Landscape Statement- Huntingwood West
Development application: Infrastructure works

For
Goodman International

Prepared by Tract Consultants Pty Ltd
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Tract Consultants Pty Ltd
ABN 12 055 213 842
Town planners Landscape architects Urban designers
Level 8, 80 Mount Street, North Sydney NSW 2060 Australia
Telephone 02 9954 3733 Facsimile 02 9954 3825
sydney@tract.net.au
Contact George Gallagher
Reference: 399087 PR01-01

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1 Introduction

This report outlines the urban and landscape design strategies adopted as part of Goodman Internationals' Development Application for Huntingwood West. The work encompasses, all works associated with the infrastructure works and includes all public domain elements - street trees, verge treatments, pedestrian and cycle paths and the integration of Water Sensitive Urban Design initiatives.

2 The site

The Bungarribee Industrial Estate site is a 56.85 hectare parcel of land, located in the City of Blacktown, adjacent the M4 Motorway and just east of the Light Horse Interchange. It is bordered by The Great Western Highway to the north, Brabham Dve to the east, and Western Sydney Parklands and Eastern Creek to the west.

It is characterised by gently undulating grassland with both native as well as some exotic tree plantings scattered throughout the eastern end of the site adjacent to Brabham Drive. From Braham Drive the site falls to the West towards Eastern Creek and Western Sydney Parklands with its associated riparian vegetation. From the Great Western Highway to the North and the M4 motorway to the south the land reads as predominantly a broad open agricultural grassland landscape.

Approval has been granted to the Huntingwood West Employment Lands Concept Plan and supporting documents, prepared by Landcom, The Planning Group and Architectus in 2006.

3 The Master plan Vision and Commitments

In preparing this development application Tract has reviewed and responded to the Huntingwood West Employment Lands Concept Plan and supporting documents. As part of this Concept a design vision was stated:

"*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.*"

In the approval statement of commitments the following commitments are made in relation to Landscape Design:

Landscaping

- 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 Parkland.;
- Ensure landscape treatments conform to water sensitive urban design principles;
- Preserving mature trees and landscapes features where practicable;
- Provide shade along pedestrian pathways and streets through the planting of street and park trees;
- Creating safe open spaces that are overlooked by active building frontages;
- Minimise the water usage and maintenance by selecting hardy drought tolerant native species including those listed in the Sydney Water Plant Selector;
- Selecting plants that are noninvasive or indigenous
- Treating stormwater through landscape techniques such as the wetland , eco median, bioretention system and landscape swales.
- Requiring foot and cycle paths as an integrated part of the open space network, and
- Requiring landscape that can be easily maintained.

Based on these commitments, the initial studies, and our understanding of the site and the stated purpose of the landscape brief, we have responded to the technical and landscape opportunities presented and have identified the following key landscape objectives:

The provision of:

- A Legitimate and cohesive streetscape and public domain for the new development site and its interface with neighbouring properties, streets and the Parklands;

- A sustainable landscape, developed around the species of Cumberland Plain Woodland to assist in rejuvenating the adjoining parklands and its remnant communities;

- Best practice Environmental management including – flood mitigation, the management of water quality impacts, location & management of "constructed wetland", achieved through the use of WSUD schemes;

- Retention of significant vegetation where possible; and

- Connectivity and accessibility to surround sites via road networks, pedestrian and cycle networks.

As part of the current design process, the site design and landscape design has refined the earlier proposals to align with the contemporary development practices and the requirements of the responsible authority, Blacktown City Council.

The following documents have formed the basis of the design standards from which the design has been developed.

1. Concept Plan, Employment Lands (Huntingwood West) for Landcom18th September, 2006
2. Environmental Assessment, Employment Lands (Huntingwood West) for Landcom18th September, 2006
3. Blacktown City Council Engineering Guide for Development – 2005
4. Blacktown City Council Street tree master plan draft
5. Sydney Water Plant Selector
6. NSW Streets Opening Conference

4 Landscape Design Principles

To ensure the original design intent is fulfilled, the current design vision for Bungarribee Industrial Estate is for a strong urban setting adopting Water Sensitive Urban Design initiatives as an integral manageable element of the streetscape. The streetscape landscape is to be developed around this infrastructure and the Cumberland Plain community so that it protects the environs of Eastern Creek but also acts as an extension of the surrounding parklands.

