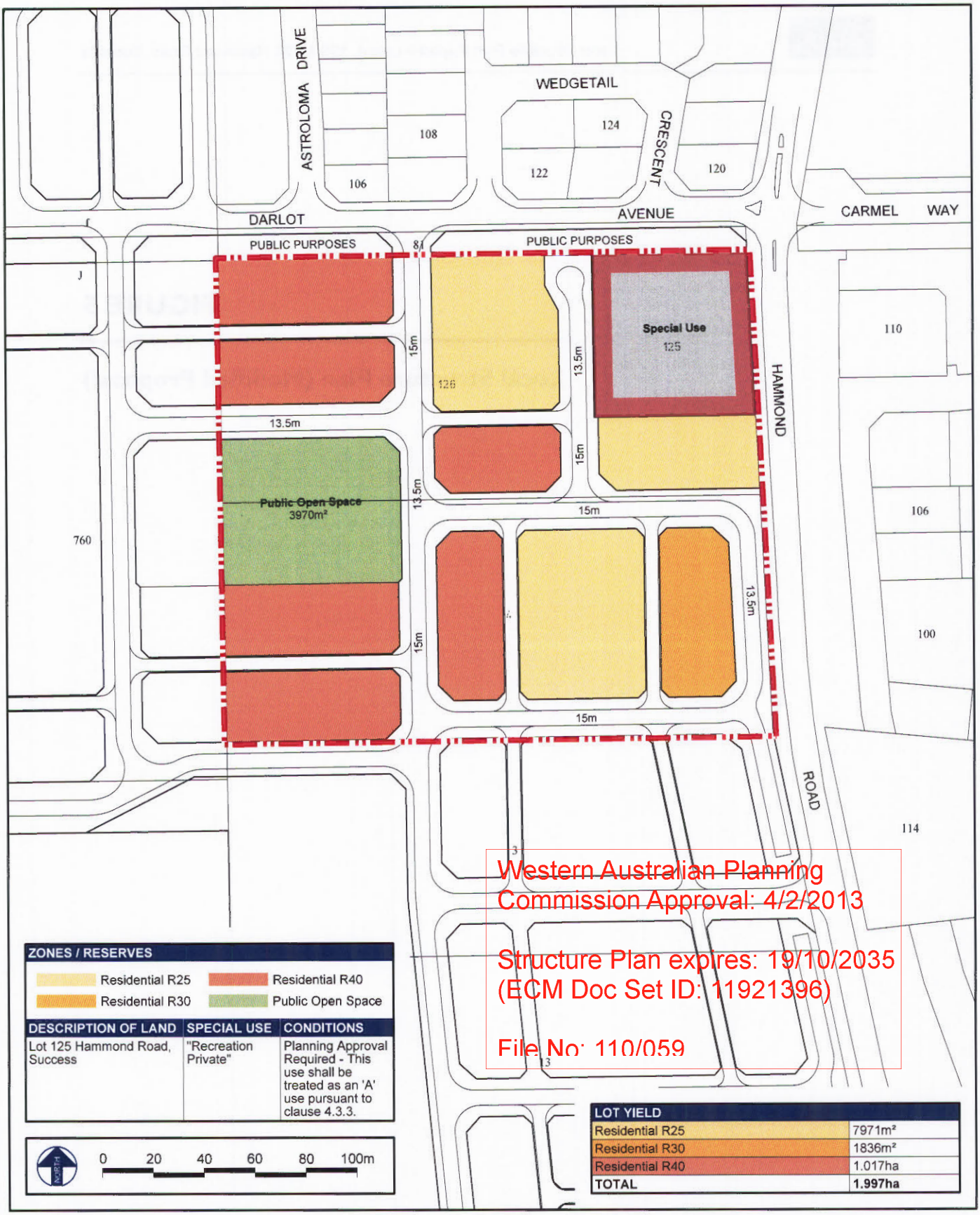


LOCAL STRUCTURE PLAN

Property Description

Lots 4, 125 & 126 Hammond Rd, SUCCESS

Base data supplied by City of Cockburn.
Accuracy +/- 4m. Projection MGA Zone 50.
Areas and dimensions shown are subject to final survey calculations.
All carriageways are shown for illustrative purposes only and are subject to detailed engineering design.

Muntoc Pty. Ltd. : CLIENT
1:2,000@A4 : SCALE
11 February 2013 : DATE
3200-5-003i.dgn : PLAN No
i : REVISION
R.S. : PLANNER
R.F. : DRAWN
R.S. : CHECKED

RPS

RPS Australia East Pty Ltd
ABN 44140292762

PO Box 465 Subiaco WA 6904
38 Station Street
Subiaco WA 6008

T +61 8 9211 1111
F +61 8 9211 1122

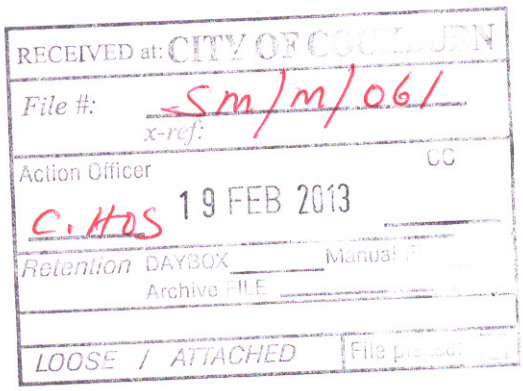
W rpsgroup.com.au

FIGURE 5

38 Station Street, Subiaco, Western Australia 6008
PO Box 465, Subiaco, Western Australia 6904
T +61 8 9211 1111 F +61 8 9211 1122 E perth@rpsgroup.com.au W rpsgroup.com.au

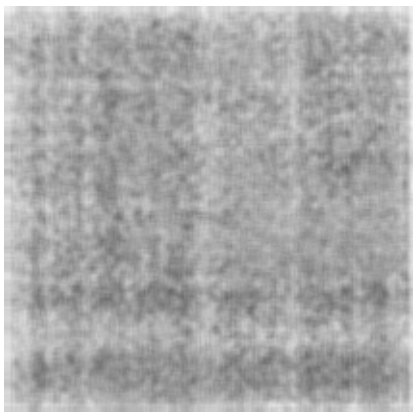
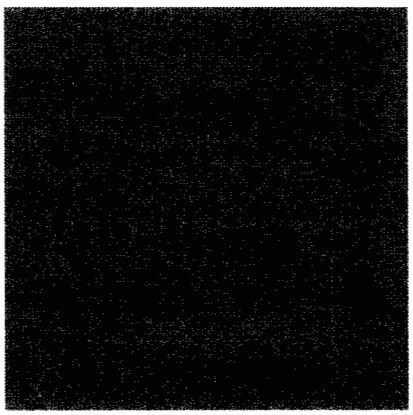
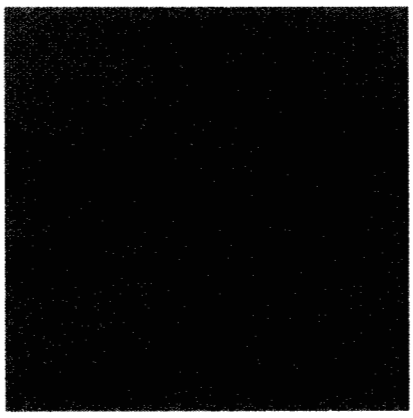
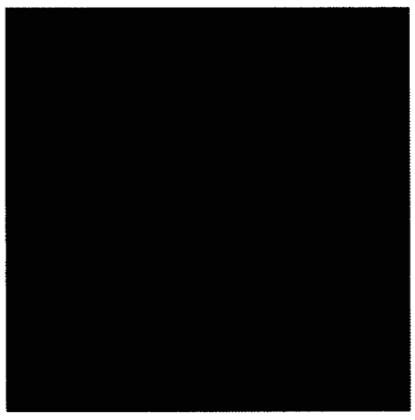
DOCUMENT TRANSMITTAL

TO:	Christopher Hossen		
ATTENTION:	City of Cockburn		
CONTENTS:	3x bound documents	**OUR REF:**	WPP0320000A
FROM:	Rob Sklarski	**DATE:**	15/02/13
SUBJECT:	LOCAL STRUCTURE PLAN LOTS 4, 125 & 126 HAMMOND RD, SUCCESS		



RPS

Local Structure Plan
Lots 4, 125 & 126 Hammond Road, Success

RPS

LOCAL STRUCTURE PLAN

Lots 4, 125 & 126 Hammond Road, Success

Prepared by:

RPS

38 Station Street, SUBIACO WA 6008
PO Box 465, SUBIACO WA 6904
T: 618 9211 1111
F: 618 9211 1122
E: planning@rpsgroup.com.au
W: www.rpsgroup.com.au

Report No: PP03200.00 LSP
Version/Date: Rev 4, Jan 2013

Prepared for:

MUNTOC PTY LTD

C/- MAIR & CO
1 HIS MAJESTY'S LANE
PERTH WA 6000

ENDORSEMENT PAGE

This structure plan is prepared under the provisions of the City of Cockburn Town Planning Scheme No. 3.

