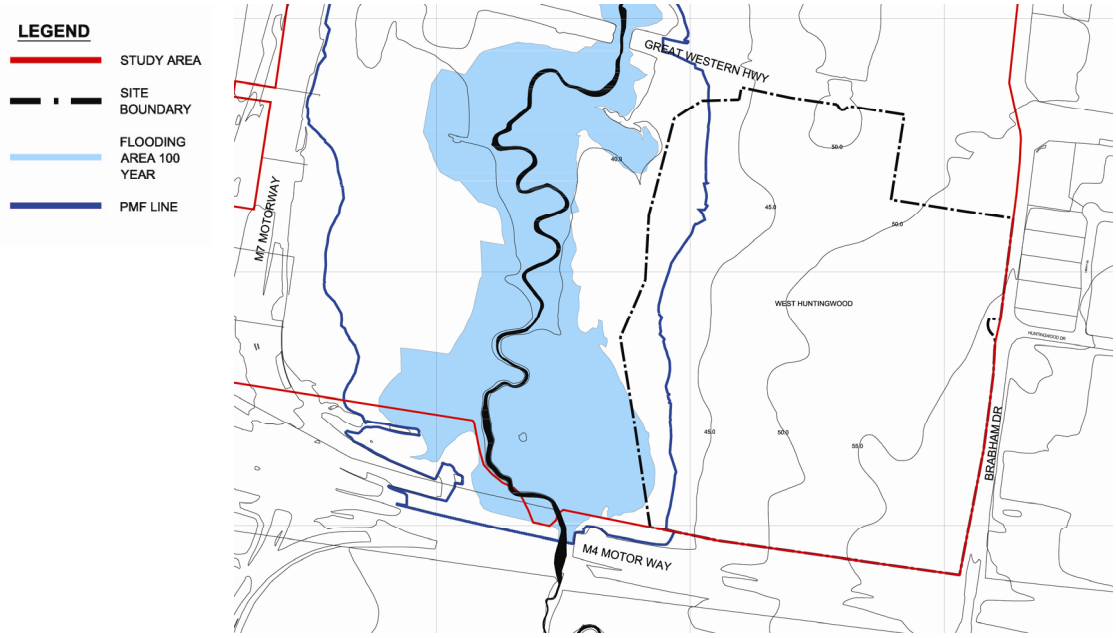


Figure 10: 1 in 100 flood area
(Source: URS Australia)

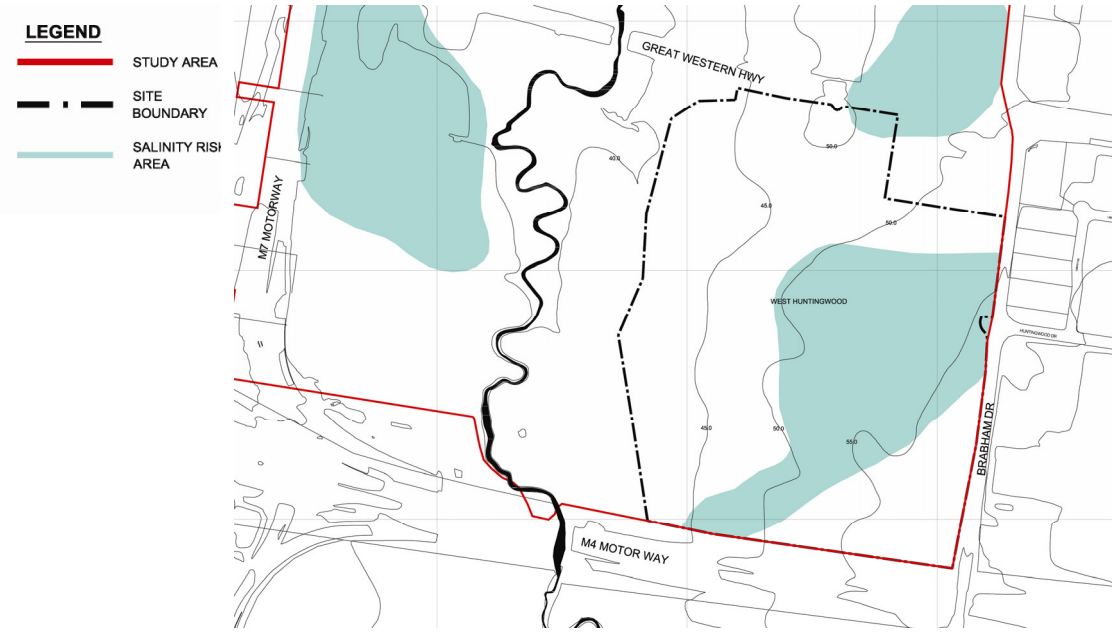


Figure 11: Salinity risk areas
(Source: Douglas Partners)

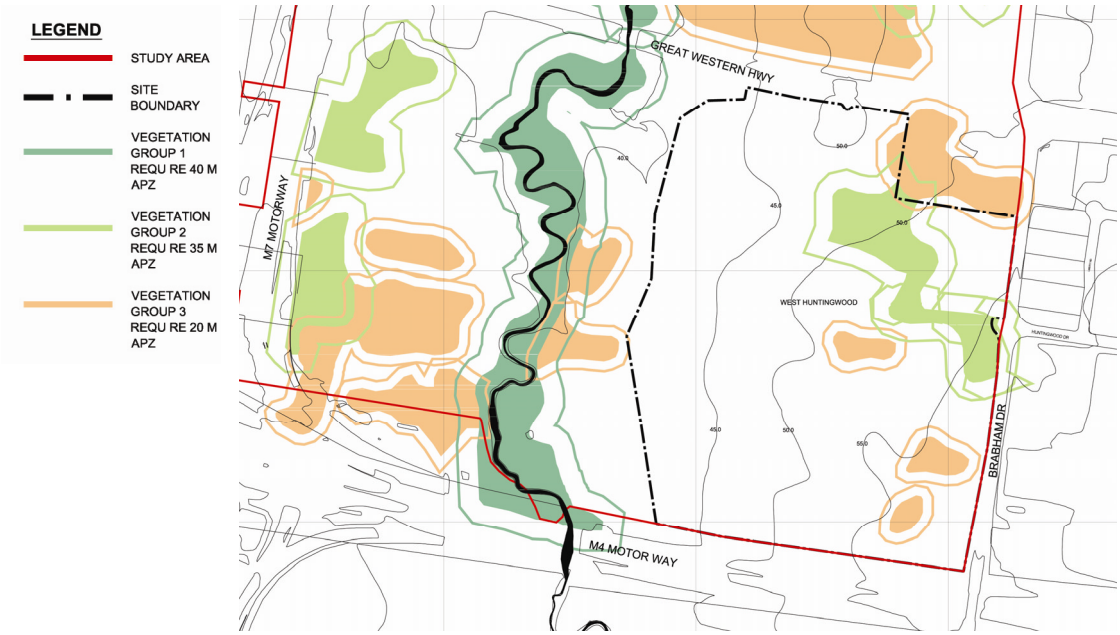


Figure 12: Asset protection zones
(Source: Eco Logical Australia Pty Ltd 2006b)

3.3 Conservation of natural values

The impacts of vegetation clearance within Huntingwood West will be balanced by the major conservation outcomes resulting from the establishment and maintenance of the Western Sydney Parklands. Therefore, although the development of Huntingwood West will result in direct impacts to native flora arising from the removal of some of the scattered and disturbed patches of woodland that remain this will be compensated by a range of mitigation measures and strategies as follows:

- Major conservation outcomes in Western Sydney Parklands.
- Retention of significant trees within buffers, setbacks and in road reservations and drainage lines. Significant habitat trees are defined as trees of any size with hollows and trees that were greater than 30cm diameter at breast height (with or without hollows).
- Water Sensitive Urban Design.

Retention of significant trees

The following strategies are to be used wherever possible (subject to development constraints including filling) in the subsequent planning phases:

- Take into account appropriate quality trees in terms of health and habitat value in the setback areas of individual allotments and within buffer zones and Asset Protection Zones.
- Retain appropriate and healthy trees where practicable in the Collector Road and Eco-median Road reserves. Retained native trees in the eco-median that include the native ground cover and shrub layer maintained in a near natural state provide beneficial ecological function for smaller native birds, reptiles and frogs.

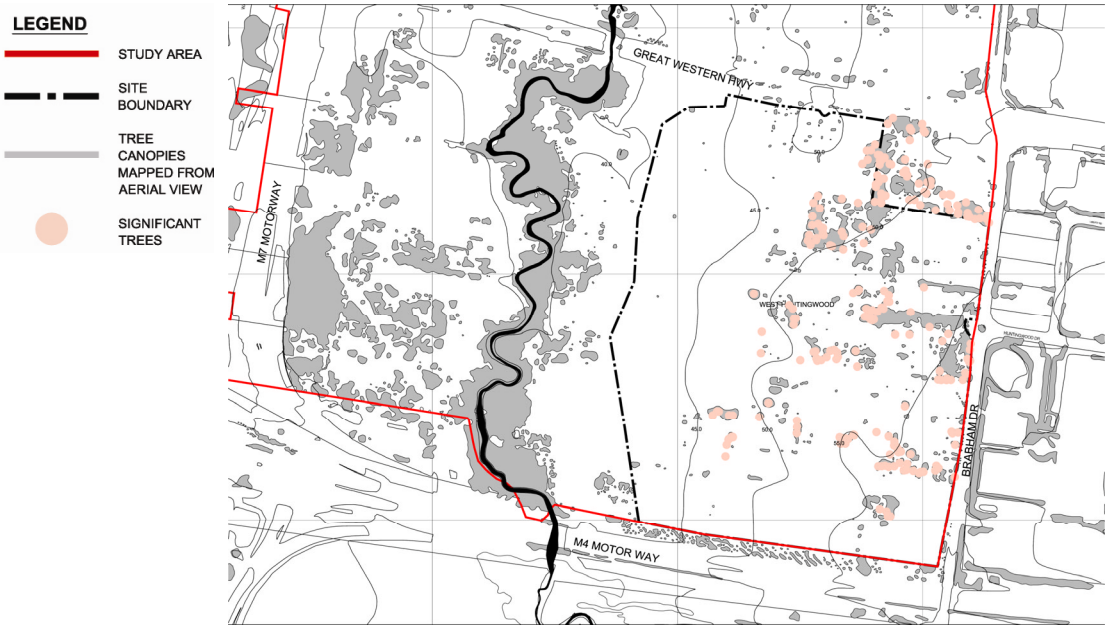


Figure 13: Tree survey of the site
Significant trees are shown in red.

3.4 Access and movement

3.4.1 Road hierarchy

The proposed road hierarchy for Huntingwood West is shown in Figure 14. The road hierarchy comprises the following:

a) Provision of two principle public road vehicular access points to the site: one each at Great Western Highway and Brabham Drive.
b) A street hierarchy comprising:
   - A north-south collector road that connects to the Great Western Highway
   - An east-west collector road that connects to Brabham Drive and features a median that incorporates stormwater management – i.e. an eco-median road.
   - A park edge road that is for passenger vehicles and small vans only that forms the management edge to the Western Sydney Parklands
   - Local access roads that travel north-south of the eco-median collector road.
   - Local access roads that travel east-west.

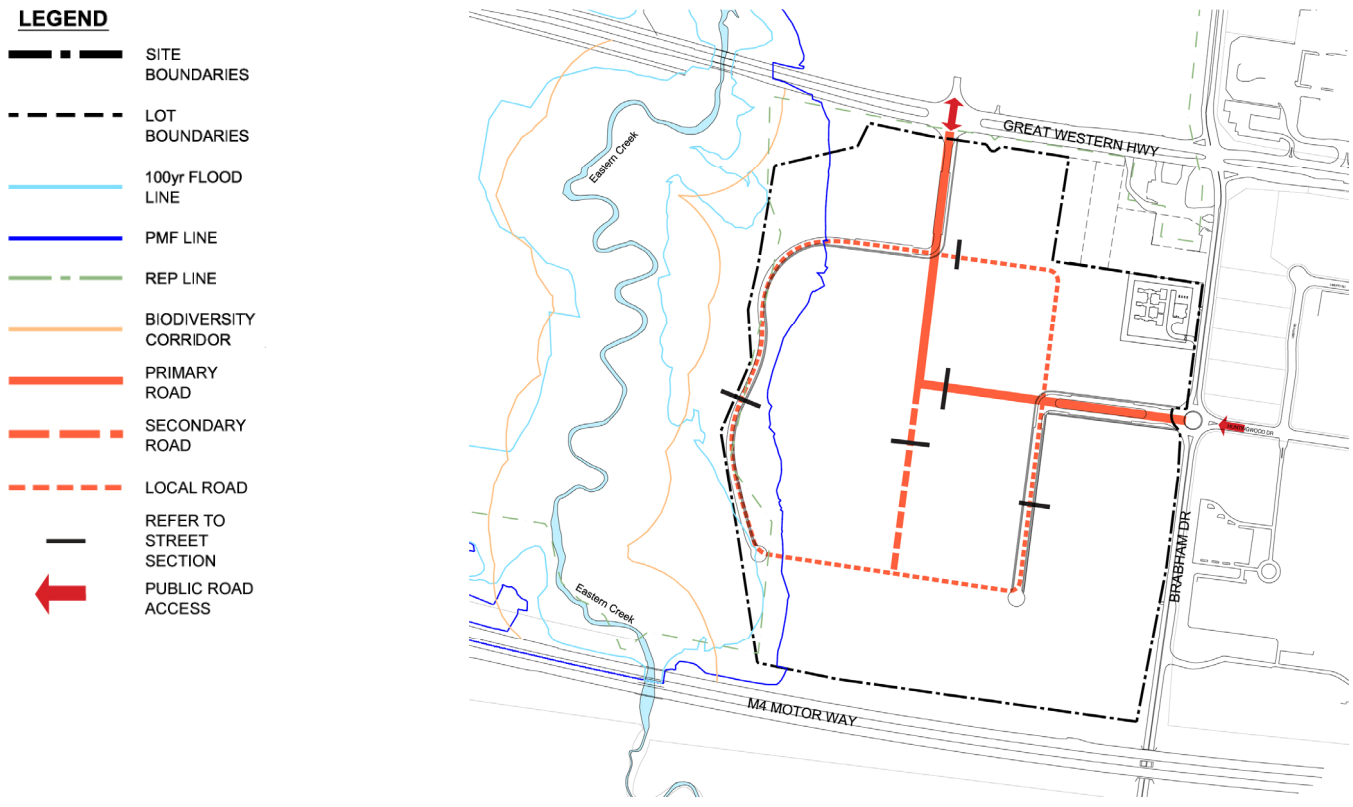


Figure 14: Road hierarchy

3.4.2 Pedestrian and cycle network

The indicative pedestrian and cycle network for Huntingwood West is shown. Figure 15. Pedestrian and cycle paths form a key component of the connectivity of Huntingwood West. The key features of the network are:

a) Provision of shared pedestrian and cycle paths within the Collector and Eco-median road reserves and along the Park Edge Road.
b) Accommodation of road cycle routes on the access streets.
c) Integration of pedestrian and cycle routes with the public domain within Huntingwood West and the Western Sydney Parklands.