The following are the key landscape design principles:

- The development is to be an urban place of employment located near a significant open space corridor / network.
- The new / future vegetation needs to be a landscape that will survive and flourish in the large scale industrial public domain setting if it is to be environmentally effective.
- Effective large scale landscapes require adequate space, soils and water to survive; the design provides enhanced verge growing conditions for large scale trees.
- WSUD is integrated in the streetscape of every street enabling a development of a consistent streetscape identity
- To seamlessly transition from the Western Sydney Parklands into the new employment lands through planting design, contributing to the biodiversity.
- The new landscape is to be acceptable to Blacktown City Council and their maintenance capabilities.

The new urban plan will provide a robust landscape that will simply and effectively meet the working requirements of the employment estate whilst showcasing the parklands as an integral part of the site and surrounding neighbourhood.

5 Tree Retention

As part of the Concept Plan trees were identified as to be "retained within buffer setbacks and in road reservations and drainage lines where ever possible subject to development constraints including filling".

A requirement coming out of the original master plan approval was the undertaking of a tree survey which describes and assesses each tree greater than 300mm. This work has been undertaken by Earthscape Horticultural Services and an assessment made regarding its health and viability in relation to development. Refer Pre-development Tree Assessment Report Bungarribee Industrial Estate Rudders Lane, Eastern Creek, June 2009.

The development of the site requires significant changes in the ground profile and the introduction of substantial building envelops. This type of development is not compatible with the retention of isolated trees within its fabric. The retention of trees in such an environment are subject to altered water regimes and impacts of compaction and filling that result in detrimental impacts which affect the long-term viability of the resource.

The assessment has weighted trees in terms of the contribution they make and health. As the lots are developed a better understanding will be gained to the retention of any of the trees. The retention of trees within the road reserve is not however feasible given the changes in level and the extent of services.

The potential to collect seed from the existing vegetation stands is a possibility which would ensure the genetics of the site are maintained.

6 Plant Species

Local plants species, are to be used to support the biodiversity of the region and provide linkages to the adjacent Western Sydney Parklands. Street tree species are all locally occurring species which potentially could be collected as seed from remnant site vegetation prior to site clearing. This would preserve the genetics of the site despite the loss of the existing tree cover. They will provide a landscape that is acclimatized to the conditions of the region and consequently adapted to the site minimizing ongoing maintenance requirements.

Species used are focused predominantly on canopy species as street trees, or groundcovers as part of the eco-verge and garden beds. This hierarchy of planting ensures a high level of visibility and surveillance while meeting the needs of shade cover, visual reduction of the developments bulk, and connectivity with the surrounding environs including Western Sydney Parklands etc.

A plant schedule has been provided which identifies species to be used and their distribution, refer drawing DA 1200. The distribution of planting of various species is discussed in relation to the road hierarchy of the site and the general design intent. Where exotics have been used they have been used to reflect areas of high pedestrian activity and urban usage. There use has been proposed to both enhance the visual as well as the climatic environment of the site by improving solar access during the colder months.

7 Streets

The road network will incorporate a pedestrian and cycle network, providing legible circulation paths, with good visual and physical connections. The streetscape landscape will be composed of simple and appropriate materials that will provide a strong consistent landscape framework, supported by a WSUD based "working landscape". The new entries on the Great Western Highway and Brabham Drive will provide an identifiable address and arrival to the estate. The internal street tree planting will reinforce the street hierarchy and pattern, assisting in establishing an estate identity and site orientation, as well as extending the ecologies of Eastern Creek into the site.

The development of the road cross section, as part of this Development Application, has considered a number of issues both environmental, and functional in nature. It is vital for the development that the functional parameters are met given the nature of the land-use and that these are consistent with council codes.