IT IS CERTIFIED THAT THIS STRUCTURE PLAN WAS APPROVED BY RESOLUTION OF THE WESTERN AUSTRALIAN PLANNING COMMISSION ON:

February 2013

In accordance with Schedule 2, Part 4, Clause 28 (2) and refer to Part 1, 2. (b) of the *Planning and Development (Local Planning Schemes) Regulations 2015.*

Date of Expiry: **19 October 2035**

Document Status

Version	Purpose of Document	Orig	Review	Review Date	Format Review	RPS Release Approval	Issue Date
Draft A	Draft for Client Review	TomK	RobS	15.09.11		RobS	16.09.11
Rev 0	Final for Issue	NeridaC	RobS	16.09.11		RobS	21.09.11
Rev 1	Council Modifications		RobS	14.12.11		RobS	10.01.12
Rev 2	Modifications to remove land swap areas for Lot 4		RobS	10.07.12		RobS	11.07.12
Rev 3	Update Figure 5 to reflect Council resolution (OCM 12/12/2012)		RobS	18.12.12		RobS	18.12.12
Rev 4	Incorporate WAPC modifications		RobS	11.02.13		RobS	11.02.13

Disclaimer

TABLE OF CONTENTS

Page

FIGURES

(complied at rear of report)

APPENDICES

1.0 BACKGROUND

1.1 Introduction

1.1.1 Background

This Local Structure Plan (LSP) has been prepared on behalf of Muntoc Pty Ltd for Lots 4, 125 and 126 Hammond Road, Success (the subject land). This LSP envisages minor modifications to an existing LSP for the same land area, which was endorsed by the WAPC on 3 April 2012.

1.1.2 Purpose

The purpose of the LSP is facilitate the future subdivision and development of the subject land and, to provide a range of housing types and densities that assist in diversifying the existing housing stock throughout the City of Cockburn.

1.1.3 Planning Area

The LSP area is approximately 1.8km south west of the Gateways Regional Centre and is located within the municipality of the City of Cockburn. The subject land lies approximately 1.5km south of Beeliar Drive along Hammond Road. A Context Analysis Plan which illustrates this is provided in **Figure 2**.

The LSP is bound by Darlot Avenue to the North, Hammond Road to the east and various established rural land holdings to the south and west.

Thompsons Lake is located approximately 800m south-west of the subject land.

The subdivision and development of the subject land reflects a continuation of the existing urban fabric, with established residential subdivision to the north and east.

1.1.4 Land Ownership

The proposed LSP is comprised of three (3) separate landholdings with a total land area of 4 hectares. Table 1 below provides the land ownership details and individual site areas for each lot:

Lot Details	Lot Size	Land Tenure
Lot 4 Hammond Road	2.0007ha	Muntoc Pty Ltd
Lot 126 Hammond Road	1.6001ha	R Dunn & K Rae
Lot 125 Darlot Avenue	0.4ha	R Dunn & K Rae

1.1.5 Existing Land Use

The subject land has historically been used for various rural living pursuits and currently contains two (2) residential dwellings and a number of associated outbuildings.

1.1.6 Adjoining Land Uses

The subject land is predominantly bound by low density residential development to the north and east and numerous established rural land holdings to the south and west.

1.1.7 Adoption of the Local Structure Plan

The LSP will become operative following adoption by the City of Cockburn and endorsement by the Western Australian Planning Commission (WAPC) pursuant to Clause 6.2 of Town Planning Scheme No. 3 (TPS 3). Once adopted, all zones, reservations, land use permissibility and the like which are designated within the LSP will function as if they were designated by TPS 3.

1.2 Statutory and Strategic Planning Considerations

1.2.1 Metropolitan Region Scheme

The subject land is currently zoned 'Urban' under the Metropolitan Region Scheme (MRS).

1.2.2 City of Cockburn Town Planning Scheme No. 3

Under TPS 3, the subject land is zoned 'Development' and included in Development Area 13. The provisions of Development Area 13 indicate that the land is identified for future residential development. Within this zone, subdivision and development is to be in accordance with a Structure Plan adopted pursuant to Section 6.2 of TPS 3. The northern portion of Development Area 13 has already undergone Structure Planning/subdivision approval and is zoned 'Urban' under the MRS.

1.2.3 Draft Branch Circus District Structure Plan

At its Ordinary Meeting held on 10 February 2011, Council resolved to endorse the Draft Branch Circus District Structure Plan (DSP) for the purposes of providing a guiding document to inform the preparation of future LSP's within the DSP area. A copy of the DSP is provided in **Figure 3**.

The DSP provides a broad land use framework for the future development of the DSP area prescribing the road network, densities and open space areas. The DSP identifies Lots 4 and 126 for predominantly 'Residential' purposes with density codes ranging from R25 to R30 and R40. A large portion of Public Open Space (POS) is also identified in the north-west and south-west portions of Lots 4 and 126 respectively.

The DSP identifies Lot 125 as 'Special Use' and is to be developed as a swimming school facility.

The proposed LSP is generally consistent with the land use framework established by the DSP. A minor variation to the street block layout which falls within Lot 4 as illustrated in the DSP is contemplated by this proposed LSP. This variation is discussed in further detail in Section 2 of this report.

1.2.4 Directions 2031

Directions 2031, is the current spatial planning framework for Perth and Peel, and outlines the planning vision and direction which will guide the planning of the region to 2031.

The Strategy recognises the benefits of a more consolidated city, which includes;

- A reduced overall need for travel;
- Supports the use of public transport, cycling and walking for access to services, facilities and employment; and
- A more energy efficient urban form.

The Strategy aims to provide for different lifestyle choices, vibrant nodes for economic and social activity and a more sustainable urban transport network. A key component of the strategy is to increase the gross residential densities in greenfield areas and to provide for greater housing diversity, which are items specifically relevant to the LSP.

Directions 2031 seeks a 50% increase in the current average residential density of 10 dwellings per gross urban zoned hectare in new development areas, i.e. 15 dwellings per gross urban zoned hectare of land.

The Draft Outer Metropolitan Perth and Peel Sub-Regional Strategy forms an integral part of Directions 2031. The Draft Strategy along with its counterpart for Central Metropolitan Perth provides the strategic spatial plan which will achieve the objectives of Direction 2031. The Draft Strategy identifies the broader DSP area as 'BRA1' and classifies it as 'urban deferred zoned undeveloped', with the potential to deliver 600 plus dwellings in the future.

Endorsement of the proposed LSP will facilitate subdivision and development of the subject land and assist in meeting the objectives established under Directions 2031.

1.2.5 Liveable Neighbourhoods

The Commission's Liveable Neighbourhoods Policy is intended to guide the subdivision and development of land in Western Australia. The key principles of this policy include:

- Providing a variety of lots sizes and housing types to cater for the diverse housing needs of the community at a density that can ultimately support the provision of local services;
- To ensure cost-effective and resource efficient development to promote affordable housing; and
- To maximise land efficiency.

Liveable Neighbourhoods provides guidance for the design and development of greenfield subdivision through eight design elements; community design, movement networks, lot layout, public parkland, urban water management, utilities, activity centres and employment, and schools. These principles were carefully considered within the Branch Circus DSP to which the LSP herewith is reflective of.

1.2.6 State Planning Policy No. 3 – Urban Growth and Settlement

This Policy sets out the principles and considerations which apply to the planning of urban growth settlements in Western Australia. The Policy aims to facilitate sustainable patterns of urban growth and settlement and recognises that the State is undergoing rapid growth and change which is expected to continue. The policy acknowledges that the spread of urban development intensifies pressures on valuable land and water resources, imposes costs for the provision of infrastructure and services, increases dependence on private cars and creates potential inequities for those living in the outer suburbs where job opportunities and services are not so readily available.