3.4.3 Public transport

Bus services that connect to the rail system are the most effective form of public transport for Huntingwood West.

To encourage the use of public transport the proposed road hierarchy is designed to accommodate the extension of the bus service that currently serves Huntingwood Drive. The extension would operate through the site and the Great Western Highway before rejoining Doonside Road.

If the bus route is extended through Huntingwood West bus stops and shelters are to be located on the internal and external intersections (subject to detailed discussions with bus service providers).

The provision of public transport services will ensure the connectivity of Huntingwood West with surrounding neighbourhoods and to the established transport systems serving the greater metropolitan area.

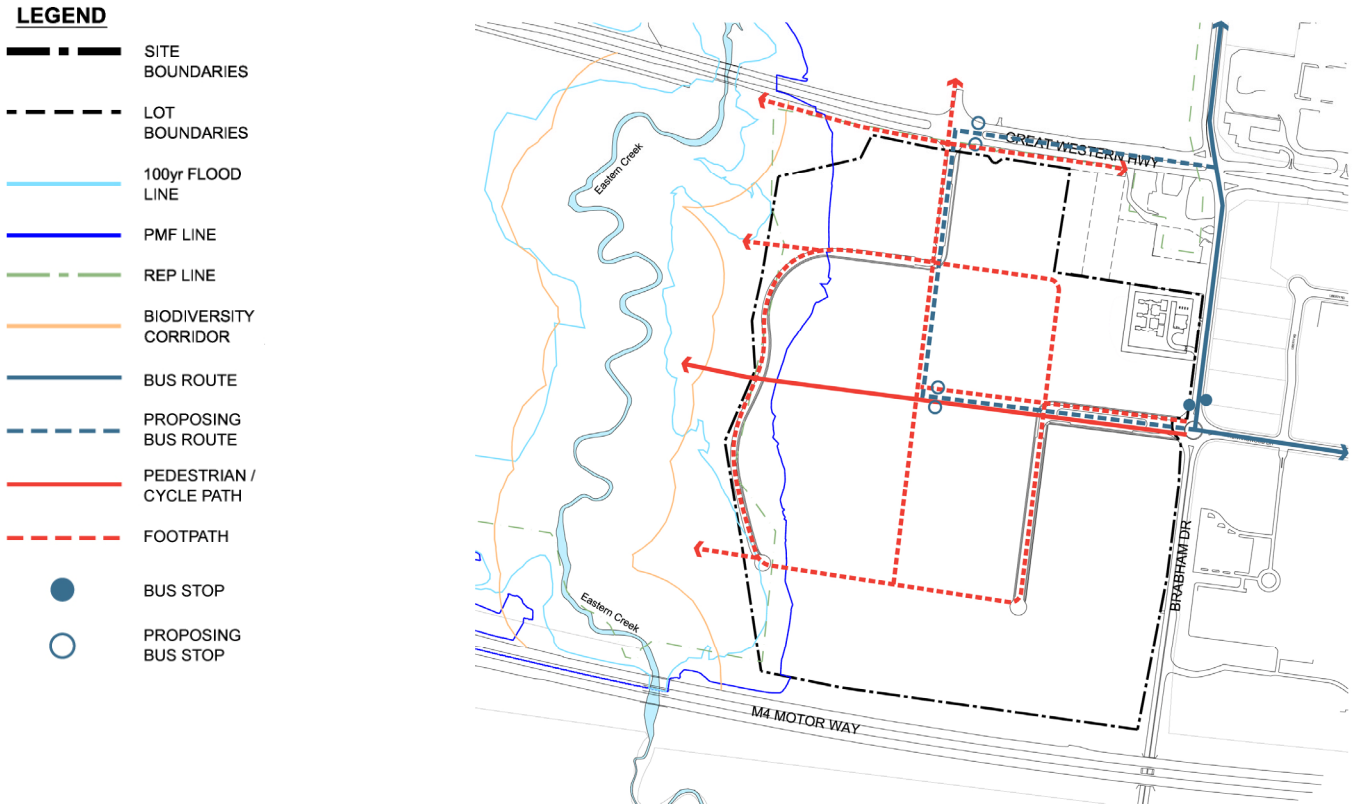


Figure 15: Pedestrian, cycle and public transport networks

3.5 Landscape and drainage network

The principle consideration in the design of the landscape and drainage network is the integration and relationship with the Western Sydney Parklands which adjoins the precinct to the west. The Parklands provides a major biodiversity and habitat resource which needs to be protected. The proposed indicative locations and categories of landscape and drainage areas within Huntingwood West are shown on Figure 16. The landscape and drainage network developed for Huntingwood West falls into the following categories:

a) Green streetscapes providing strong visual identity, retaining existing trees and designed to support an integrated network of access links catering for pedestrian and cycle access though the employment zone and link to the Parklands.
b) 25m wide landscaped setbacks to the Great Western Highway and Brabham Drive.
c) 40m wide vegetated buffer to the M4 provides acoustic and visual separation.

The network of landscape and drainage elements within the Concpet Plan has responded to the conservation values of the land by:

a) Locating the eco-median collector road where high quality stands of existing trees can be retained in the median.
b) Retaining existing drainage lines for drainage, stormwater treatment and conservation purposes where appropriate prior to infiltration in the Parklands.
c) Defining the edge to the Western Sydney Parklands by means of the park edge road. It ensures a good management edge to the Parklands for stormwater and a good presentation in terms of built form. The park edge road also restricts the type of traffic that will use it ensuring there are slow speeds and no heavy vehicles.

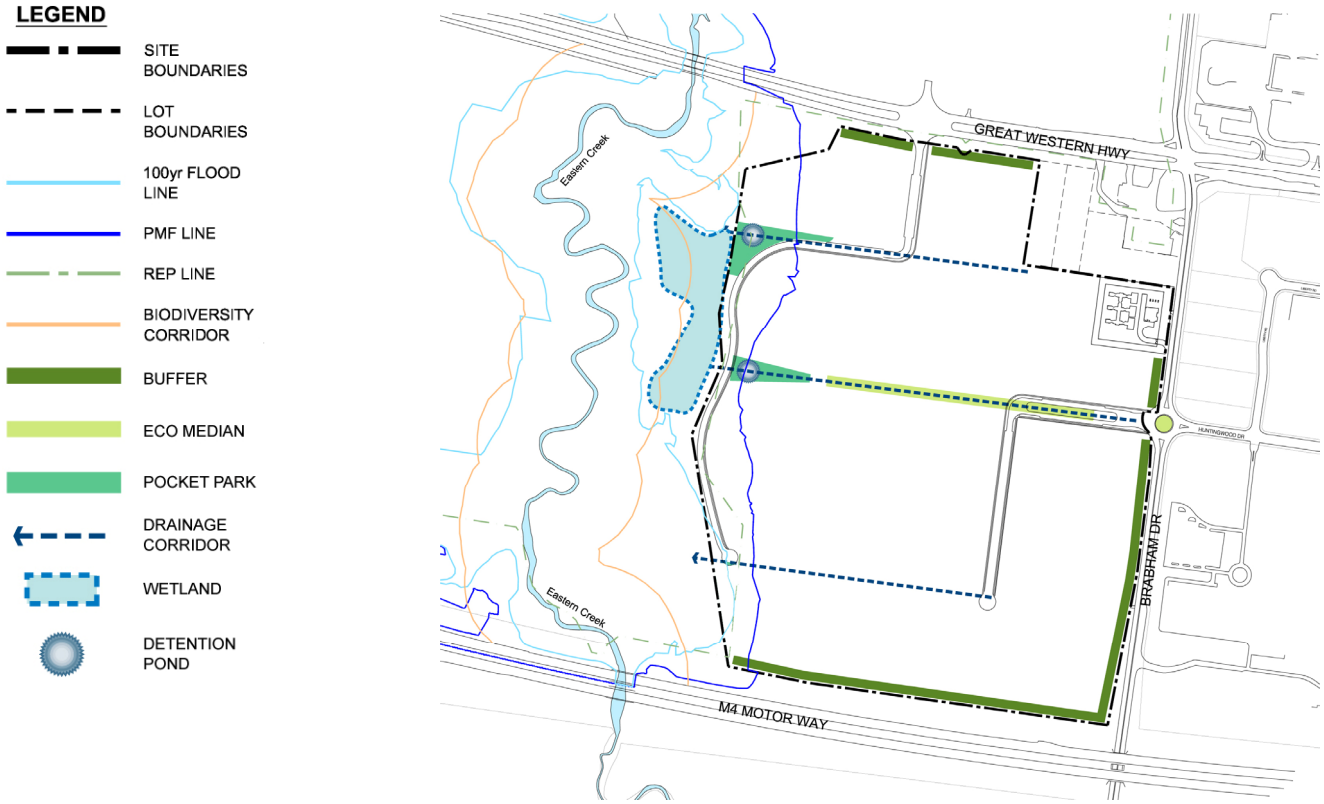


Figure 16: Landscape elements

4 Subdivision design and built form controls

4.1 Subdivision design

4.1.1 Subdivision layout

Objectives

- Provide an appropriate interface between development and the Western Sydney Parklands.
- Incorporate the principles of Water Sensitive Urban Design
- Utilise the existing natural drainage lines, creeks and catchments wherever practicable.
- Provide legible, convenient and safe pedestrian linkages.
- Provide deep allotments that reflect the needs of industrial development.
- Incorporate a variety of lot sizes, enhancing flexibility to accommodate the needs of various industry.
- Ensure the efficient utilisation of the development area
- Ensure the provision of sufficient space for parking, loading and unloading of vehicles and landscaping.
- Maximise the natural attributes of the site.
- Clearly define and reinforce the public domain.

Controls

a) Development is to be undertaken generally in accordance with the Proposed Subdivision Plan in Figure 17,
b) The size and orientation of lots is to have regard to slope and other factors in order to maximise opportunities for solar access.
c) Minimum sized lots are to be confined to the internal local loop roads
d) Larger lots are to be located on corners and fronting the Parklands, Great Western Highway, Brabham Drive and the eco-median collector road
e) Where lots have a dual frontage to the Parklands, passenger vehicle and small vans only may access these lots from the park edge road and trucks must access from the rear.
f) 40m wide vegetation buffer is to be provided to the M4 motorway.

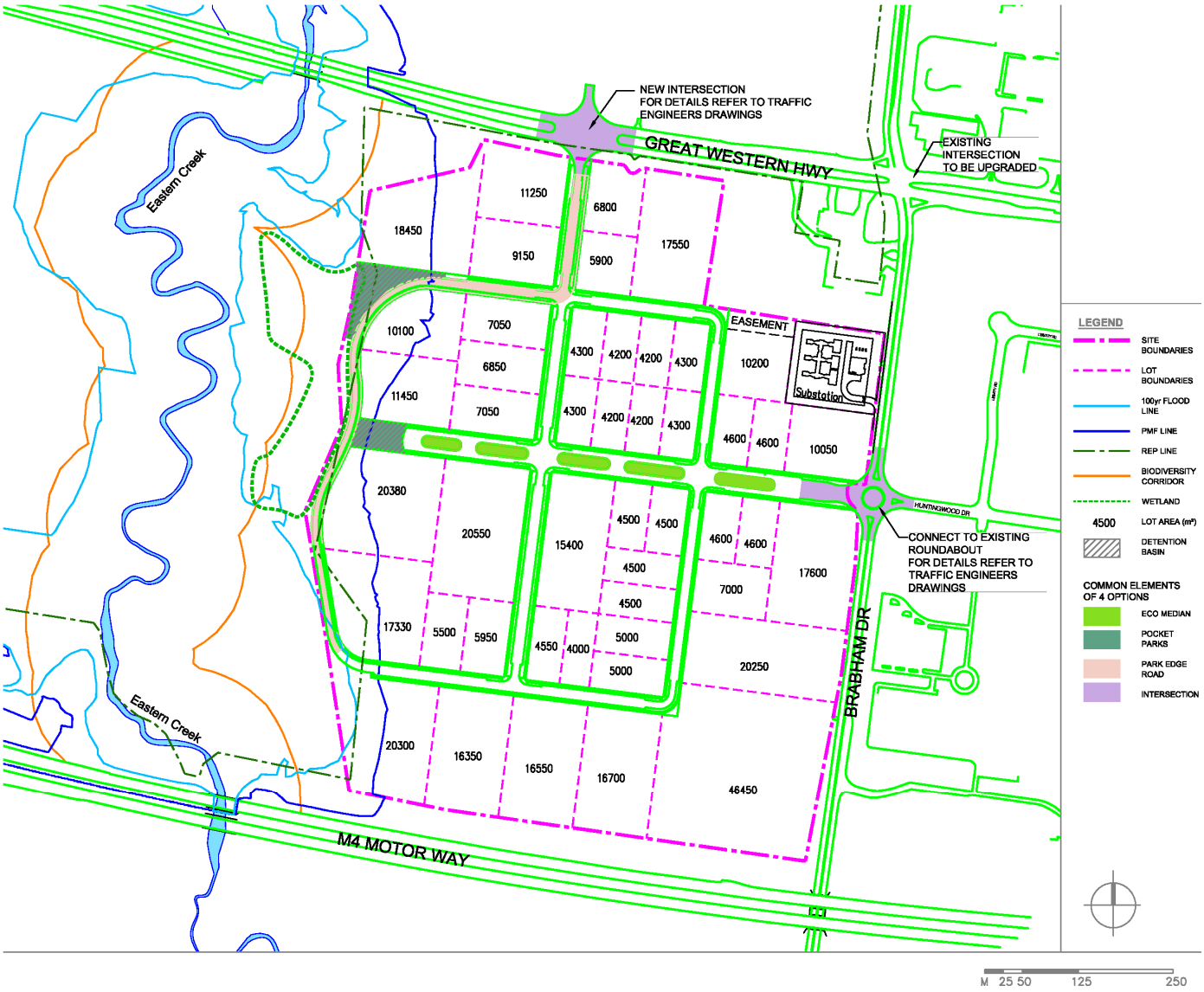


Figure 17: The Proposed Subdivision Plan

Area breakdown	
Land use	**Area**
Total	56.85 hectares
Developable area	46.73 hectares
Roads	8.11 hectares
Substation	1.32 hectares
Open space	0.69 hectares
Yield	
Small lots (o.4-1ha)	31
Medium lots (1-2ha)	12
Large lots (>2ha)	4
Car spaces (on street)	660