In developing the road layout the hierarchy established for the Development Design Codes has been maintained, providing a legible and efficient environment. The following describes the urban and landscape design outcomes for the road as defined in the master plan and amended as part of this development application.

The table below compares the Master plan road widths and the provisions made with those of the current scheme.

Table 1: Road design standards

Road type	Carriageway width		Traffic lane width		Parking lane width		Verge width		Median Width		Footway width		Services zone	
	DDC	DA	DDC	DA	DDC	DA	DDC	DA	DDC	DA	DDC	DA	DDC	DA
Eco-median collector Rd **Road 4**	7.8 Indiv.	**15.5**	5.5	**5.25**	2.3	**2.5**	1.5		14.5	**Nil**	1.5 & 2	**1.5& 3.0**	1	**N/A**
Collector Rd Road 1	15.6	**15.5**	5.5		2.3	**2.5**	4		Nil	**Nil**	1.5	**1.5**	1	**N/A**
Local Rd **Road 2,3**	13.6	**13.5**	4.5	**4.25**	2.3	**2.5**	1.5		Nil	**Nil**	1.5	**1.5**	1	**N/A**
Local Rd with median drainage	14.8	**N/A**	4.5	**N/A**	2.3	**N/A**	1.5	N/A	1.2	**Nil**	1.5	**N/A**	1	**N/A**
Park Edge Rd/ **Road 5**	9.3	**9.0**	3.5	**3.25**	2.3	**2.5**	1.7		Nil	**Nil**	1.5	**1.5**	1	**N/A**

The changes made reflect Blacktown City Councils Road and Cycleway widths. Key amongst these changes are the changes to traffic lane widths reduced by 0.25m for consistency with council codes, parking lane width increased to 2.5m and pedestrian/cycleway increased to 3.0m.

The use of a common service trench has not proved practicable with service authorities complying with the findings of the NSW Streets Opening Conference. The design of services within the verge has been undertaken in accordance with these outcomes. Where appropriate modifications have been made to maximize the landscape outcome. These changes are consistent with the conference findings but address the distribution of services based on the additional space provided within the verge. Refer Typical street cross sections DWG.

In developing the road layout, five distinct characters define the street hierarchy of the new development. These are;

- Collector – Road 1
- Local roads – Roads 2, and 3.
- Entry boulevard – Road 4
- Park Edge road - Road 5
- Eco verges

7.1 Collector Road – Road 1

Road 1 forms the main linkage and entry point from the Great Western highway. Medium sized street trees such as Melaleuca linarifolia and Melaleuca styphelioides will be planted in groupings to reflect the smaller scale of this road, and for consistency with Blacktown City Councils Street Tree Guidelines. The use of such trees also ensures a consistency in streetscape along the relatively short distance of Road 1 as they are also used in the eco verge which occurs at intervals along this street.

7.2 Local Roads – Roads 2 and 3

Roads 2 and 3 have proposed the use of medium sized street trees such as Melaleuca linarifolia and Melaleuca styphelioides to be planted in groupings to reflect the smaller scale of these roads, and for consistency with Blacktown City Councils Street Tree Guidelines.

7.3 Entry Boulevard - Road 4

The entry boulevard from Brabham Drive will provide the main landscape spine through the site connecting the estate with a simple and defined internal road network, the existing industrial area to the east of the site and to the Western Sydney Parklands to the west. Trees species in these wide verges will include the Cumberland Plain species of Corymbia maculata and Eucalyptus moluccana to connect with the original vegetation which once stood on the site.

The eco median, illustrated in the approved masterplan, has been removed due to the inability to retain any trees within the road corridor as a result of levels of road pavement,

excavation for services, disruption to drainage and the impacts of compaction, all of which would have a significant impact on the Primary and Critical root zones of the trees. The proposal was also inconsistent with Councils WSUD guidelines which call for verge located solutions in relation to collector roads.

To offset the deletion of the eco median element the verges have been widened to allow installation of copses of trees which emphasis this as a green corridor linking to Western Sydney Parklands. The verges also incorporate eco-verge drainage treatments which assist in the treatment of water within the streetscape prior to discharge to the wetland.