The objectives of the policy are:

- To promote a sustainable and well planned pattern of settlement with sufficient and suitable land to provide for a wide variety of housing, employment, recreation facilities and open space;
- To build on existing communities with established local and regional economies, concentrate investment on the improvement of services and infrastructure and enhance the quality of life in those communities;
- To manage growth and development of urban areas in response to social and economic needs of the community and in recognition of the relevant climatic, environmental, heritage and community values and constraints;

- To promote the development of sustainable and liveable neighbourhood form which reduces energy, water and travel demand whilst ensuring safe and convenient access to employment services by all modes;
- To provide choice and affordability of housing and to create an identifiable sense of place for each community; and
- To coordinate new development with efficient, economic and timely provision of infrastructure and services.

1.2.7 City of Cockburn Local Commercial Strategy

In February 2002, Shrapnel Urban Planning prepared a Local Commercial Strategy for the City of Cockburn consistent with the requirements of the Metropolitan Centres Policy. The Local Commercial Strategy has been used as the basis for decisions on retail centres for the last eight years.

The Strategy identifies an existing Local Neighbourhood Centre north of the subject land. The Local Neighbourhood Centre consists of a small delicatessen co-located with a caravan park. The Strategy identifies the Local Centre as having a future capacity of 1,200m^2 of shop/retail floor space. The location of this expanded Local Neighbourhood Centre is likely to change and will be determined as part of future structure planning undertaken for the area. Nevertheless, the Branch Circus DSP does not identify any commercial uses within the DSP area and as such, consideration of the subject land should remain unaffected by planning for future commercial uses.

1.2.8 Local Planning Policy for the Cockburn Sound Catchment

The subject land is located within the Cockburn Sound Catchment Area which extends to the Kwinana Freeway and as far north as Beeliar Drive.

The Local Planning Policy for the Cockburn Sound Catchment aims to ensure the protection of the marine waters of Cockburn Sound from nutrient contamination (particularly nitrogen) from diffuse land sources.

The Policy links the objectives of the Environmental Management Plan with State and Local Government to provide a consistent and unified approach to ensure planning and management decisions by Local Government within the catchment do not result in unsustainable additional nutrient loading or contamination of surface or groundwater resources.

The management requirements established under the Policy for residential land uses are associated with general storm water management and effluent disposal and have no major implications for the development of the area.

1.3 Environmental Overview

RPS Environment prepared an Environmental Assessment Report (EAR) and Flora and Vegetation Survey (FVS) in 2008 for the broader DSP area to identify any environmental constraints which may impact on development of the land. These studies are relevant for the LSP area.

A summary of the key findings of the reports are provided below, and illustrated in a Site Analysis Map provided in **Figure 1**.

1.3.1 Topography, Soil and Landform

The EAR establishes the elevation of the LSP area as ranging from 33m AHD on the eastern boundary of Lots 125 and 126 to 24m AHD in the south-west corner of Lot 4.

The geological composition of the subject land is identified within the EAR as being Sand (S_8), fine to medium grained Bassendean Sand. This soil type is considered suitable for both urbanisation and road construction.

1.3.2 Acid Sulfate Soils

The subject land is identified as being comprised of sandy soils with a moderate to low risk of Acid Sulfate Soils occurring within 3m of natural soil surface.

1.3.3 Flora and Vegetation

The FVS concluded that no Declared Rare Fauna Species under the *Wildlife Conservation Act, 1950* or any species protected under the *Environmental Protection Biodiversity Conservation Act, 1999* were recorded within the LSP area.

No Threatened Ecological Communities (TEC's) were identified within the LSP area.

The subject land contains fragmented remnant bushland ranging from Degraded to Very Good condition.

1.3.4 Wetlands

The subject land does not contain any Conservation Category Wetlands or Resource Enhancement Category Wetlands.

1.3.5 Hydrology

Cardno has been engaged by the proponent to develop and implement a groundwater Sampling and Analysis Plan (SAP) in order to provide baseline groundwater level data for the subject land prior to development. A copy of the SAP is provided in **Appendix 1**. The objective of the SAP was to characterise the pre-development hydrological environment and establish if future development is capable of fulfilling the stormwater management requirements of the Department of Water (DOW) and engineering standards specified by the City of Cockburn.

A summary of the outcomes of the investigation are provided as follows:

- The generated groundwater contours show a south westerly groundwater flow direction indicating that groundwater flow is heading towards Thompsons Lake;
- Surface to groundwater separation distances ranged from 4.84mBGS (SS2, September 2010) to 10.4mBGS (SS3, August 2010);
- Peak groundwater levels occurred in September and the minimum depth to groundwater recorded was 4.84 metres;
- Results of the groundwater quality monitoring for nutrient concentration show generally 'low' readings with the exception of NOx which recorded 'very high' readings for all bores;
- The SAP was conducted within a below average rainfall year as Perth recorded only 72% of its average rainfall being 349.2 mm over the 2010 winter period, compared with the average of 482 mm; and
- When compared to the calculated long term AAMGL, the minimum depth to groundwater is calculated to be 3.44 m suggesting a significantly larger separation than the 1.2 m general earth work level design criteria.

The investigation concluded that given the extent of separation, it is considered to be sufficient to record only one year's groundwater peak, as the results will provide adequate reference to progress development designs on the subject land.

1.3.6 Bush Forever

No Bush Forever sites are located on the subject land. It is noted that Beeliar Regional Park is located to the north-east of the subject land and is nominated Bush Forever site 391. Development of the subject land will have no affect on Bush Forever Site 391.

1.3.7 Site Contamination and Uncontrolled Fill

The EAR indicates that there are no known nearby land uses that will conflict with urban development on the subject land. However, the EAR does identify that while there are no known contaminated sites in the area, the potential exists that land could be contaminated by harmful substances including pesticides as a result of past agricultural and horticultural activities.

Accordingly, a Soil Contamination Assessment will be required prior to subdivision and development of the subject land (condition of subdivision approval). If contaminated areas are identified, it will be necessary for these to be remediated to recognised health standards as determined by the Department of Environment and Conservation.

1.3.8 Sites of Indigenous and European Heritage Significance

No places of Indigenous or European Heritage have been identified on the subject land.

1.3.9 Midge Buffers

Policy APD6 'Residential Rezoning and Subdivision Adjoining Midge Infested Lakes' establishes the City of Cockburn's policy relating to the subdivision and development of land within close proximity to any lake or wetland that is subject to potential midge infestation.

The Policy requires subdividers and developers of land situated between 500 m and 800 m of a lake or wetland edge to impose a Notification, pursuant to Section 165 of the *Planning and*

Development Act 2005 on the title of each new residential lot advising prospective purchaser(s) that the land may be affected by midge infestation.

With respect to the proposed LSP, a portion of the south-west corner of Lots 4 and 126 are located within the 800m notification zone of Thompsons Lake (refer **Figure 1**).

1.4 Water Management

In accordance with the requirements of the Department of Planning's *Better Urban Water Management*, and the objectives of *State Planning Policy* 2.9 - *Water Resources*, a District Water Management Strategy (DWMS) was prepared for the Branch Circus DSP area by Cardno on behalf of the City of Cockburn.

The DWMS established that the quality and quantity of surface water, stormwater and groundwater could be adequately managed in accordance with current policy.

With support from City of Cockburn, Cardno has confirmed that the preparation of appropriate Urban Water Management Plans (UWMP's) that address the issues identified within the DWMS will be sufficient to adequately manage surface water flows and facilitate subdivision and development of the subject land as opposed to the general requirement to prepare a Local Water Management Strategy at the local structure planning stage. This is documented in an email referred to in **Appendix 2**.

The DWMS is currently with the Department of Water (DoW) for final approval.

1.5 Servicing Overview

1.5.1 Servicing Infrastructure

An Infrastructure Servicing Report (ISR) was prepared by consultants Sinclair Knight Merz (SKM) on behalf of the City of Cockburn which identified the availability of services for the development of the broader DSP area. A summary of the key findings of the investigation are provided as follows.

1.5.2 Sewer

There is currently no Water Corporation sewerage infrastructure within the LSP area. Existing development to the north of Darlot Avenue is serviced by a gravity sewer with a connection to Hammond Road. The invert levels of this sewer are not low enough to service the proposed development. The Thomsons Lake Sewerage Reticulation Conceptual Planning for the area indicates that a DN600 sewer main is proposed just south of Lot 4 running east to west which should be capable of servicing the proposed development.

The Water Corporation will be consulted at the subdivision stage to ensure the appropriate infrastructure is provided.

1.5.3 Water

Water Corporation has advised that the LSP area is capable of being supplied with a potable water source via a DN200 water service from the 600S main in Hammond Road.

1.5.4 Power

The ISR concludes that there is sufficient capacity available to supply the proposed development with power.