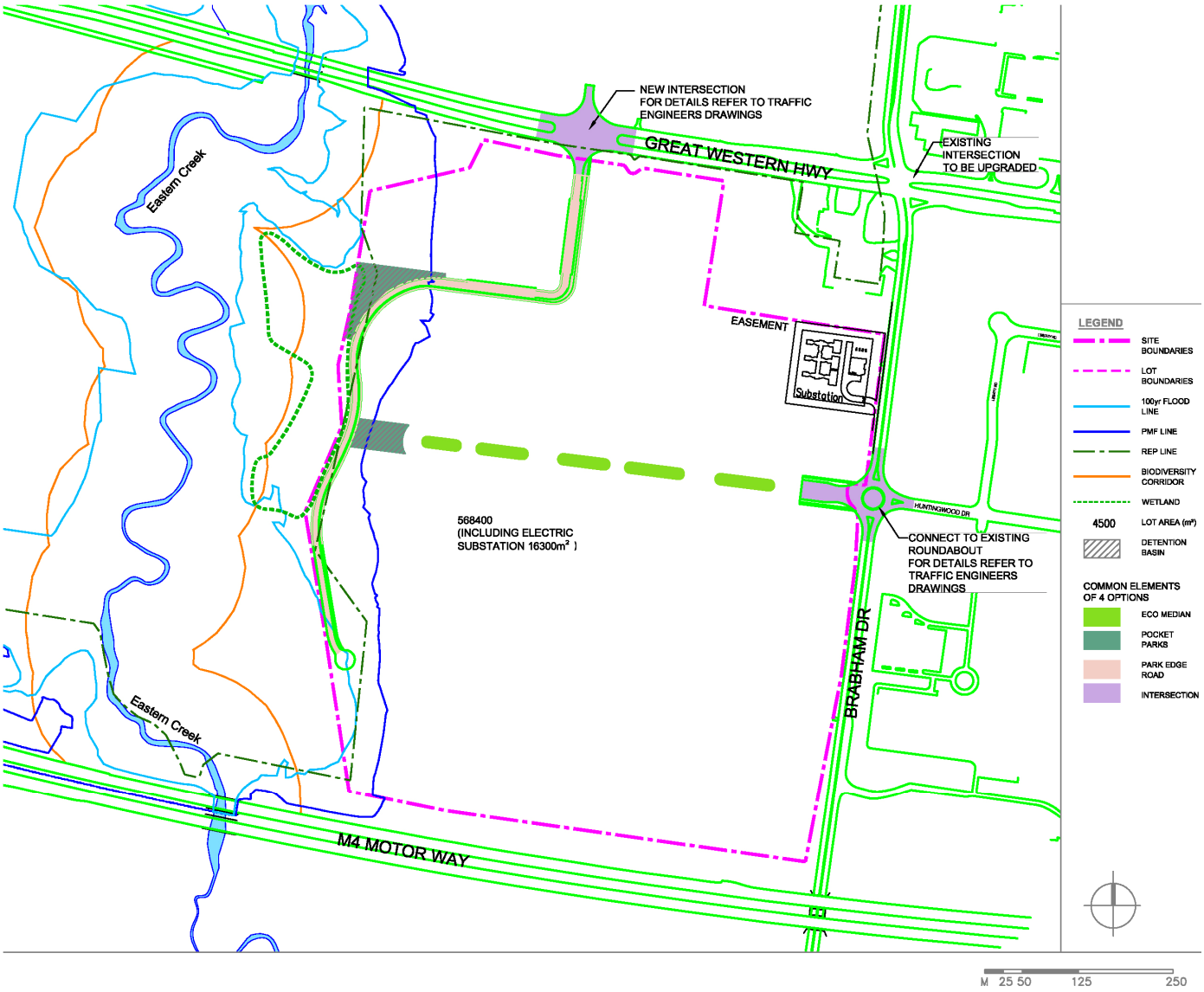


Figure 18: Super lot subdivision option

Area breakdown	
Land use	**Area**
Total	56.85 hectares
Developable area	55.53 hectares
Roads	1.72 hectares*
Substation	1.32 hectares
Open space	0.69 hectares*
Yield	
Super lots	1
Car spaces (on street)	220*
* These areas are within the super lot.	

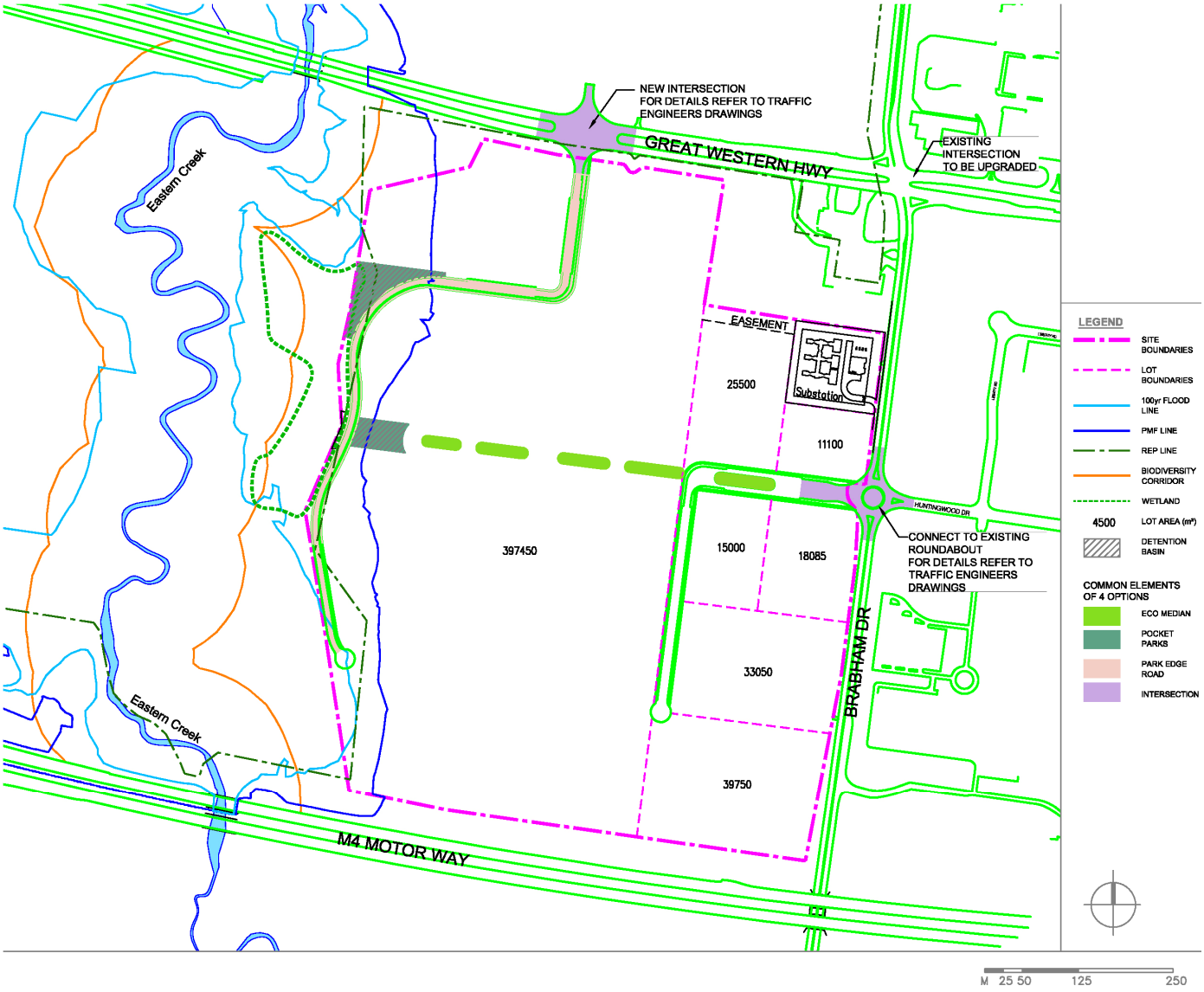


Figure 19: Large lot subdivision option

Area breakdown	
Land use	**Area**
Total	56.85 hectares
Developable area	53.99 hectares
Roads	3.05 ha (where 1.4 ha is within the large lot)
Substation	1.32 hectares
Open space	0.69 hectares (within the large lot)
Yield	
Small lots (o.4-1ha)	0
Medium lots (1-2ha)	3
Large lots (>2ha)	4
Car spaces (on street)	220

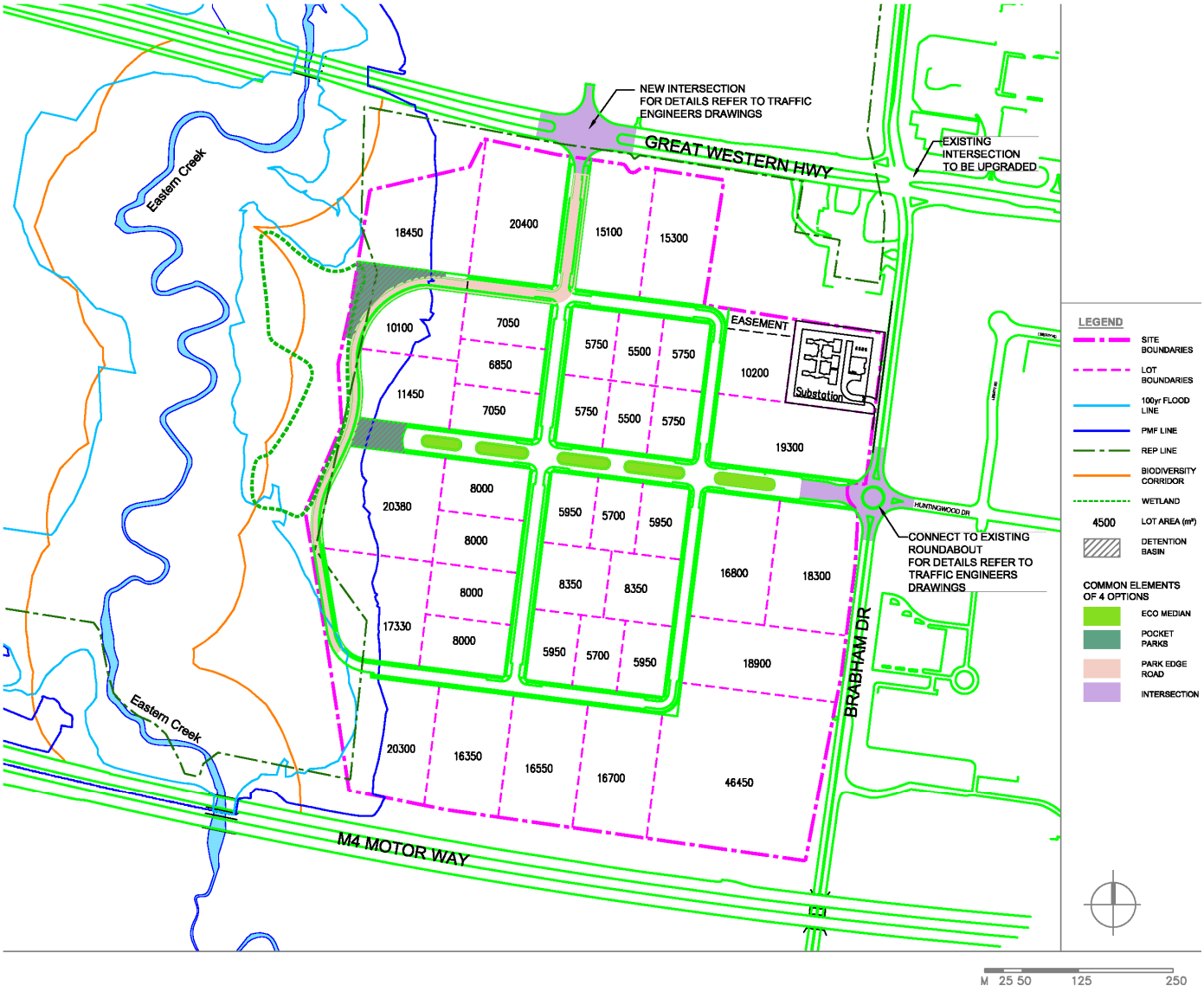


Figure 20: Medium lot subdivision option

Area breakdown	
Land use	**Area**
Total	56.85 hectares
Developable area	46.73 hectares
Roads	8.11 hectares
Substation	1.32 hectares
Open space	0.69 hectares
Yield	
Small lots (o.4-1ha)	22
Medium lots (1-2ha)	14
Large lots (>2ha)	3
Car spaces (on street)	700

4.1.2 Minimum lot size and dimensions

The following minimum standards will apply:

a) Lots are to have a minimum land area of 4,000sqm
b) Lots are to have a minimum width at the building line of 45m.

4.1.3 Asset protection zones

Objectives

- Ensure the protection of life and property from the threat of fire
- Manage fire risk in Huntingwood West so as to minimise inappropriate fire regimes that may affect the Western Sydney Parklands
- Ensure that Asset Protection zones allow for safe, accessible efficient movement of service vehicles in the event of a fire and that potential for conflict between vehicles is minimised.
- Ensure that development appropriately addresses the Asset Protection Zones (where relevant) to allow passive surveillance, increasing the safety and security of these areas.

Controls

a) Development within 100 metres of the Western Sydney Parklands boundary is required to comply with the bushfire planning provisions within Planning for Bushfire Protection (NSW RFS 2001)
b) A minimum 20m APZ is required between the external building line and the edge of unmanaged bushland of the Western Sydney Parklands.
c) All APZs must accommodate fire truck access. The fire truck access may be provided on either a public road or a privately owned access road located between the hazard side of the land (i.e. unmanaged vegetation) and development shown on Figure 12.

4.1.4 Drainage corridors

Objectives

- Protect and enhance the environmental qualities of the Western Sydney Parklands.
- Ensure that development does not result in any net impact on the water quality and quantity of Eastern Creek.

Controls

a) A 14.5m wide eco-median shall be provided in the collector road that travels west towards the Parklands from the intersection with Brabham Drive.
b) Where local access loop roads are to be provided for a multiple small lot subdivision, carriageways travelling westwards toward the Parklands may fall to their centreline and incorporate stormwater treatment measures prior to infiltration in drainage easements adjacent to the Parklands boundary.
c) The location/construction of any services/easements is not to adversely impact upon the Parklands or its vegetation.

4.2 Access and movement

4.2.1 Street network

The Huntingwood West Proposed Subdivision Plan indicates the location of a collector road, park edge road and eco-median collector road. As detailed in Section 3 the provision of other local streets is subject to the subdivision configuration.

The location and intersection configuration of the collector road, eco-median collector and other local road loops serve as a general guide to the urban structure of the site. Detailed design and placement of these roads will need to take into consideration the drainage regime of the site and the configuration of lots to promote flexibility.