7.4 Park Edge Road – Road 5

The Park Edge Road 5, is a narrow road carriageway which has been designed for use by cars and light vehicles only. The western termination of the Entry Boulevard along with Road 2 will become the "entry portals" to the surrounding parklands. This threshold at the end of the street will demonstrate the transition from an urban landscape setting to a relaxed informal park environment. The park edge setting needs to be safe and comfortable for users, it will become a lively place for workers to enjoy whilst serving as an integral connection point to the adjoining Western Sydney Parklands. This is achieved by the provision of a shared cycleway along the western edge of the road. A widened footpath is proposed on the eastern edge of the road where a more active building frontage is anticipated which could incorporate café type activies.

The road corridor will be planted with a mixed palette of species to reflect the transition from the new urban form to the remnant vegetation communities of the Parklands. Street tree species will include varieties of Melaleuca and Waterhousia floribunda which will be complemented by planting of Lagerstroemia indica and Fraxinus oxycarpa providing colour and interest at the proposed urban core areas. This will create a distinctive and memorable edge definition to the Parklands.

Parking is to be located to the built edge side of the road only.

7.5 Eco-verges

Throughout the site the street hierarchy above will be unified through a series of eco verges at nodal points within each street. The WSUD based landscape is an "active landscape". The "island" grouping of trees & vegetation will form an effective low maintenance sustainable streetscape which will showcase the "contiguous circulation of the water quality cycle" within the site. The plant species selection for the eco verges are primarily based on the ecological communities within the site ensuring a sustainable landscape is achieved. Plant species will include Melaleuca trees and understorey of Lomandra sp., Isolepsis sp. and Carex sp. which will provide biodiversity and additional amenity to the new streetscapes, while contributing to improved water quality flows.

8 Wetland Basin

The wetland basin is a significant landscape feature which marks the transition from the industrial precinct to the parklands. The wetland has been designed to clean, retain and retard the flows from the development. The engineering parameters of this are defined in a separate report. The design of the wetland is an integrated element of the estate masterplan and incorporates the requirements of all disciplines.

The wetland provides a recreational asset for the estates population, with the provision of a cycle path along its edge and an interface with nature for the workers of the site. Its landscape design has adopted the use of native sedge and water plant species which are robust and efficient at removal of pollutants. A nominal and functional wetland bathymetry is indicated in the designs for the wetland. To complement this, lists of aquatic macrophytes, appropriate for specific depths and suitable for planting in the stormwater treatment wetland are provided. The bathymetry of the wetland may be refined further during the detailed design of the wetland. Accordingly, the zonation of planting and planting lists will also be further refined at this time.

The integration of the wetland has incorporated transitional planting zones in which a move from a canopied edge transitions into the open sedgeland of the pond. This zone of transition provides an informal edge which softens the profile of the formation providing interest, diversity and shade.

9 Conclusion

The revised landscape design proposed as part of this development application is consistent with the general objectives of the Huntingwood West Employment Lands Concept Plan. Changes in detail have been made to bring this master plan into line with Councils standards. This provides a design outcome that meets the functional objectives of the land-use, the maintenance requirements of the Council, the WSUD strategies of the masterplan and the council.

The tree planting palate will define the sites street hierarchy and is to be complemented with a variety of native groundcovers and grasses in massed garden beds. Generally native plants will be included in all landscaped areas, to provide a full range of functional landscapes in the diverse range of site and climatic conditions that exist throughout the development. This includes plants for screen planting, plants with non invasive roots, plants for dry and moist soil zones which will not be reliant on ongoing irrigation.

The new street environments, buffer zones and wetland plantings will make a significant contribution to the overall landscape impression of the new development and provide an appropriate link to the Western Sydney Parklands and remnant vegetation which once dominated this site. The overall landscape design serves to create a clear visible working landscape which incorporates the basic infrastructure and backbone for a sustainable and environmentally effective community.

10 Appendices

QUALITY ASSURANCE REPORT RECORD

PROJECT NAME

DOCUMENT NUMBER

REVISION (SEE BELOW)

PREPARED BY

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