1.5.5 Gas

The ISR indicates that there is no Alinta Gas infrastructure within the LSP area. However, a 160 medium pressure main extends along the eastern side of Hammond Road. It is anticipated that Alinta Gas infrastructure will be extended from the 160 MP main in Hammond Road. However, Alinta Gas reviews the provision of gas services on a case by case basis and will therefore likely undertake an economic evaluation of the LSP area at the subdivision stage prior to extending existing infrastructure.

1.5.6 Telecommunications

Existing Optic Fibre Cables run along Hammond Road and are capable of adequately servicing the proposed development.

1.5.7 Drainage

UWMP's will be prepared in accordance with the DWMS and implemented at the subdivision stage.

2.0 LOCAL STRUCTURE PLAN

2.1 Local Structure Plan Design

2.1.1 Design Principles

The existing approved Local Structure Plan is provided in **Figure 4**, and the proposed LSP which contemplates minor modifications to the approved LSP is provided in **Figure 5**.

The key design principles which underpin the proposed LSP are outlined as follows:

1. Provide a framework for subdivision and development of land within the LSP area that integrates with the broader district and regional context;
2. Provide for a variety of housing choice through a range of densities and lot sizes;
3. Provide for sustainable land use and lot design that responds to solar orientation principles as well as Crime Prevention through Environmental Design;
4. Increase passive surveillance of POS through the provision of a greater number of lots adjacent to the site;
5. Minimise the need to undertake land swap arrangements with adjoining landowners outside the LSP area at the subdivision stage;
6. Respond to concerns expressed by Water Corporation regarding the number of road connections traversing the Armadale to Thompson's Lake Reservoir Trunk Main located at Lot 801 Darlot Avenue directly to the north of the LSP area;
7. Create a pedestrian friendly environment through the provision of rear-loaded R40 sites and laneways with clear sightlines and no 'dead' corners; and
8. Ensure housing design, lot layout and access arrangements create attractive streetscapes.

2.1.2 Transport and Access Network

Located in a newly developing urban environment, the LSP provides a permeable street network that integrates with the existing and proposed road hierarchy through a modified connected grid pattern. The proposed street network consists of a series of Access Streets (local roads) which have a width of 15m and 13.5m for those which abut POS, and direct access onto Darlot Avenue is achieved via two (2) crossovers on the northern boundary of the LSP area.

No direct lot frontage/vehicle access is provided to Hammond Road given as it will eventually be classified as a District Distributor Road.

All areas coded R30 and R40 have rear laneway access, which allows lot frontages to be reduced while avoiding streetscapes dominated by garages helping to create more pleasant streetscapes.

The proposed LSP provides no direct access for future lots onto Hammond Road with access instead being limited to one intersection to the south of the LSP area. This is consistent with the road network identified in the DSP.

As the first stage of development within the DSP area is likely to occur within the subject LSP area, temporary road access to the LSP area from Hammond Road will need to established until such time as subdivision within the area to the south of the proposed LSP is progressed enabling the road linkage to the south, and ultimately to Hammond Road to be established.

2.1.3 Public Transport

No public transport routes are proposed within the LSP area. However, bus routes exist along Hammond Road, north of Carmel Way, and south of Bartram Road which links to the Cockburn Central Town Centre and Gateways Shopping Centre.

The LSP movement network ensures good pedestrian and cycle access to bus routes.

The nearest railway station to the proposed LSP is Cockburn Central, north of Beeliar Drive. The Success railway station proposed for north of the Russell Road freeway interchange is also planned but there is no commitment to the timing for its construction.

2.1.4 Residential Development

The LSP contemplates a mix of low and medium density housing ranging from R25 to R30 and R40. The LSP provides a balanced mix of densities to facilitate the delivery of a wide range of housing types which will provide for the diverse and changing needs of the community. The LSP establishes the higher medium densities adjacent to the proposed POS which will offer high amenity outlooks for future dwellings and provide increased passive surveillance for adjacent streetscapes. In accordance with Liveable Neighbourhoods, the preparation of Detailed Area Plans (DAPs) will be required for lots with an area less than 350m^2, lots abutting POS and lots with laneway access.

Using Liveable Neighbourhoods density calculations based on site hectare, the LSP achieves an average density of 37 dwellings per hectare (refer **Table 1** below) which is greater than the average of 33 dwellings per hectare achieved within the DSP. These calculations are based on the average site areas under the *Residential Design Codes of Western Australia* (R-Codes). It is noted that these site areas, and the minimum site areas set out in the R-Codes are not applicable to multiple dwellings in areas codes R30 or greater under the R-Codes. As approximately 60% of the subdivisible area of the LSP is coded R30 or R40, these sites have the potential to be developed as multiple dwellings, and therefore the calculations in Table 1 are considered conservative.

As indicated in **Table 1**, the proposed LSP is estimated to yield a total of approximately 72 lots. The densities proposed by the LSP are consistent with the residential density target established by the DSP.

Table 1 - Estimated Lot yields

Density	Estimated Average lot Size	Total Area	Estimated Lot Yield
R25	**350m2**	0.7917ha	23
R30	**300m2**	0.1836ha	6
R40	**220m2**	1.017ha	46
Total		1.997ha	75
Dwelling Units per site hectare			37

**The above calculations exclude 'Special Use' site.*

2.1.5 Public Open Space

The LSP provides an area of POS totalling 3970m² which equates to 11% of the gross subdivisible area consistent with the requirements of Liveable Neighbourhoods (refer **Table 2** below). The POS ultimately provides for the conservation of existing remnant vegetation with areas for active and passive recreation.

Table 2 - Public Open Space Schedule

Site Area	4.0ha
Deductions	
Swimming School Centre	0.400 ha
Gross Subdivisible Area (GSA)	**3.60** ha
Total POS Required	**0.36** ha
Total POS Provided	**0.397 ha**
TOTAL POS (%)	**11.03%**

2.1.6 Variation to District Structure Plan

A plan which provides an overlay of the proposed LSP layout over the endorsed DSP is provided in **Figure 6**. The intention of the proposed variation to the DSP as contemplated by this LSP proposal is to minimise the need to undertake land swap arrangements with adjoining landowners outside the LSP area at the subdivision stage. To this end, the variation to the DSP involves the following modifications to the endorsed LSP:

1) Removing the 13.5 metre road reserve between the R40 coded street block and the POS area within Lot 4;

2) Moving the abovementioned R40 coded street block to the north in order to directly abut the POS area, and re-spacing the row of lots to the south accordingly;

3) Reconfiguring the geometry of the street block to the east of the POS area to maintain an appropriate offset between the centrelines of the proposed southernmost road on Lot 4, and the future laneway providing vehicular access to the abovementioned R40 coded street block to the west; and

4) Reconfiguring the geometry of the street block to the east of the POS area to avoid the need to undertake future land swaps at the subdivision stage between Lot 3 and Lot 4 Hammond Road.

2.1.7 Special Use Zone – Swimming Pool

A swimming school facility on Lot 125 Hammond Road was approved by the City in 2010. A 'Special Use' zoning has been applied to the site under DSP. Accordingly, the LSP reflects this zoning.

2.1.8 Planning for Bush Fire Protection

A Fire Management Strategy (FMS) was prepared in support of the DSP to reduce the threat to residents and fire fighters in the event of bush fire within the broader DSP area.

With respect to the LSP area, the key components of the FMS are:

- A road interface between residential areas and POS;
- Fire hydrants installed every 200m apart in roads that interface with POS; and
- New dwellings to be designed and built to conform with *Australian Standard* 3959- 009 - *Construction of Buildings in Bushfire-Prone Areas* and specifically, the Bushfire Attack Level (BAL) based on the distance between the dwelling and the classified vegetation within the POS.

2.1.9 Mosquito Management

Advice provided from the Department of Health and the City of Cockburn's Environmental Health inspectorate indicates that mosquito breeding areas have been known to inhabit the lake systems situated within the nearby Beeliar Regional Park to the west of the subject land. Accordingly, as part of any future subdivision application within the structure plan area, it is recommended that a Mosquito Management Plan is prepared in collaboration with the City of Cockburn, and implemented as part of future conditions of subdivision approval.

Additionally, in accordance with the requirements of Council Policy APD 6, as part of any future subdivision application within the structure plan area, a condition should be imposed requiring a Notification pursuant to Section 165 of the *Planning and Development Act 2005* to be placed on the Certificates of Title for lots advising of the existence of a hazard or other factor. The Notification may read as follows:

'This Lot is in close proximity to known mosquito breeding areas. The predominant mosquito species is known to carry viruses and other diseases'.