Collector Roads

The general principles for the Collector Road are:

a) The Collector Road provides the main vehicular route for pedestrians, vehicles, cyclists and public transport.
b) There are two types of Collector Road. The first runs north-south and links into the intersection with the Great Western Highway. The second runs east-west and links into the intersection with Brabham Drive. The east-west Collector Road features a landscaped median that retains existing vegetation, collects and treats stormwater and provides good legibility and assists way finding to the Huntingwood West subdivision. The landscaped median visually extends the green character of the Parklands into Huntingwood West.
c) Where the Collector Road does not incorporate an eco-median, drainage swales may be provided along one side of the Collector Road.
d) Collector Roads form the primary frontage to lots except where they also front the Park Edge Road.
e) All services within street reservations are to be designed and located in an integrated manner to avoid conflict with landscape and street tree planting.
f) The design standards for Collector Roads are listed in Table 1 and illustrated in Figures 21 and 22 below.

Local roads

The design principles for local roads are:

a) Locate local roads to provide links between the two Collector Roads that also provide rear access to lots in other ownerships along the Great Western Highway.
b) Where local roads travel east-west, locate them on existing drainage lines and incorporate street tree planting to visually extend the green character of the Parklands into Huntingwood West.
c) All services within road reservations are to be designed and located in an integrated manner to avoid conflict with landscape and street tree planting.
d) The design standards for Local Roads are listed in Table 1 and illustrated in Figures 23 below.

Park Edge road

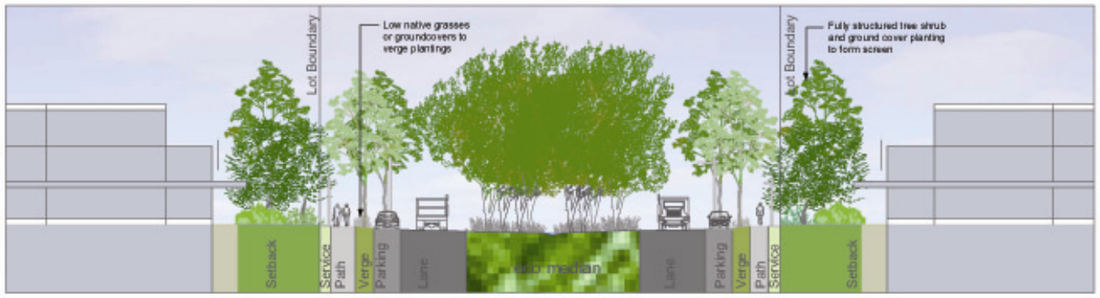
The general principles for the Park Edge road are:

a) Provide narrow carriageways suited to cars and small vans only with a paved cross over entry treatment to encourage lower traffic speeds, provide an appropriate frontage to the Parklands and to ensure heavy vehicles use collector roads and access streets only.

b) Provide a parking lane on the built edge side of the road only which incorporates street trees at periodic intervals to reinforce the tree canopy of street trees along the verge and to narrow the apparent width of the road.
c) All services are to be designed and located in an integrated manner on the built edge side of the road to avoid conflict with landscape and street tree planting.
d) The design standards for the Park Edge Road are listed in Table 1 and illustrated in Figures 24 below.

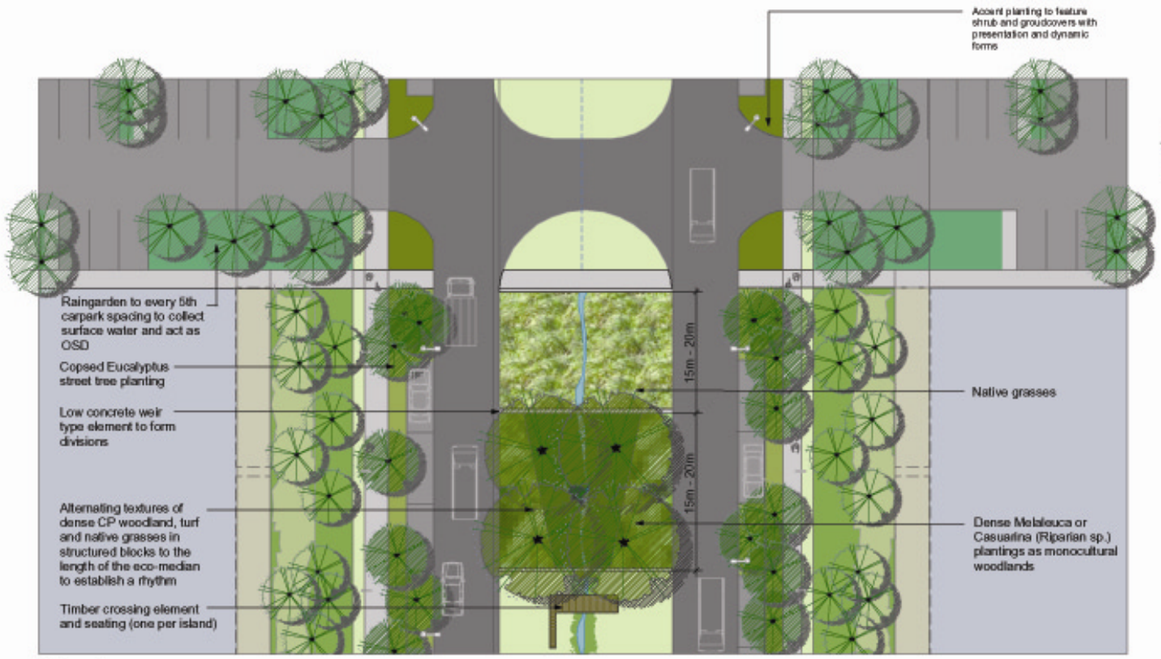
Table 1: Road design standards

Road type	Carriageway width	Traffic lane width	Parking lane width	Verge width	Median width	Footway width	Services zone
Collector road	15.6m	5.5m	2.3m	4m	Nil	1.5m	1m
Eco-median collector road	7.8m	5.5m	2.3	1.5m	14.5m	1.5m on one side and 2m on the other	1m
Local road	13.6	4.5m	2.3m	1.5m	Nil	1.5m	1m
Local road with median drainage	14.8	4.5m	2.3m	1.5m	1.2m	1.5m	1m
Park Edge road	9.3m	3.5m	2.3m	1.7m	Nil	1.5m	1m

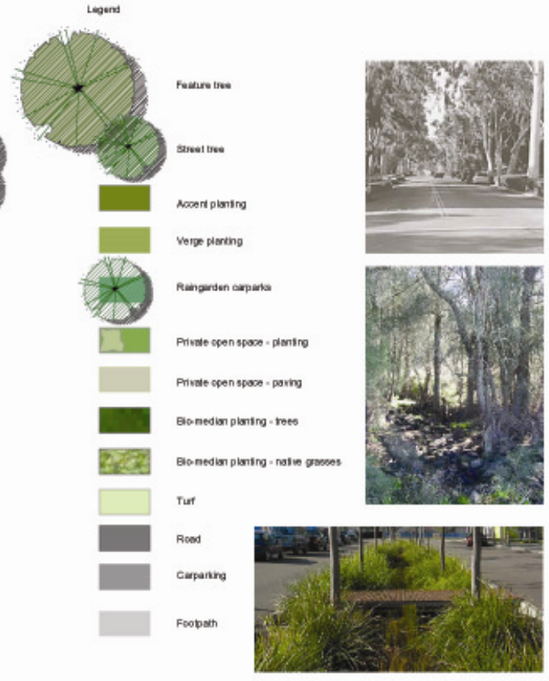


Section

View of streetscape



Plan



Architectus	MH-park edge-wetland section	17.08.06
Architectus	MH-street sections	17.08.06
Architectus	massing.tin	17.08.06
Ecological Engineering	MidHuntingwood_RB_footprint	11.08.06

21.09.2006	H	Client Changes
14.09.2006	G	Client Changes
13.09.2006	F	Client Changes
01.09.2006	E	100% complete
30.08.2006	D	Client issue and Review
21.08.2006	C	Client issue
17.08.2006	B	Client issue
16.08.2006	A	Client issue

Project: Huntingwood West

Client: Department of Planning NSW and Landcom

Drawing: Landscape Plan - Eco Median Road

Landscape Plan - Eco Median Road

Huntingwood West

Department of Planning NSW and Landcom

0 5 10 15 20m

NOTES

1. All information relating to architectural, electrical, hydraulic, civil and other works as represented on EDAW documentation is for reference and EDAW co-ordination purposes only. All documentation for these and other works outside EDAW scope should be referred to the relevant consultants drawings and specification for details.
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Scale	1:400@A3
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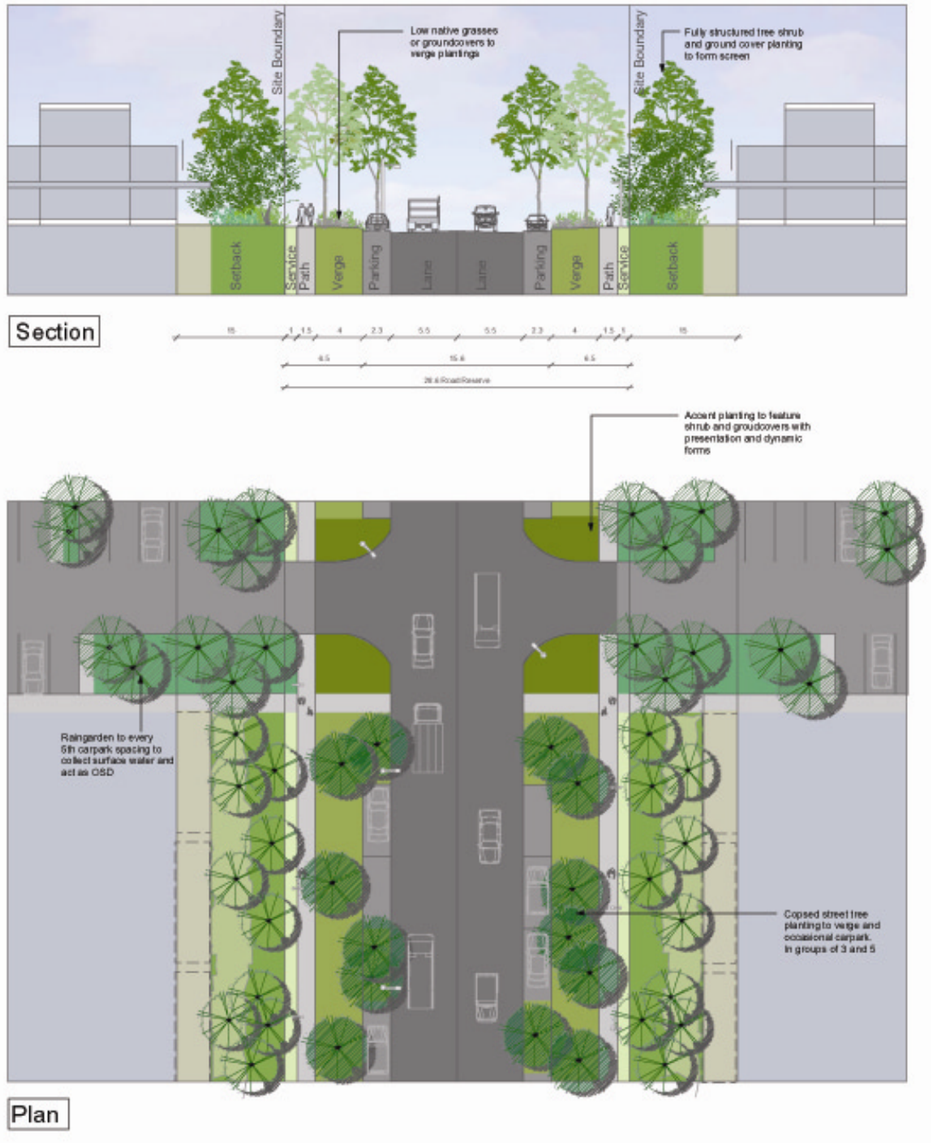
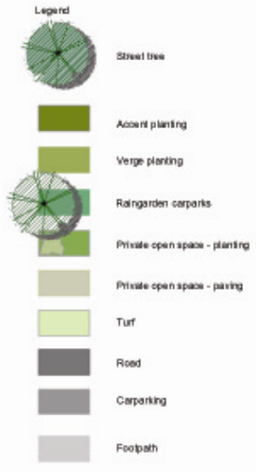
Figure 21: Eco-median road plan and section





REFERENCES

consultant	drawing no	date received
Architectus	MH-park edge-wetland section	17.08.06
Architectus	MH-street-sections	17.08.06
Architectus	masterplan	17.08.06
Ecological Engineering	MastHuntingwood_RB_footprint	11.08.06

21.09.2006	H	Client Changes
14.09.2006	G	Client Changes
13.09.2006	F	Client Changes
01.09.2006	E	100%complete
30.08.2006	D	Client Issue and Review
21.08.2006	C	Client Issue
17.08.2006	B	Client Issue
10.08.2006	A	Client Issue

Project: Huntingwood West

Client: Department of Planning NSW and Landcom

Drawing: Landscape Plan - Collector Road

NOTES

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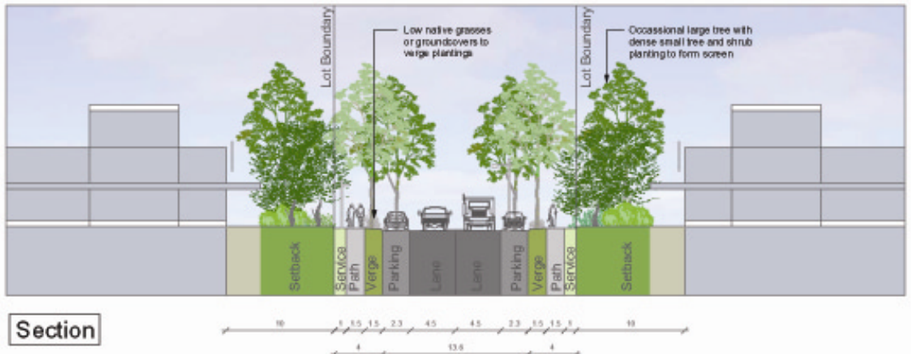
Scale: 1:400@A3
Project No: 06047
Drawn: MS
SK06H

Landscape Plan - Collector Road

Huntingwood West

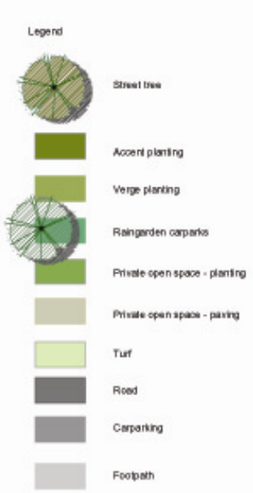
Department of Planning NSW and Landcom

Figure 22: Collector Road plan and section



Section

Plan



REFERENCES

CONSULTANT	DRAWING #	DATE OF ISSUE
Architectus	MH-park edge-wetland section	17.08.06
Architectus	MH-street-sections	17.08.06
Architectus	masterplan	17.08.06
Ecological Engineering	MastPlantingLayout_RB_footprint	11.08.06

21.09.2006	H	Client Changes
14.09.2006	G	Client Changes
13.09.2006	F	Client Changes
01.09.2006	E	100% complete
30.08.2006	D	Client Issue and Review
21.08.2006	C	Client Issue
17.08.2006	B	Client Issue
16.08.2006	A	Client Issue

Project: Huntingwood West

Client: Department of Planning NSW and Landcom

Drawing: Landscape Plan - Circulation Road

Landscape Plan - Local Road

Huntingwood West

Department of Planning NSW and Landcom

NOTES

1. All levels shown are in metres Australian Height Datum and dimensions are in millimetres unless otherwise specified.

EDAW | AECOM

Scale	1:400@A3
Project No.	06047
Drawn	MS

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Figure 23: Local road plan and section

Figure 24: Park Edge road

4.2.2 Pedestrian and cycle network

The general principles for the pedestrian and cycle network are:

Collector and park edge roads

a) Provide a footpath within the road reserve on the side of the road that adjoins development.
b) Provide a shared off road cycle/pedestrian route beyond any swale on the non-development side of the road where appropriate.
c) Provide an indented bus bay and bus shelter within the road reserve.