3.0 CONCLUSION

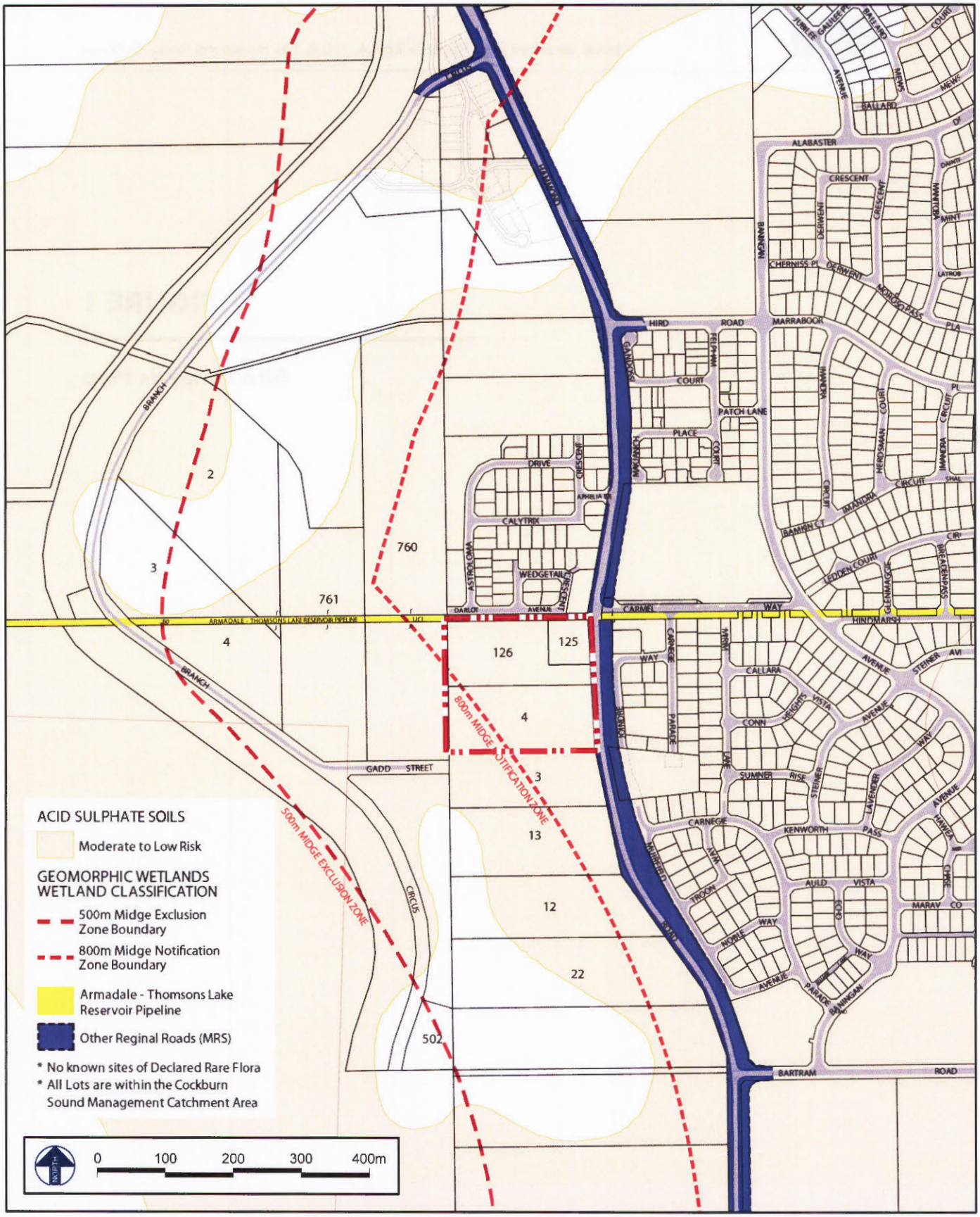
This LSP has prepared on behalf of Muntoc Pty Ltd for Lots 4, 125 and 126 Hammond Road, Success.

The LSP is generally consistent with the Branch Circus DSP and has been based on best-practice design principles, including climatic responsiveness, legibility, walkability, diversity and connectivity. Development will also integrate with the existing urban structure and land use.

The LSP has been prepared in accordance with the design requirements established by Liveable Neighbourhoods and approval of the LSP will facilitate the future subdivision and development of the subject land in an orderly manner.

FIGURE 1

Site Analysis Map



Subject Area

SITE ANALYSIS MAP

Property Description

Lots 4, 125 & 126 Hammond Rd, SUCCESS

Base data supplied by City of Cockburn.
Accuracy +/- 4m. Projection MGA Zone 50.
Areas and dimensions shown are subject to final survey calculations.
All carriageways are shown for illustrative purposes only and are subject to detailed engineering design.

Muntoc Pty. Ltd.	CLIENT
1:7,500@A4	SCALE
15 September 2011	DATE
3200-5-001.dgn	PLAN No
-	REVISION
T.K.	PLANNER
R.F.	DRAWN
R.S.	CHECKED

RPS

RPS Environment and Planning Pty Ltd
ACN 108 680 977
ABN 45 108 680 977

PO Box 465 Subiaco WA 6904
38 Station Street
Subiaco WA 6008

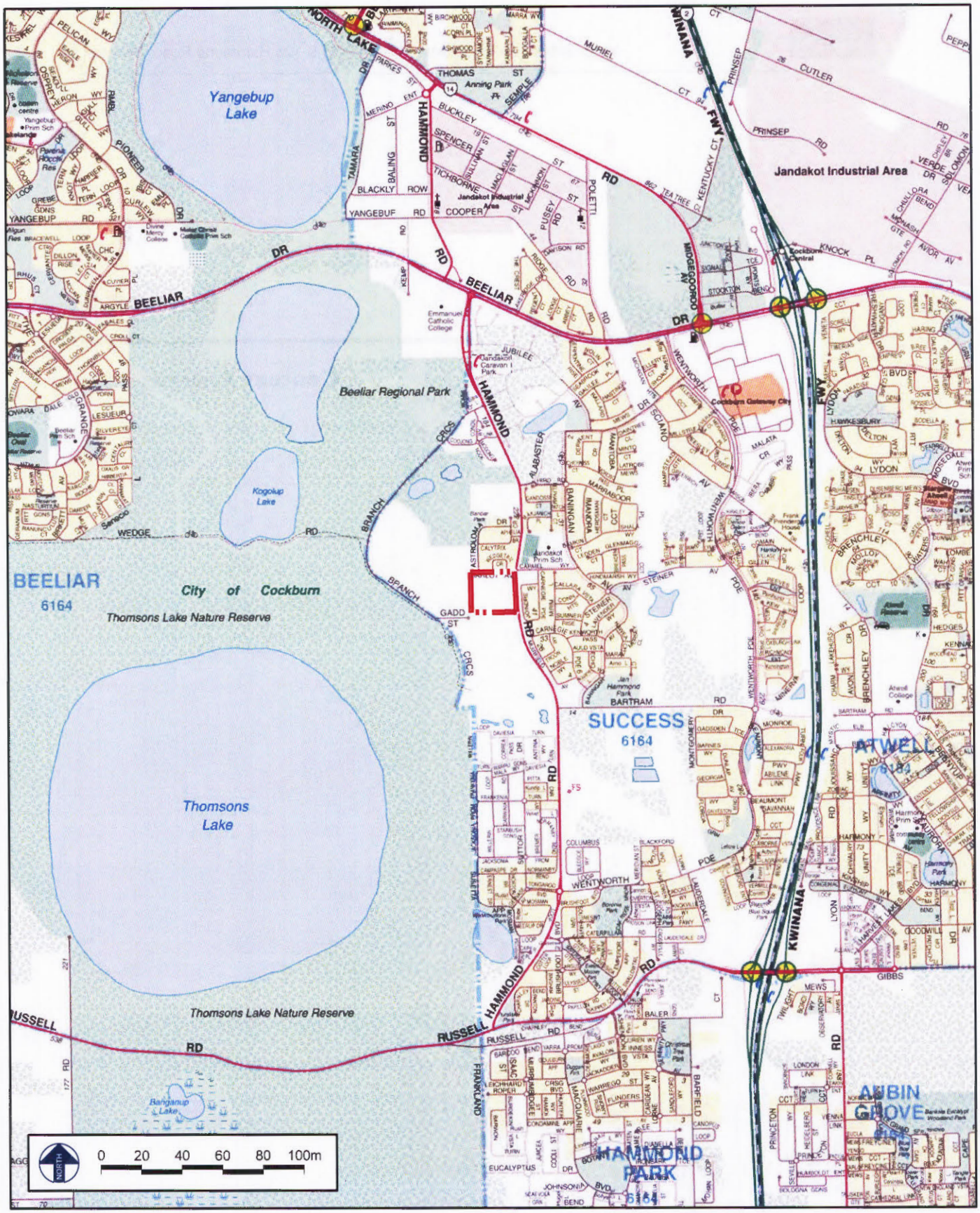
T +61 8 9211 1111
F +61 8 9211 1122

W rpsgroup.com.au

FIGURE 1

FIGURE 2

Context Analysis Map



CONTEXT ANALYSIS MAP

Property Description

Lots 4, 125 & 126 Hammond Rd, SUCCESS

Image supplied by Street Smart 2009.
Accuracy +/- 4m. Projection MGA Zone 50 / PCG94 / PHG94 / GDA94.
Areas and dimensions shown are subject to final survey calculations.
All carriageways are shown for illustrative purposes only and are subject to detailed engineering design.