Other roads

a) Provide footpaths on both sides of the streets
b) Encourage lower speed environment with on-road cycle routes.

4.2.3 Public transport

Objective

- Facilitate the use of public transport through the site by the provision of bus stops.

Controls

a) Bus stops and bus shelters shall be provided as agreed with bus providers.

4.3 Open space and public domain

4.3.1 Landscape treatment

Objectives

- To seamlessly integrate the Parklands with the employment lands
- To extend the ecologies and vegetation structure of the Eastern Creek corridor into the site through streetscapes.
- To use species from the Cumberland Woodland suite of species.
- Retain and integrate existing trees.
- To develop a landscape expression which is founded on the principle of water capture and passive re-use.
- Develop a framework for future design development.
- Provide a park-like driving experience through the estate.
- Emphasise a clear road hierarchy.
- Provide a safe and efficient circulation system for vehicles, cyclists and pedestrians.
- Establish ecological connections through the estate to the Parklands.
- Contribute to effective management of stormwater, biodiversity and energy efficiency; and to improve visual amenity.
- Use landscape elements to relate to and interface with the Parklands.
- Retain and integrate existing landscape elements where possible (such as vegetation and topographic features), in the design of the new development.
- Assist in the management of salinity.
- Assist in the delineation of character areas within the precincts.

Controls

a) A Landscape Strategy shall be prepared prior to the linen release of the first subdivision in accordance with the Landscape Plan in Appendix A.

b) The Landscape Strategy shall demonstrate the following:
   - Use of endemic species from the area applicable to the situation and recommended by Council and Landcom;
   - Use of tall upright street tree species to emphasise the vertical proportions of the street;
   - Selection of low water demand drought resistant vegetation for use in common landscaping areas, including native salt tolerant trees;
   - Use of mulching cover in public landscaped areas (excluding drainage corridors);
   - Use of smart irrigation systems that respond to soil moisture and climate conditions; and
   - Integration with Water Sensitive Urban Design principles in the selection and application of species to detention basins, bio-filtration systems and planted swales.

c) There is to be no fencing to the boundary with the Parklands. The boundary is to be indicated by means of planting and low berms. If fencing is needed for security then it is to be located behind the main building frontage.

4.3.2 Street tree planting

Objective

- Ensure high quality street tree planting is provided throughout Huntingwood West.
- To retain and integrate existing trees into the streetscape where possible.
- To extend the ecologies of Eastern Creek in to the site.
- To provide a foreground of vegetation to the built form and as a visual connection to the vegetation behind.

Controls

a) Any development application proposing the positioning of trees within the road carriageway is to be accompanied by:
   - Details relating to service provision (e.g. the location and design of street lighting, the impact on the manoeuvrability of garbage trucks), drainage and location of future driveway accesses; and
   - A Road Safety Audit prepared in accordance with the RTA Guidelines.

b) Tree species should emphasise the road hierarchy.

c) Trees are to be placed at irregular intervals in groups to create copses rather than at regular spacings. Minimum distance between copses is to be 1.5m and maximum distance between copses is to be 8m.

d) The Landscape Strategy shall demonstrate the following:
   - Use of appropriate durable native tree species that are endemic to the region to promote linkages to the Parklands and to support biodiversity values within the Huntingwood West precinct and the adjacent Eastern Creek corridor.
   - Use of a species that minimises the risk to utilities and services.
   - The location of street trees to maintain adequate lines of sight for vehicles and pedestrians, especially around driveways and street corners.
   - Selection and location of street tree species to provide appropriate shade.
   - Selection and location of street trees to create an attractive and interesting landscape character, clearly defining public and private areas, without blocking the potential for street surveillance.
   - Use of low maintenance native grasses or paved treatments at ground level within the road reserve.
   - Selection and location of species appropriate for bio-filtration systems, detention basins and planted swales.

4.3.3 Public domain signage

Objectives

- Develop an identifiable, marketable and appropriate character for Huntingwood West public domain signage.
- Facilitate the design and erection of an array of imaginative and innovative signage that brings vitality and interest to the estate.
- Ensure that signs contribute to the safety, legibility and amenity of the estate's natural and modified environment both by day and night.
- Ensure that all signage is of a high quality of design and construction and integral of the built environment and landscape setting.
- Ensure that visual clutter is minimised by limiting unnecessary duplication of signage.

a) Signage in the public domain is generally restricted to:
   - Traffic control and place identification signs.
   - Place making signage of the estate developer including directional information, identification signs marking different precincts within the estate and signs containing information about services within the estate.
b) Signage is to be:
   - Designed to reinforce the district identity of the development;
   - Coordinated in design and style; and
   - Located so as to minimise visual clutter in the public domain.
b) Locating entry signage and the like within a public road reserve is subject to Council agreement.
c) The location and design of signage is to be indicated on a Landscape Masterplan.
d) Public domain signage is to be located so as not to obstruct sight lines of motor vehicles or trucks, or impede pedestrian movement.
e) Temporary signage is permitted in the public domain to provide general directional, estate marketing and other information for a period of no longer than 6 months.

4.3.4 Street furniture and lighting

Objectives

- Ensure a high quality, functional, safe and attractive public domain.
- To read as an extension of the Parkland aesthetic to establish stronger links between the Parklands and employment lands.

Controls

a) Footpath paving must provide a hard wearing, cost effective, practical and maintainable surface.
b) Street furniture is to be incorporated into the design of the streetscape and shall include a consistent approach to street lighting, street and information signs.
c) Street furniture and lighting is to be:
   - Designed to reinforce the district identity of the development;
   - Coordinated in design and style; and
   - Located so as to minimise visual clutter in the public domain.
d) The location and design of street furniture is to be indicated on a Landscape Masterplan.
e) Vehicular street lighting is to be mast top lighting to meet relevant RTA and Austroads standards.
f) Pedestrian lighting is to be pole mounted to meet relevant Australian Standards.
g) Major cycle routes and pedestrian access paths are to be lit for night time usage.
h) Lighting is to be designed and managed to mitigate light spill impacts on fauna habitat, particularly adjoining the Parklands.
i) Lighting shall be designed to incorporate a mature tree environment.

4.4 Site services

4.4.1 Water and sewer

Objective

- Ensure that adequate provision is made for potable water supply.
- Minimise the use of potable water.
- Promote and encourage the re-use of stormwater both passively and actively.
- Ensure that adequate provision is made for sewer facilities.
- Minimise ground infiltration.

Controls

a) Mains water supply is to be made available to every allotment.
b) Mains water supply is to be provided within the road reserve wherever possible.
c) Allotments are to be provided with rainwater tanks that are plumbed into toilets and on-site landscaping irrigation systems.
d) Low water demand species are to be used for landscaping.
e) Low infiltration or low pressure systems are to be utilised for sewer pipelines to reduce ground water infiltration.

4.4.2 Electricity, telephone and gas

Objectives

- Ensure that adequate provision is made for site facilities.
- Ensure that site facilities are functional and accessible to all properties and are easy to maintain.
- Ensure that site facilities are integrated into development in an unobtrusive manner.
- Ensure the provision of advanced telecommunications systems that support employment activities.

Controls

a) Underground services are required for all utilities, including electrical services.
b) Garbage and recycling facilities are to be integrated with the overall design of buildings and landscaping.
c) Modern telecommunications infrastructure and services such as high speed internet services are to be provided (subject to negotiations with the relevant service providers).
d) Pad mounted substations are to be located behind the building line.

4.5 Environmental management

4.5.1 Indigenous heritage

Objectives

- To ensure a meaningful conservation and management outcome for the Bungarribee Precinct of the Western Sydney Parklands.

4.5.2 Non-indigenous heritage

Objectives

- To protect significant vistas across the Huntingwood West precinct toward the Western Sydney Parklands.
- To record any archaeological remains or relics found in the Huntingwood West precinct.

Controls

a) If any archaeological remains or relics are found with the Huntingwood West precinct they may only be removed or disturbed once a s140 approval (NSW Heritage Act) is sought from the NSW Heritage Office. This is to be applied for prior to commencement of works in the area.
b) All works are to be monitored on an at call basis.
c) Any remains or relics found are to be recorded in accordance with Godden Mackay Logan's recommendations included within their Heritage Impact Statement dated August 2006.
d) The results from any recording program are to be incorporated into an overall interpretation strategy that is to be developed for the Bungarribee precinct of the Western Sydney Parklands.

4.5.3 Water cycle management

Objectives

- Stormwater runoff from the development as well as the 20ha catchment to the east of the development which flows through the site, is to meet the following pollution reduction targets:
  - total suspended solids – 80% reduction in the average annual load from that typically generated from an urban catchment
  - total phosphorous (TP) and total nitrogen (TN) - 45% reduction in the average annual load from that typically generated from an urban catchment.
  - litter and gross pollutants will be removed from stormwater leaving the site.
  - Hydrocarbons, oil & grease: 90% total annual load, total hydrocarbon discharge < 10 mg/L

  These targets can be met in conjunction with the downstream wetland adjacent to the site.
- Post-development storm discharges to equal pre-development storm discharges for one and a half years ARI event, so as to minimise the impact of frequent events on the natural waterways and to minimise bed and bank erosion.
- Post-development storm discharges up to the 100 year ARI event need to be contained so as to minimise the impact of flood events on Eastern Creek. These targets can be met in conjunction with the downstream wetland adjacent to the site.
- Potable mains water needs to be reduced through demand management including the installation of water efficient fixtures and using alternative sources of water based on matching water quality to uses on a “fit-for-purpose” basis. Ensure no net increase in run off for storm events between the 1 in 2 and 1in 100 year ARI events, and a significant reduction in peak flow rates from the effects of capturing water in rainwater tanks to the allotments.
- Investigate the potential of alternative water sources including wastewater and stormwater to meet non potable demand on the site.
- Where reticulated recycled water is available from the local water utility, it must be used for appropriately matched uses such as toilet flushing, garden watering etc.
- Avoid adverse impacts due to soil salinity.

Source controls

a) Stormwater quality controls to meet the development objectives can include gross pollutant traps. Bio-retention systems, rain gardens and wetlands. These systems can be located as discrete individual elements, as larger regional elements or a combination thereof. Modelling at the detailed design stage is to determine appropriate size and location in conjunction with the downstream wetland. All WSUD elements are to minimise any potential impact on sodic soils.
b) Pollution sourced from work areas is to be prevented from entering the stormwater system and thereby the downstream environment by roofing work areas, directing wash-down to storage (which is subsequently pumped out as industrial waste) or sewer and controlling activities undertaken in areas connected to stormwater drains.

Downstream controls

a) Retarding basins are to be provided within the development so that the one and a half year ARI event equals the pre-development one

and a half year ARI event.

b) A wetland adjacent to the development can be used to assist the development attaining stormwater quality objectives and retardation of the flows up to the 100 year ARI event.

Minor and major drainage controls

The drainage system is to consist of the following components:

a) Minor drainage system - Pipe and street system able to convey runoff safely through the development up to the 20 year ARI storm.
b) Major drainage system - Overland flow paths must be designed to convey the 100 year ARI flows.
c) Combined retarding / wetlands to provide necessary quantity/quality controls while being able to cope with 100 year ARI flows.

4.5.4 Soils management

Objective

- Control sediment and erosion during construction.

Controls

a) Each contractor is to prepare an erosion and sediment control plan for each lot.
b) The erosion and sediment control plan is to:
   - Detail the logistics of excavating, handling, stockpiling and reuse of the soils.
   - Describe the requirements for erosion and sediment controls including sediment fences, diversion drains, barrier fences, energy dissipaters, check dams, temporary culvert crossing and sedimentation basins.

During construction the main principles of erosion and sediment control shall include:

a) Stockpile and reuse all topsoil.
b) Divert clean runoff water from upstream drainage around the disturbed open trench area.
c) Restrict vehicular access to stabilised entry and exit points with controls to reduce soil export attached to excavators and truck tyres.
d) Minimise soil disturbance in all areas at all times.
e) Restrict access to areas that do not require land disturbance.
f) Provide adequately designed sediment fences, barrier fences, catch drains, check dams and other required structures.
g) Implement all measures to maximise sediment trapping and minimise sediment export from the site.
h) Ensure that temporary topsoil stockpiles are protected from erosion when works are unlikely to continue for long periods.
i) Temporary stockpiles are to be protected from erosion if not used within 2 days.
j) Ensure that stockpiles are not placed in the flow path of upslope runoff.
k) Make provisions for emergency quick cleanup and removal of any accidental spills of soil onto public property and provide tanker with pump to cope with accidental runoff.
l) Provide wire mesh and gravel inlet filters at stormwater kerbs (if any) located downstream of the entrance to the site to trap any accidental spill of soil material.
m) Monitor and maintain all sediment and erosion control measures.
n) Minimise additional soil disturbance activities during wet weather.
o) Undertake water quality monitoring at the outlet of the sediment basins to ensure compliance with DEC requirements.

p) Stabilise rehabilitated surfaces as soon as possible. Vegetative stabilisation of disturbed surfaces shall be undertaken within 7 days after completion of construction works.
q) Procedures shall be incorporated for adequate regulation and maintenance of controls.

These activities are to be detailed and sequenced by each contractor prior to commencement of subdivision works on the site.

All works are to conform to relevant Council requirements, plans and codes.