Muntoc Pty. Ltd. :	CLIENT
1:25,000@A4 :	SCALE
15 September 2011 :	DATE
3200-5-002.dgn :	PLAN No
- :	REVISION
T.K. :	PLANNER
R.F. :	DRAWN
R.S. :	CHECKED

RPS

RPS Environment and Planning Pty Ltd
ACN 108 680 977
ABN 45 108 680 977

PO Box 465 Subiaco WA 6904
38 Station Street
Subiaco WA 6008

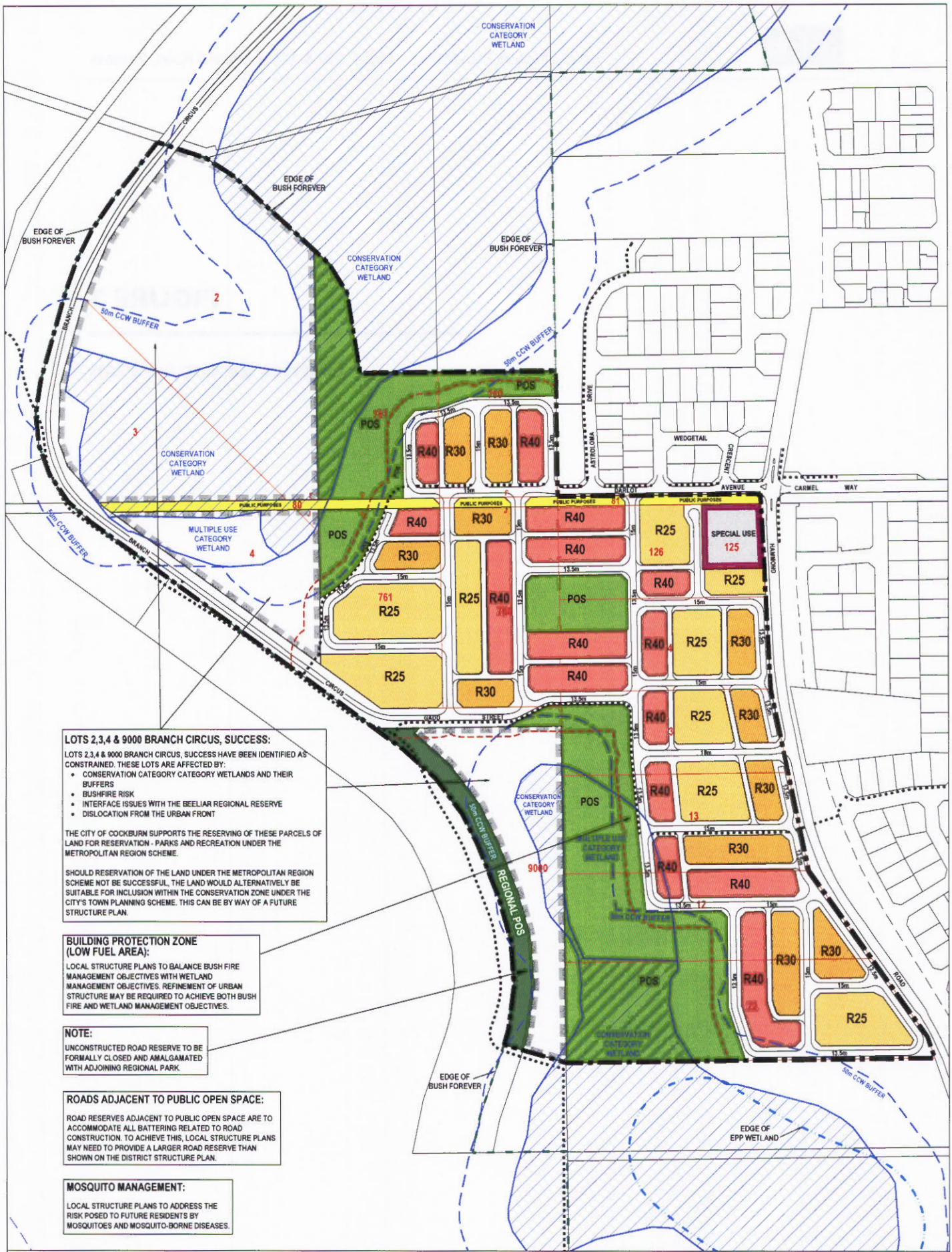
T +61 8 9211 1111
F +61 8 9211 1122

W rpsgroup.com.au

FIGURE 2

FIGURE 3

District Structure Plan



LOTS 2,3,4 & 9000 BRANCH CIRCUS, SUCCESS:

LOTS 2,3,4 & 9000 BRANCH CIRCUS, SUCCESS HAVE BEEN IDENTIFIED AS CONSTRAINED. THESE LOTS ARE AFFECTED BY:

- CONSERVATION CATEGORY CATEGORY WETLANDS AND THEIR BUFFERS
- BUSHFIRE RISK
- INTERFACE ISSUES WITH THE BEELIAR REGIONAL RESERVE
- DISLOCATION FROM THE URBAN FRONT

THE CITY OF COCKBURN SUPPORTS THE RESERVING OF THESE PARCELS OF LAND FOR RESERVATION - PARKS AND RECREATION UNDER THE METROPOLITAN REGION SCHEME.

SHOULD RESERVATION OF THE LAND UNDER THE METROPOLITAN REGION SCHEME NOT BE SUCCESSFUL, THE LAND WOULD ALTERNATIVELY BE SUITABLE FOR INCLUSION WITHIN THE CONSERVATION ZONE UNDER THE CITY'S TOWN PLANNING SCHEME. THIS CAN BE BY WAY OF A FUTURE STRUCTURE PLAN.

BUILDING PROTECTION ZONE (LOW FUEL AREA):

LOCAL STRUCTURE PLANS TO BALANCE BUSH FIRE MANAGEMENT OBJECTIVES WITH WETLAND MANAGEMENT OBJECTIVES. REFINEMENT OF URBAN STRUCTURE MAY BE REQUIRED TO ACHIEVE BOTH BUSH FIRE AND WETLAND MANAGEMENT OBJECTIVES.

NOTE:

UNCONSTRUCTED ROAD RESERVE TO BE FORMALLY CLOSED AND AMALGAMATED WITH ADJOINING REGIONAL PARK.

ROADS ADJACENT TO PUBLIC OPEN SPACE:

ROAD RESERVES ADJACENT TO PUBLIC OPEN SPACE ARE TO ACCOMMODATE ALL BATTERING RELATED TO ROAD CONSTRUCTION. TO ACHIEVE THIS, LOCAL STRUCTURE PLANS MAY NEED TO PROVIDE A LARGER ROAD RESERVE THAN SHOWN ON THE DISTRICT STRUCTURE PLAN.

MOSQUITO MANAGEMENT:

LOCAL STRUCTURE PLANS TO ADDRESS THE RISK POSED TO FUTURE RESIDENTS BY MOSQUITOES AND MOSQUITO-BORNE DISEASES.

City of Cockburn
wetlands to waves

N
GNA 7/11

0 75m
SCALE

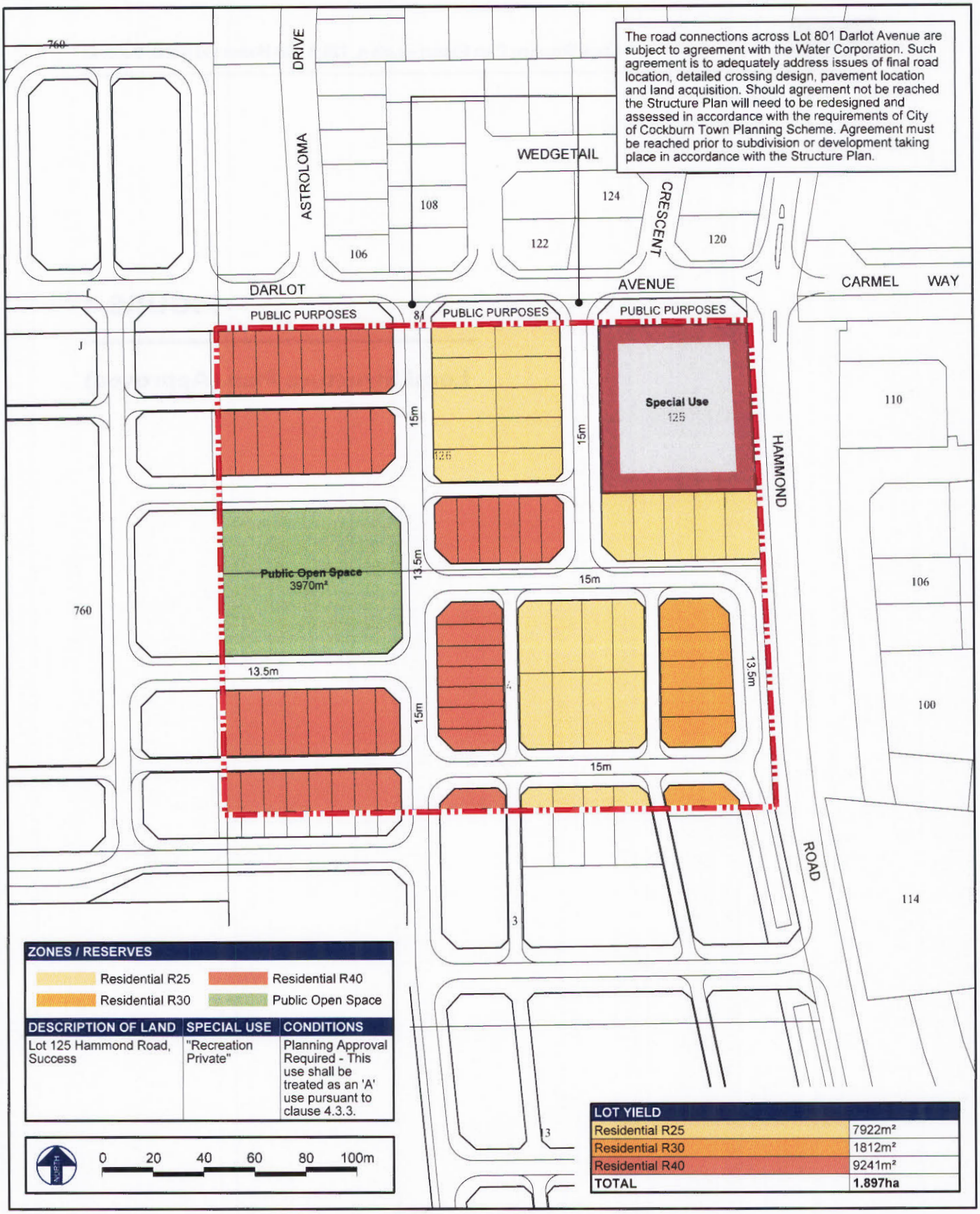
- Structure Plan Boundary
- Residential R25
- Residential R30
- Residential R40
- Special Use
- Public Open Space
- Regional Open Space
- Public Purposes
- Constrained Site
- Conservation Category Wetland
- 50m CCW Buffer
- Multiple Use Category Wetland
- Building Protection Zone (30m)
- Pedestrian/Cycle Links
- Bush Forever Boundary
- EPP Wetland Boundary

DISTRICT STRUCTURE PLAN
BRANCH CIRCUS

LOTS 3,4,12,13,22,81,125,126 & UCL, HAMMOND ROAD, LOTS 2,3,4,80,761,9000 BRANCH CIRCUS, & LOT 760 GADD STREET, SUCCESS

FIGURE 4

Local Structure Plan (Approved)



APPROVED LOCAL STRUCTURE PLAN

Property Description

Lots 4, 125 & 126 Hammond Rd, SUCCESS

Base data supplied by City of Cockburn.
Accuracy +/- 4m. Projection MGA Zone 50.
Areas and dimensions shown are subject to final survey calculations.
All carriageways are shown for illustrative purposes only and are subject to detailed engineering design.

Muntoc Pty. Ltd. : CLIENT
1:2,000@A4 : SCALE
18 April 2012 : DATE
3200-5-003c.dgn : PLAN No
c : REVISION
T.K. : PLANNER
R.F. : DRAWN
R.S. : CHECKED

RPS

RPS Environment and Planning Pty Ltd
ACN 108 680 977
ABN 45 108 680 977

PO Box 465 Subiaco WA 6904
38 Station Street
Subiaco WA 6008

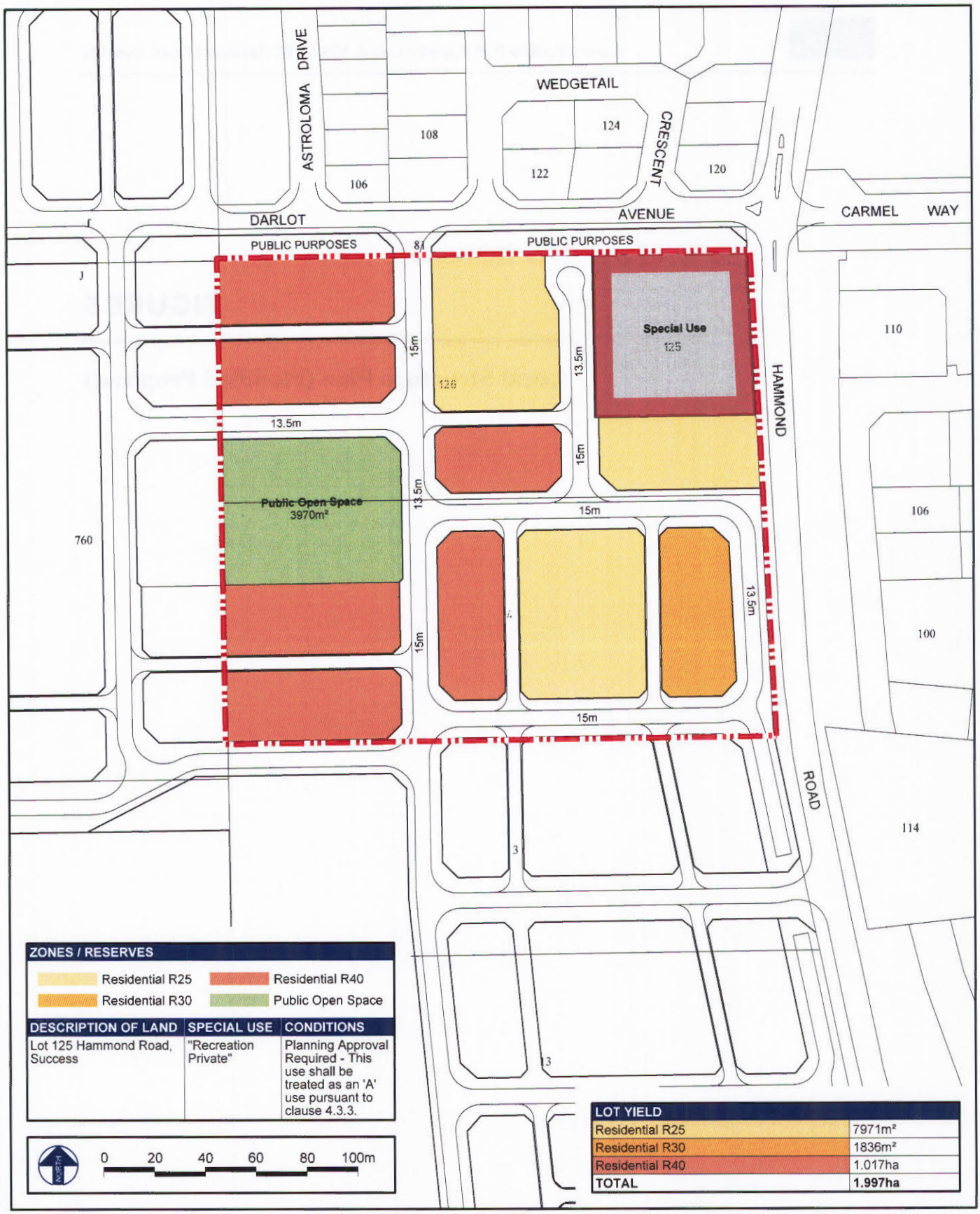
T +61 8 9211 1111
F +61 8 9211 1122

W rpsgroup.com.au

FIGURE 4

FIGURE 5

Local Structure Plan (Modified Proposal)



LOCAL STRUCTURE PLAN

Property Description

Lots 4, 125 & 126 Hammond Rd, SUCCESS

Base data supplied by City of Cockburn.
Accuracy +/- 4m. Projection MGA Zone 50.
Areas and dimensions shown are subject to final survey calculations.
All carriageways are shown for illustrative purposes only and are subject to detailed engineering design.