Cut and fill

a) The maximum height of retaining wall elements is to be 3m. Where filling requires a retaining wall element to be greater than 3m in height, the retaining wall is to be terraced to allow a ratio of 3m height to 1.5m length.

Land filling controls

a) Where required crushed sandstone tunnel spoil or equivalent are to be used as spoil.
b) Fines deficient rockfill such as ripped sandstone or equivalent is to be placed in the bottom 0.5m of the embankment over low-lying portions of the natural surface to facilitate drainage and provide a capillary break against rising groundwater.
c) The bulk of fill is to be placed in layers 200-300mm thick and compacted systematically to at least 95% standard density ratio.
d) The top 0.5m of fill is to be compacted to 98% of standard and its upper surface shall be cambered to shed runoff and minimise infiltration.
e) Only certified fill material validated at the source is to be used.

4.5.5 Salinity

Objectives

- To manage and mitigate the impact of, and on, salinity.

Controls

a) Salinity is to be considered during earthworks, rehabilitation works and during the siting, design and construction of infrastructure.
b) Each subdivision application is to be accompanied by a salinity report prepared by a suitably qualified consultant, reporting on the conditions of the site, the impact of the proposed subdivision on saline land, the mitigation measures that will be required during the course of construction and a requirement that the consultant signs off the project on completion.

4.5.6 Tree retention

Objective

- Ensure the protection and enhancement of existing trees where practical outside the necessary fill areas.

Controls

a) A Tree Survey Plan is to be submitted with each subdivision DA.
b) The Tree Survey Plan is to identify the location, type and condition of all existing trees and is to indicate those trees proposed to be removed and those to be retained.
c) Existing significant trees are to be retained wherever possible.

4.5.7 Weed management

Objectives

- Prevent the spread of weeds from the Huntingwood West precinct to the Western Sydney Parklands.
- Control the spread and intensification of existing weed species within Huntingwood West.
- Prevent the introduction of new weed species to Huntingwood West.
- Reduce existing weed populations within Huntingwood West.

Controls

a) Landscaping in accordance with an approved landscape plan is to be established as soon as practicable following completion of construction to prevent weeds from infesting disturbed ground.
b) All mulch and topsoil utilised in landscaping is to be certified weed free by the material supplier or landscaper.
c) Any plant species identified within the Noxious Weeds Act 1993 are not to be used in any landscaping scheme.

4.6 Built form controls

4.6.1 General design principles

Objectives

- Ensure that built form establishes a strong relationship to open space and to the Parklands areas.
- Ensure that development contributes to cohesive streetscapes and desirable pedestrian environments.
- Ensure a safe environment by promoting crime prevention through good urban design.
- Encourage pedestrian use of streets to enhance pedestrian safety and security.
- Promote energy efficient building orientation and envelopes.
- Avoid street views of long building elevations not screened by landscaping or that display monotonous building forms and design.
- Encourage the provision of a range of distinctive building forms that promote the identity of each tenancy.
- Encourage a high quality built form by encouraging activity on elevations fronting streets, ensuring buildings address streets and emphasising vertical forms with landscape, buildings and street lighting.

Controls

a) Development Applications are to be accompanied by a site analysis plan demonstrating site characteristics (site boundaries, north point, contours, location of services and nature of surrounding development etc) and site opportunities and constraints.

b) Buildings are to address the primary street frontage of an allotment with a clear and well lit pedestrian entry. Refer Figures 27, 33, 35 & 37. Where the lot has a dual frontage to the Parklands, pedestrian and visitor building entries shall address the Parklands with loading and truck movements taking place on the other frontage. Where the lot has a dual frontage elsewhere, building entries shall address the major road frontage with loading and truck movements taking place on the other frontage. No loading docks are to be located facing the Parklands, Great Western Highway, Eco-median Road or collector roads.

c) Parking areas and service loading areas are to be located behind the building line and integrated into site layout and building design, and not dominate the primary streetscape of an allotment. Where located at the side or rear of an allotment with more than one street frontage, these areas shall be appropriately screened from the secondary street frontage(s). Refer Figure 36.

d) Street tree planting, including endemic species, is to be provided to enhance the appearance of the street and pedestrian environment, including providing protection from the sun. Refer Figure 30

e) Buildings are to provide variety to facades by the use of projecting upper storeys over building entries, upper storey display windows, emphasising street corners and varying roof forms. Refer Figure 33.

f) Buildings are to provide effective sunshading for windows, wall surfaces and building entries (other than loading docks) by the use of design elements such as overhanging eaves and awnings, undercrofts, colonnades and external sunshading devices including screens. Refer Figures 28 and 29.

g) Building forms are to be articulated using roofs with eaves that project beyond external walls, dividing long walls into a series of forms and emphasising customer entries and service doors. Refer Figure 31.

Figure 25: Production facility with warehouse behind.
Applied architectural details add interest

Figure 26: Shared entry

Figure 27: Distinctive architectural treatment to entry & office component

Figure 28: Use of colour & sunshading elements

Figure 29: Overhanging eaves, louvres & distinctively detailed structural elements

Figure 30: Variety of materials and landscaping

Figure 31: Fairfax Print Centre, Chullora NSW
Varied massing & materials break down bulk

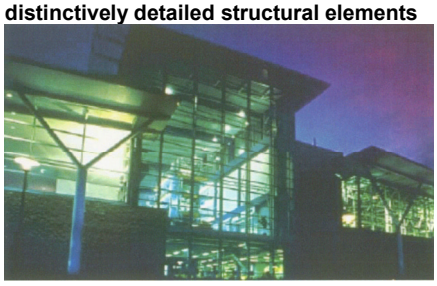


Figure 32: Fairfax Print Centre - Chullora, NSW
Large expanses of glazing lit at night show the industrial process at work

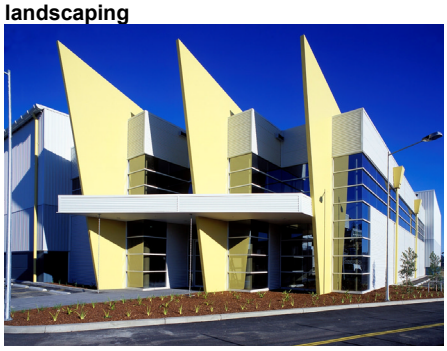


Figure 33: Distinctive design elements draw attention to the entry

Figure 34: The Age Print Centre, Tullamarine VIC - signage
Integrated & distinctive design for signage

Figure 35: The Age Print Centre, Tullamarine, VIC – entry
Variety of high quality materials & design increase the profile & prestige of the company

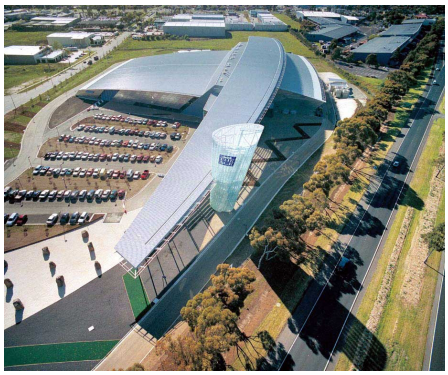


Figure 36: The Age Print Centre, Tullamarine VIC - aerial view
Integrated plan incorporates offices, production facility, parking & landscaping

Figure 37: Glazing & colour makes a feature of the building entry

4.6.2 Frontage development

Objectives

To provide for the following different types of frontage development:

- Collector Street frontage development that addresses the street utilising entrances that are clearly visible and accessible.
- Access Street frontage development that maximises activity and encourages pedestrian activity along the street edge.
- Development fronting the Parklands that addresses APZs and is designed to consider outlook from the Parklands.

Controls

a) Frontage development is to be established generally in accordance with the Figure below.
b) The building line and the setback line are the same line. Building frontages on adjoining allotments are to be aligned, located on the setback line.
c) Larger scale tenancies are to be provided on lots with frontage to the collector street.
d) Strata titled industrial units may be located on a lot with a primary frontage to a local street only.
e) Where an allotment has its primary street frontage to a collector street a minimum of 60% of the primary building façade at ground level is to be activated by the inclusion of offices, showrooms, building entry ways and the like located to face the street.
f) Where an allotment has its primary street frontage to a local street or has a frontage to the Parklands or the park edge road, a minimum of 40% of the primary building façade at ground level is to be activated by the inclusion of offices, showrooms, building entryways and the like, located to face the street.
g) Loading docks, loading areas and external storage areas are not permitted along Parklands or park edge road frontages.

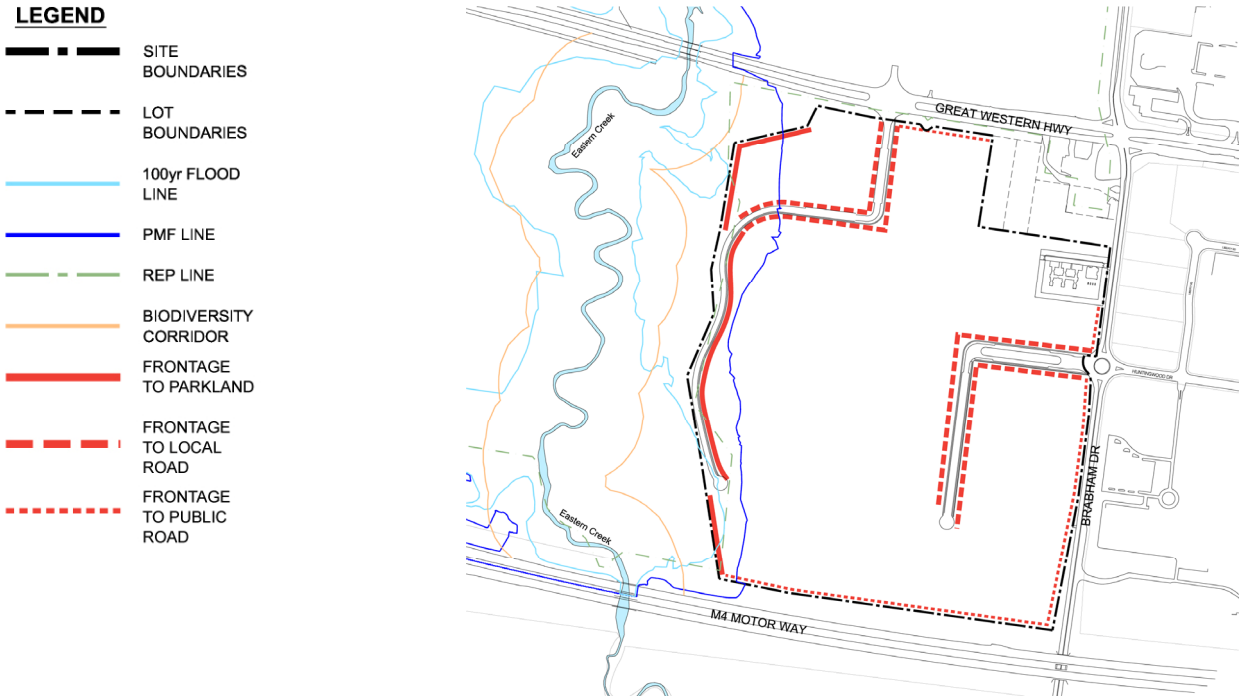


Figure 38: Prominent building frontages

4.6.3 Building envelope

Objectives

- Ensure the creation of a distinctive streetscape character and hierarchy of streets.
- Ensure that building forms are consistent with the desired urban character and are of an appropriate scale for an industrial area.
- Mitigate the visual impact of relatively large scale industrial development on the street and the Parklands.
- Provide adequate distance between buildings and street alignments for landscaping, vehicle manoeuvring and noise impact attenuation.
- Provide adequate sight distance for safe traffic movement
- Create a strong street presence encouraging pedestrian activity and slower traffic speeds.
- Create a strong landscape setting to the street frontage.
- Encourage passive surveillance of the street.
- Encourage a high standard of architectural design for industrial buildings.
- Allow for the efficient use of land.
- Provide an area for tall trees to shade roofs and parking areas and to allow cross ventilation between buildings.
- Provide view sharing across blocks.
- Encourage attractive and visually coherent streetscapes.
- Encourage the use of building materials which are durable and which maintain a high standard of appearance over time.
- Ensure the economic and energy efficient use of materials in the construction of industrial buildings.
- Ensure land uses likely to be negatively impacted by traffic noise are located away from major road frontages.

Site coverage control

a) A maximum site coverage of 60% applies unless it can be demonstrated to the satisfaction of Council that greater site coverage will not adversely impact upon amenity of the streetscape or adjoining allotments.

Setback controls

a) Buildings are to setback by:
   - 25m from Great Western Highway of which 15m must be utilised for landscaping,
   - 15m from Brabham Drive, the collector road and park edge road alignments of which 10m must be utilised for landscaping, and
   - 10m from the alignment of other roads of which all is to be utilised for landscaping.
   - In all cases, the remainder of the setback may be used for an access driveway or carparking.
   - Storage of any kind is not permitted within the setback area.

b) Where an allotment has a frontage to more than one street, the building alignment to the secondary street frontage(s) is to ensure that the building presents a satisfactory relationship to the street with good design and landscaping elements.

c) Where parking and/or loading/servicing areas are located at the side or rear of dual frontage lots, these are to be appropriately screened with landscaping to reduce visual impact when viewed from the street.

d) Front setbacks are to be landscaped generally with ground cover and trees ensuring the views between development and the street are not totally obscured. Minimum landscaping requirements are:
   - One tree per 25sqm

- A 4m wide planting zone along the total frontage of lots (except where driveways or paths exist), with the balance being either turf, paving or planting.

e) Nil side setbacks are permitted between allotments subject to meeting fire rating requirements.
f) A zero rear setback is permitted.
g) A minimum setback of 5m is required from the building alignment to any boundary that is adjacent to The Parklands, a drainage area or a drainage corridor.
h) All setbacks to the Parklands are to be landscaped in their entirety.
i) All setbacks to car parking areas are to be landscaped.
j) Water tanks are not to be located in the front setback and shall be appropriately located or screened so as to not be visible from outside of the site, unless incorporated as an architectural feature to promote WSUD objectives.

Other design controls

a) The office component of any development is to be incorporated into the overall design of the building and located generally along the primary internal street frontage and away from frontages to major arterial roads external to the site which might be the source of noise impacts due to traffic.
b) Blank building facades facing the primary street frontage are not permitted.
c) Facades are to be articulated using architectural elements such as externally expressed structures and framing systems, high quality materials and finishes to primary frontages, glazing, sun shading structures, protrusions and deep penetrations, textures and colours.
d) Elevations should use a variety of materials and finishes including brick, glass, steel, metal mesh, concrete, textured and split block work and pre-cast exposed aggregate and composite panels.
e) The use of metal and tilt up cladding is discouraged on front elevations, unless it can be satisfactorily demonstrated that it forms part of an architectural design solution in association with masonry, glass and other high quality materials. Where a side or rear façade is visible from the public domain, the use of metal and tilt up cladding must only comprise 50% of that wall's cladding material.
f) Glazing is not to exceed 20% reflectivity.
g) Sunshading devices such as awnings are to be provided over all openings, other than loading docks.
h) Rooftop structures (including plant rooms, air conditioning and ventilation systems) are to be incorporated into the design of the building to create an integrated appearance.

4.6.4 Daily convenience shops

Objectives

- To provide for retail shops that serve the daily convenience needs of the workforce employed within Huntingwood West.
- To co-locate daily convenience shops with public transport facilities.
- To ensure the commercial viability of daily convenience shops.
- To ensure the design of daily convenience shops is integrated with the design of other development on the allotment.

Controls

a) Individual small retail shops that serve the daily convenience needs of the workforce are permissible. It must be demonstrated that the use is clearly ancilliary and subservient to the dominant use and that the retailing activity will not detrimentally affect the viability of any business centre, existing or proposed, and in terms of scale, location and goods to be sold, within the Blacktown hierarchy.
b) The combined gross floor area of all individual small shops with the Huntingwood West precinct is not to exceed 250sqm.
c) Such shops are to be generally clustered to create a node to enhance their commercial viability.
d) Such shops are to be located on roads which have an external frontage to the site.
e) Such shops are not to be located within 400m by straight line distance of other existing or approved individual small shops in the existing Huntingwood industrial estate to the east.
f) Such shops are to be part of other development on the allotment and integrated in terms of design, materials and landscaping with the rest of the development on the allotment on which they are located.

4.6.5 Parking

Objectives

- Ensure that adequate provision is made on each development site for parking.
- Improve the appearance of car parking areas on the streetscape in order to minimise the visual impact of car parking areas on the streetscape.
- Allow for shared car parking arrangements between neighbouring allotments.
- Provide shade for car parking areas.
- Provide for bicycle parking areas.

Controls

a) Access routes to car parking areas are to be clearly identified.
b) Car parking is to be located behind the required minimum front setback area.
c) Visitor parking is to be clearly marked and easily identifiable and be located closest to the building's main entry.
d) On-grade parking is to be in a landscaped setting.
e) A minimum 1500mm wide landscape strip is to be provided between banks of car parking to provide shade and minimise visual impact of car parking.
f) The minimum distance between driveways that cross over swales shall be 25m.
g) All car parking spaces are to be adequately drained, marked and

designated upon the site.

h) Car parking is to be provided in accordance with the rates in the table below.

i) Sufficient spaces are to be provided for disabled car parking. All developments providing 50 car parking spaces or more must provide at least 2% or part thereof of those spaces for disabled drivers clearly marked and signposted for this purpose and located as close as possible to the building entrance.

j) A dedicated area for bicycle parking shall be provided within the car park and shall include bicycle racks or similar.

Use	Rate
Factory	1 space/75sqm GFA
Warehouse/bulk storage	1 space/200sqm GFA
Commercial/office component	1 space/40sqm GFA

4.6.6 Loading and servicing

Objectives

- Encourage the optimum efficiency of land use through the provision of shared parking, turning and access routes between neighbouring sites. (Refer Figure 26).
- Maximise the area available for landscaping.
- Ensure adequate provision is made on each development site for access by cars and trucks and for the loading and unloading of materials and goods.
- Ensure that site facilities are functional and accessible and easy to maintain.
- Ensure that site facilities are integrated into development and are unobtrusive.
- Ensure trucks and cars are separated to maximise on site safety.

Controls

a) Vehicular access, manoeuvring and loading areas are to be separated from car parking areas.

b) All loading and unloading is to take place on-site.

c) Vehicles are to enter and leave the site in a forwards direction.

d) A minimum on-site driveway width of 8m is required for loading and service access. Cross over widths shall comply with the relevant Australian Standard.

e) Loading access is not permitted from the frontage of an allotment facing the Parklands.

4.6.7 Recycling and waste management

Objectives

- Reduce the amount of waste going to landfill.
- Encourage the recycling of industrial waste.

Controls

a) Waste separation, recycling and reuse facilities are to be provided on site.

b) Waste facilities are to be fully integrated with the design of the building and/or landscaping.

4.6.8 Allotment landscape design

Objectives

- Contribute to effective management of stormwater, biodiversity and energy efficiency and to improve visual amenity.
- Encourage the use of native flora and low maintenance low water demand drought tolerant landscape materials.
- Assist in the management of salinity.
- Establish boundaries to industrial sites.
- Mitigate the visual impact of industrial buildings and hard stand areas through the use of mounds and screen planting.
- Enhance visual integration of industrial development with the Parklands context.
- Provide for the passive recreational requirements of employees.

Controls

a) Front setback to be 100% landscaped with endemic Cumberland Plain Woodland species.
b) Landscaping is required in the side and rear setbacks if visible from the public domain. In addition, the perimeter of open storage areas is to be landscaped to provide screening from public view.
c) Car parking areas are to be landscaped to provide shade and to reduce the visual impact of parking facilities.
d) Low water demand drought resistant vegetation shall be used in landscaping areas, including native salt tolerant trees to high saline affected areas.
e) Mulching cover shall be incorporated in landscaped areas (excluding drainage corridors).
f) All landscaped areas are to be separated from vehicular areas by means of a kerb, dwarf wall or other effective physical barrier.
g) Planting of vegetation must consider passive surveillance. Excessively dense vegetation that creates a visual barrier is to be avoided.
h) Undeveloped areas are to be stabilised to prevent soil erosion. Landscaping may be required around the perimeter of undeveloped areas.
i) Embankments are not to be steeper than 1:4.
j) A Landscape Plan must be lodged with all DAs and is to provide the following details:
   - The location of any existing trees on the property, specifying those to be retained and those to be removed.
   - The location of any trees on adjoining properties that are likely to be damaged as a result of excavations or other site works.
   - The position of each shrub and tree species proposed to be planted. Each plant is to be identified by a code referring to a plant schedule on the plan.
   - Existing and finished ground level and areas are to be filled.
   - The location of any subsoil drain, bio-retention, detention, swale or other WSUD requirements.

4.6.9 Private domain signage

Objectives

- Accommodate the need to identify and promote industrial development whilst preventing the unnecessary proliferation of advertising signs or structures.
- Encourage signage that is imaginative, innovative and commensurate with the quality of development within the Huntingwood West precinct.
- Ensure signage does not detract from the visual appeal of the Huntingwood West precinct.
- Ensure signage is of a high quality of design and construction and an integral element of the built environment and landscape setting.
- Give careful consideration to the size and proportion of signs on building facades.

Controls

a) Advertising signage with the Huntingwood West precinct should be kept to a minimum and should relate only to the use occurring on the respective property and shall identify the relevant business name. Two signs only are permitted on the principle frontage, one on the awning, transom or below parapet that is sized so that it is visible and legible from the principle road frontage and one adjacent to the pedestrian entry door that is sized to be visible and legible by pedestrians already on the allotment and about to enter the building.
b) Freestanding signs are not permitted on frontages facing the Great Western Highway or the M4 Motorway. Signage is limited to fascia signs only identifying the business located on the site.
c) Signs are not permitted on other frontages unless they are a secondary road frontage other than the Great Western Highway or the M4, in which case one fascia sign visible and legible from that secondary road frontage is permitted.
d) Freestanding signage such as a directory boards for buildings or sites including those with multiple occupancies shall be limited to a single structure at the entry to the site from a public road, along the road frontage.
e) Freestanding signs are not to exceed 6m in height from ground level and are to be located within an area of 5m by 3m either side of the ingress to the site. Larger or taller signs may be permitted if in proportion and well designed by a reputable graphic designer with justification for the size. (Refer to Figure 34).
f) For multiple occupancy buildings one business identification sign not exceeding 2m x 0.6m is permitted on each occupied unit. Such signs are to be a uniform shape, size and general presentation.
g) For single industrial developments, the total permissible signage and advertisements shall not exceed 1sqm of advertising per 3m of street frontage of 50sqm, whichever is the lesser (on corner lots or lots with dual frontage only one lot frontage can be relied upon).
h) Directional signage for car parking areas, loading docks, delivery areas and the like should be well designed and located at a convenient point close to the main access to a development site.
i) The placement, colouring, type and scale of signage erected within individual properties should be consistent throughout the development and complementary with the architectural style of the building.
j) Signs are not create a hazard for traffic or pedestrians.
k) Roof signs or signs that break the roof line of a building are generally not permitted. In exceptional circumstances a roof sign or a sign

which breaks the roof line of a building may be permitted where it forms an integral part of, and enhances, the architecture of a building.

l) Private domain signage is to be located so as not to obstruct sight lines of motor vehicles or trucks, or impede pedestrian movement.

m) Signs are not to cause environmental damage to trees or large shrubs.

n) Animated signage is only permitted facing the internal road network. Animated signs with erratic or flashing movements are not permitted.

o) Illuminated signage is to minimise light spill in to the night sky and into the Parklands. Illuminated signage is also to be energy efficient and to have a consistent light level with the general level of lighting which illuminates shadows and enhances the safety of adjoining public areas.

p) Illuminated signs which feature exposed lamps or neon tubes are permitted only in the internal road network where they do not detract from the architectural quality of the buildings.

q) No support, fixing, suspension or other systems required for the installation of signage is to be exposed, unless designed as an integral feature of the sign. Conduits, wiring and the like is to be concealed.

r) Types of acceptable signage are indicated in the table below.

Building signs	Free standing signs	Temporary signs
• Awning/fascia sign • Blind sign • Business plate sign • Canopy sign • Transom/hamper sign • Projecting sign • Under awning sign • Vertical banner sign • Wall sign • Window sign	• Business plate • Changing message sign • Flag pole sign • Ground sign • Information sign • Lantern sign • Pole sign • Pylon/column sign • Vertical banner sign	• Marketing sign • Construction site fence sign

4.6.10 Fences and walls

Objectives

- Provide security for property owners and to contribute to the amenity of the Huntingwood West precinct.
- Ensure fences and walls improve amenity for employees and development and that they contribute positively to adjacent buildings.
- Encourage pedestrian access to businesses from the street.
- To ensure boundary fences and walls between allotments provide security.
- Ensure materials used in fences and walls are of a high quality and consistent with the character of Huntingwood West.
- Ensure fences and walls respond to the topography.

Controls

a) No fencing is permitted within the landscaped component of the front setback.
b) In general no fencing other than a low feature wall may be erected on any site at the entry driveway. Low feature walls should be utilised for retaining walls, garden beds and the like.
c) No pre-finished and pre-coloured corrugated metal (e.g. Colorbond) or lapped and capped fencing is permitted to any public area.
d) The use, design and materials of fences and walls are to be compatible with well designed fences and walls in the public domain.
e) Side and rear fences and walls can be built to a maximum height of 1.8m to screen the rear of the allotment from adjacent sites.
f) Side fencing is not be located forward of the landscape zone.
g) Side and rear fencing is to allow cross ventilation by the use of open chain wire or metal picket fencing.
h) Fencing is to utilise dark colours to reduce visibility

4.6.11 External industrial activities

Objectives

- Mitigate the environmental and visual impact of external processing and storage of materials.

Controls

a) External and industrial processes and/or the storage of materials is not permitted along a road or Parklands frontage.
b) Development applications proposing external industrial processes and/or outdoor or open storage areas must provide details of the parts of the site to be so used, the specific materials to be stored and proposed screening. Outdoor storage areas are not interfere with access, manoeuvring and parking arrangements.

4.6.12 Safety

Objectives

- Ensure that the siting and design of buildings and spaces contributes to the actual and perceived personal and property safety of workers and visitors and decreases the opportunities for committing crime in an area.
- Ensure development encourages people to use and interact in streets, parks and other public spaces without fear or personal risk.
- Increase the perception of safety in public and semi-public space including streets, car parks and parks.
- Maximise actual and perceived safety.
- Encourage the incorporation of principles of crime prevention through urban design and landscaping into all developments.

Controls

a) Use of roller shutters is not permitted on windows facing the street. Security bars must be designed to complement the architecture of the building.
b) Pedestrian and communal areas are to have sufficient lighting to ensure a high level of safety. These areas must be designed to minimise opportunities for concealment.
c) All developments are to incorporate the principles of Crime Prevention through Environmental Design.
d) The creation of areas for concealment and blank walls facing the street are to be avoided.

4.6.13 Fire construction standards

Objective

- Ensure the protection of life and property from the threat of fire.

Controls

a) Where all or part of the APZ is to be located within an allotment, development must address the following:
   - Visual impact
   - Measures to prevent crime and enhance passive surveillance and safety.
   - The use of appropriate landscaping.

Development within 100m of land identified as Bush Fire Prone (for the purpose of planning will be taken as within 100m of bushland either existing or proposed) shall be constructed in accordance with the minimum requirements of Australian Standard 3959 -1999 Construction of Buildings in Bushfire Prone Areas.
Any structures (e.g. fences, pergolas, etc) located within the APZs shall be non-combustible (i.e. non-combustible under Australian Standard 1530.1 and not deemed combustible pursuant to Cl.12 of Volume 1 of the Building Code of Australia).

4.6.14 Energy efficiency

Objectives

- Incorporate best practice energy management.
- Promote energy efficient building envelopes.
- Achieve high levels of indoor thermal comfort.
- Minimise the energy required for heating, cooling and lighting.

Controls

Lighting

a) Natural lighting (e.g. translucent roof panels) is to be provided wherever possible.
b) Light fixtures are to be energy efficient.
c) Automatic controls are to be utilised which will turn the lights off where there is sufficient natural light and where that part of the building is not in use.

Heating/cooling

a) Consider the use of natural ventilation systems through:
   - location of external openings on opposite or adjacent walls for cross ventilation;
   - use of windows which are lockable in a partly open position;
   - use of convection air flows;
   - use of external vegetation to cool incoming air.
b) If heating systems are proposed they are to be controlled by thermostats and time switches, timer delays and/or occupancy sensors.
c) If air conditioning is proposed it is to be confined to discrete areas such as server rooms or the like where constant cool temperatures are required. Consider the installation of a 6 star reverse cycle system.
d) Ensure design incorporates zoning (or the ability to close off certain areas), so that only those areas which need to be, are heated or cooled.
e) Closing pedestrian and vehicular doors are required with consideration to be given to the use of automatically closing doors.
f) Covers are to be incorporated over evaporative coolers in winter to reduce heat losses and protect the coolers.
g) Incorporate appropriate building insulation to minimise heat loss (preferably 100mm blanket plus foil in the roof and 50mm blanket plus foil in the walls).
h) Utilise electric resistance heaters with heat pumps where feasible (e.g. in offices and tea rooms).
i) Utilise localised heating (e.g. gas radiant panel heating in workshops rather than warm air heaters).
j) Steel framing is to be insulated so that heat from roofing cannot bypass the insulation and enter (or in winter leave) the building via the metal framing.
k) Rooms within the building (e.g. offices) that are heated or cooled to higher comfort levels than the overall building are to be insulated from the rest of the building.
l) Light roof colours are to be used.
m) Walls exposed to afternoon sun are to either be shaded, or be the lightest acceptable colour.
n) East and west facing windows are to be minimised and are to be fitted with shading devices including blade walls and thick vegetation.
o) Consideration is to be given to the use of clear polycarbonate panels in selected north facing walls to increase passive heat gains.

p) Consideration should be given to installation of solar water heating systems wherever possible.
q) Hot water tanks and hot water pipes shall be insulated.

Staff amenity areas

a) Lights are to be controlled with occupancy sensors.
b) Comfort heating and cooling is to be controlled with time switches, timer delays or occupancy sensors.
c) Equipment left on for long periods (such as drink vending machines, and boiling water units etc) are to be as energy efficient as possible.
d) The use of electrical appliances such as dishwashers, refrigerators, freezers and washing machines with a minimum Energy Star Rating of 3.5 stars is encouraged.

4.6.15 Water use

Objective

- Minimise the use of potable water.

Controls

a) A water balance is to be undertaken to ascertain water consumption and stormwater harvesting potential with a given development.

b) Where feasible, development should use collected rainwater for toilet flushing and irrigation of landscaping in public and private spaces.

c) Developments that consume high volumes of water in their operation shall incorporate recycling initiatives in the plant's operation to reduce the demand on water.

d) Water saving devices are to be installed throughout the development:

   - 6 litre/3 litre or better dual flush toilets.
   - All staff amenity appliances to have water efficiency ratings of at least AAA according to the ratings issued by the Water Services Association of Australia.
   - Aerators fitted to hot and cold water taps over basins and sinks in staff amenity areas.
   - Waterless urinals

e) Consideration is to be given to the installation of the following water saving devices:
   - Grey water diversion systems – shower and washing machine water is re-used for toilet flushing
   - On demand recirculation systems – water wasted whilst waiting for hot water to heat up is recirculated for reuse.

4.6.16 Air quality

Objective

- Minimise adverse impacts on air quality through the implementation of appropriate mitigation measures.

Controls

a) An air quality impact assessment report is to be prepared and submitted with any Development Application that may have the potential for significant impact on air quality, including odour.
b) Applicants must demonstrate that the most efficient means of minimising emissions are being used.
c) All potentially airborne materials such as sand, soil, cement or the like shall be stored, screened and contained to minimise any potential effects of airborne pollution.

appendix a

Landscape plan by EDAW

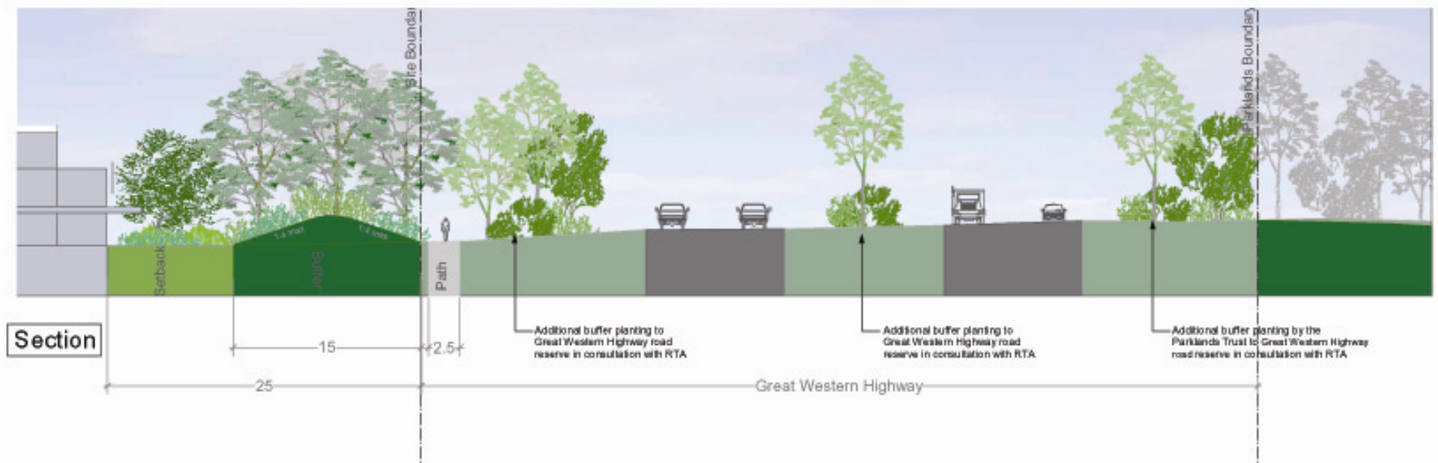

Legend
Huntingwood West Precinct
Existing contours
Building setback & Indicative Fossil Protection Zone
Existing trees
Proposed Regional Path
1 in 100 year flood line
Street tree mix - Entry planting
Street tree mix - Bio Median Road
Street tree mix - Collector Road
Street tree mix - Park Edge Road
Street tree - Circulation Road
Accent planting
Verge planting
Carparking planting
Private open space - planting
Private open space - paving
Wetland planting
Wetland planting
Detention basin planting
Buffer planting
Turf
Open water
Road
Carparking
Footpath
Great Western Highway
M4 Motorway
Eastern Creek Drive
EASEMENT
AREA = 1040sqm
AREA = 3685sqm
AREA = 2600sqm
Road side bioswale connects to wetland
BOTANICAL-INDUSTRIAL
HUNTINGWOOD WEST INDUSTRIAL ESTATE TYPICAL PLANT SCHEDULE
Botanical Name
Common Name
Height
Spacing
TREES
SHRUBS
RIPARIAN
GROUNDCOVERS
GRASSES
REFERENCES
NOTES
Project
Huntingwood West
Client
Department of Planning NSW and Landcom
Drawing
Masterplan Option 3
EDAW AECOM
Scale
1:5000@A3
Project No.
SK11D
Masterplan - small lot subdivision Option Three
Huntingwood West
Department of Planning NSW and Landcom


Legend
Huntingwood West Precinct
Existing contours
Building setback & Indicative Asset Protection Zone
Existing trees
Proposed Regional Path
1 in 100 year flood line
Street tree mix - Entry planting
Street tree mix - Bio Median Road
Street tree mix - Collector Road
Street tree mix - Park Edge Road
Street tree - Circulation Road
Accent planting
Verge planting
Carparking planting
Private open space - planting
Private open space - paving
Wetland planting
Wetland planting
Detention basin planting
Buffer planting
Turf
Open water
Road
Carparking
Footpath
Great Western Highway
AREA = 1040sqm
AREA = 3685sqm
AREA = 2600sqm
EASEMENT
Substation
568400 (INCLUDING ELECTRIC SUBSTATION 1630m²)
Road side bio-swale connects to wetland
Brabham Drive
M4 Motorway
BOTANICAL-INDUSTRIAL
Masterplan - Super lot subdivison Option Four
Huntingwood West
Department of Planning NSW and Landcom
EDAW AECOM
SK03J

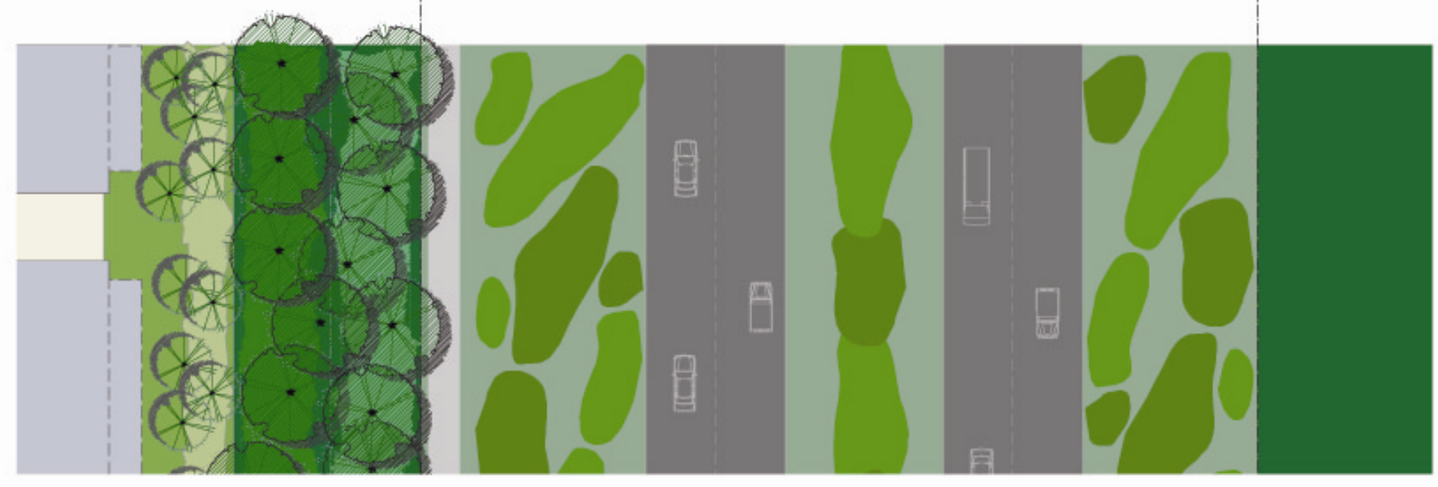

Legend
Huntingwood West Precinct
Existing contours
Building setback & Indicative Asset Protection Zone
Existing trees
Proposed Regional Path
1 in 100 year flood line
Street tree mix - Bio Median treatment
Street tree mix - Circulation Road
Street tree mix - Park Edge Road
Accent planting
Verge planting
Carparking planting
Private open space - planting
Private open space - paving
Macrophyte Marsh Zone
Ephemeral Zone
Precinct Pond and Wetland inlet planting
Buffer planting
Turf
Water
Road
Carparking
Footpath
Great Western Highway
AREA = 1040sqm
AREA = 3585sqm
AREA = 2600sqm
EASEMENT
Substation
Road side bio-swale connects to Wetland
M4 Motorway
Braham Drive
BOTANICAL-INDUSTRIAL
Masterplan - Large lot subdivison Option One
Huntingwood West
Department of Planning NSW and Landcom
HUNTINGWOOD WEST INDUSTRIAL ESTATE TYPICAL PLANT SCHEDULE
Based on Cumberland Plain Woodland Species
Botanical Name
Common Name
Height
Spacing
TREES
SHRUBS
RIPARIAN
GROUNDCOVERS
GRASSES
REFERENCES
NOTES
Project
Huntingwood West
Client
Department of Planning NSW and Landcom
Drawing
Masterplan Option 1
EDAW
AECOM
Scale
1:5000@A3
SK01J

Legend
Huntingwood West Precinct
Existing contours
Building setback & Indicative Asset Protection Zone
Existing trees
Proposed Regional Path
1 in 100 year flood line
Street tree mix - Entry planting
Street tree mix - Bio Median Road
Street tree mix - Collector Road
Street tree mix - Park Edge Road
Street tree - Circulation Road
Accent planting
Verge planting
Carparking planting
Private open space - planting
Private open space - paving
Wetland planting
Wetland planting
Detention basin planting
Buffer planting
Turf
Open water
Road
Carparking
Footpath
Great Western Highway
M4 Motorway
AREA = 1040sqm
AREA = 3665sqm
AREA = 2600sqm
EASEMENT
Substation
Road side bioswale connects to wetland
BOTANICAL-INDUSTRIAL
Masterplan - medium lot subdivision Option Two
Huntingwood West
Department of Planning NSW and Landcom
EDAW AECOM
SK02J


Site Boundary
Buffer
Mound
Setback
Section
26
40
Plan
Legend
Buffer tree planting
Buffer planting
Private open space - planting
RTA verge
Existing vegetation
RTA Road
Secondary Road
REFERENCES
21.09.2006 H Client Changes
14.09.2006 G Client Changes
13.09.2006 F Client Changes
01.09.2006 E 100% complete
30.08.2006 D Client Issue and Review
21.08.2006 C Client Issue
17.08.2006 B Client Issue
16.08.2006 A Client Issue
Project Huntingwood West
Client Department of Planning NSW and Landcom
Drawing Landscape Plan - M4
Landscape Plan - M4 Motorway
Huntingwood West
Department of Planning NSW and Landcom
NOTES
EDAW | AECOM
Scale 1:400 @A3
Project No. 06047
Drawn MS
SK10H



Section



Plan

Legend

- Buffer tree planting
- Buffer planting
- Private open space - planting
- RTA verge
- RTA Road
- Secondary Road

REFERENCES

CONSULTANT	DRAWING ID	DATE OF ISSUE
Architectus	WH-park edge-wetland-section	17.08.09
Architectus	WH-street-sections	17.08.09
Architectus	masterplan	17.08.09
Ecological Engineering	WestHuntingwood_RB_ Footprint	11.09.09

21.09.2009	H	Client Changes
14.09.2009	G	Client Changes
13.09.2009	F	Client Changes
01.09.2009	E	100% complete
30.08.2009	D	Client Issue and Review
21.08.2009	C	Client Issue
17.08.2009	B	Client Issue
16.08.2009	A	Client Issue

Project	Huntingwood West
Client	Department of Planning NSW and Landcom
Drawing	Landscape Plan - Western Hwy

Landscape Plan - Great Western Hwy

Huntingwood West

Department of Planning NSW and Landcom

NOTES

1. All information relating to architectural, electrical, hydraulic, civil and other works are represented on EDAW documentation is for reference and EDAW is not liable for any discrepancy. All discrepancies to these and other works outside EDAW scope should be referred to the relevant consultant's drawings and specification for details.
2. This drawing is to be read in conjunction with EDAW's project specification and details. Should any discrepancies arise and direction should be sought from EDAW prior undertaking any construction works.
3. All levels shown are in metres Australian Height Datum and dimensions in millimetres unless otherwise specified.

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Scale	1:400@A3
Project No.	06047
Drawn	MS

SK09H

Fully structured and dense CP woodland species to mound to provide visual buffer to Brabham Drive
Additional planting to Brabham road reserve in consultation with RTA
Site Boundary
Setback
Buffer
Path
Smaller tree species behind buffer planting
Section
10
2.5
15
Brabham Drive
Plan
Legend
Buffer tree planting
Buffer planting
Private open space - planting
RTA property
RTA Road
Secondary Road
Footpath
REFERENCES
Project Huntingwood West
Client Department of Planning NSW and Landcom
Drawing Landscape Plan - Brabham Edge Road
NOTES
EDAW | AECOM
SK08H
Landscape Plan - Brabham Drive
Huntingwood West
Department of Planning NSW and Landcom