Muntoc Pty. Ltd. : CLIENT
1:2,000@A4 : SCALE
11 February 2013 : DATE
3200-5-003i.dgn : PLAN No
i : REVISION
R.S. : PLANNER
R.F. : DRAWN
R.S. : CHECKED

RPS

RPS Australia East Pty Ltd
ABN 44140292762

PO Box 465 Subiaco WA 6904
38 Station Street
Subiaco WA 6008

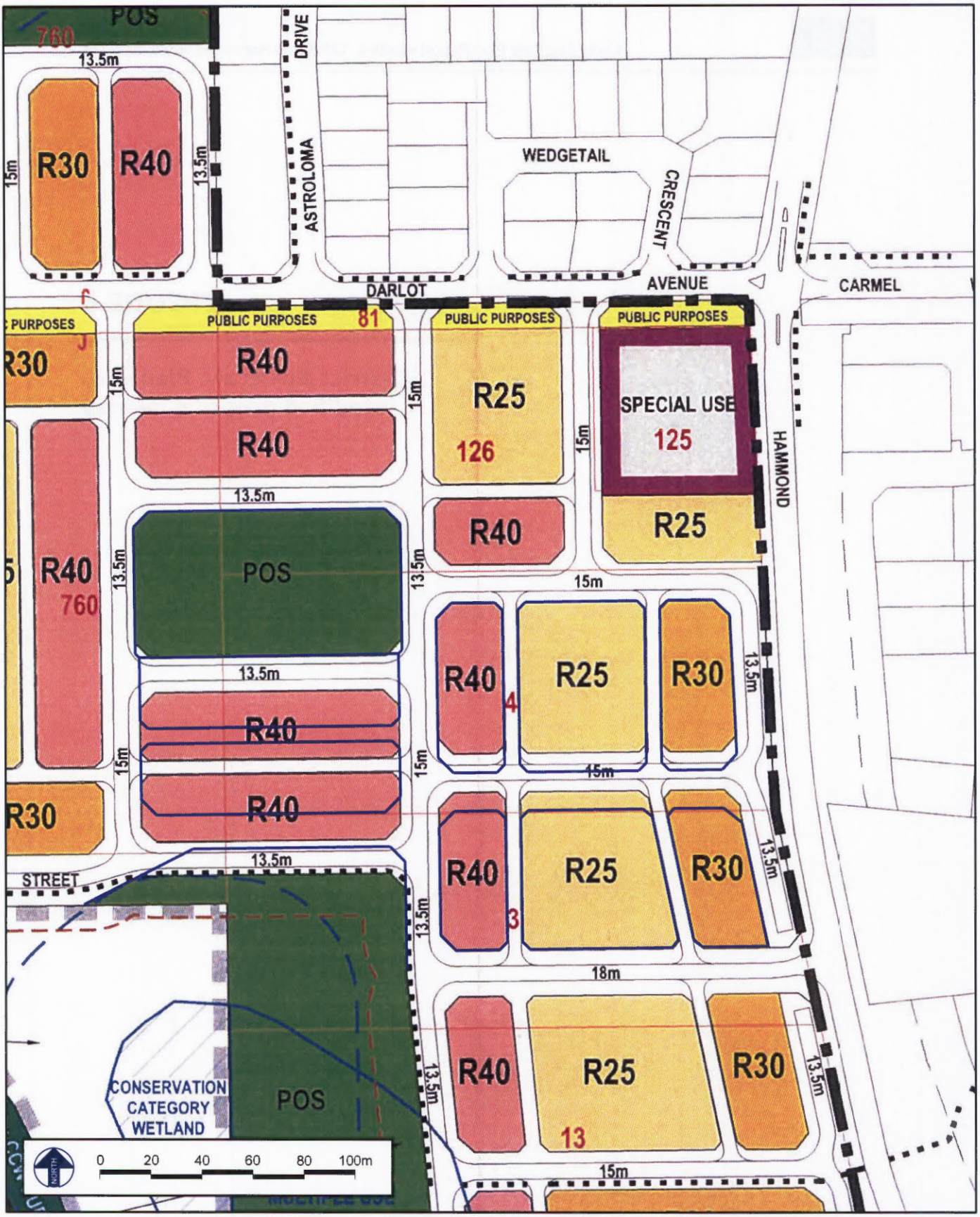
T +61 8 9211 1111
F +61 8 9211 1122

W rpsgroup.com.au

FIGURE 5

FIGURE 6

District Structure Plan with modified proposal overlay



Proposed Modifications

DISTRICT STRUCTURE PLAN WITH PROPOSED MODIFICATIONS

Property Description

Branch Circus

Base data supplied by City of Cockburn.
Accuracy +/- 4m. Projection MGA Zone 50.
Areas and dimensions shown are subject to final survey calculations.
All carriageways are shown for illustrative purposes only and are subject to detailed engineering design.

Muntoc Pty. Ltd.	CLIENT
1:2,000@A4	SCALE
5 July 2012	DATE
3200-4-002.dgn	PLAN No
-	REVISION
T.K.	PLANNER
R.F.	DRAWN
R.S.	CHECKED

RPS

RPS Environment and Planning Pty Ltd
ACN 108 680 977
ABN 45 108 680 977

PO Box 465 Subiaco WA 6904
38 Station Street
Subiaco WA 6008

T +61 8 9211 1111
F +61 8 9211 1122

W rpsgroup.com.au

FIGURE 6

APPENDIX I

Sampling and Analysis Plan

Our Ref V10049—SSC100004.10--DLM

Contact: Dave Meyer

Mr John Mair
Mair Group
PO Box 7427
Cloister Square
Perth
WA, 6850

Cardno (WA) Pty Ltd
ABN 77 009 119 000

Cardno
2 Bagot Road, Subiaco WA 6008
PO Box 155, Subiaco
Western Australia 6904 Australia
Telephone: 08 9273 3888
Facsimile: 08 9388 3831
International: +61 8 9273 3888
Email: perth@cardno.com.au
www.cardno.com.au

Dear John

HYDROLOGICAL MONITORING AT HAMMOND ROAD, SUCCESS

1 Introduction

As you are aware, Cardno was engaged to develop and implement a groundwater Sampling and Analysis Plan (SAP) to provide baseline groundwater level data within the Hammond Road study area prior to development. The objective of this project was to characterise the pre-development hydrological environment. Baseline data will provide a basis for future performance criteria to ensure that any future development is able to fulfil the stormwater management requirements of the Department of Water (DOW) and engineering standards specified by the City of Cockburn.

Accurate baseline data will allow the development of appropriate management strategies and measures that will ensure surface water and groundwater underlying the site are adequately managed. This will ensure that realistic design and treatment criteria can be applied to the stormwater management process through the development of an appropriate Urban Water Management Strategy (UWMS).

1.1 Project Background

The Hammond Road site is in the locality of Success, which is situated in the south West Metropolitan corridor. The Hammond Road site (here after referred to as the "study area") is a small square shaped area immediately south of Cockburn central. The study area encompasses approximately 4 ha of land and is bounded by Hammond Road to the east and Darlot Ave to the north. The location of the study area and its boundaries are shown in **Figure 1.**

The study area is currently zoned as 'Urban Deferred' under the Metropolitan Regional Scheme (MRS) (WAPC, 2010). The Historical use of the study area has been rural residential. The study area consists of native vegetation with part residential clearing. The study area is proposed for future residential development.

Monitoring Objective

Cardno was engaged to collect baseline hydrological data within the study area prior to development, with the objective of characterising the pre-development hydrological environment. To achieve this objective, Cardno developed and implemented a Sampling and Analysis Plan (SAP).

The SAP was developed to enable the collection of baseline data in consideration of the requirements specified in the relevant Department of Water (DoW) guidelines, the [*National Water Quality Management Strategy*] (ANZECC, 2000) and [*Better Urban Water Management*] (DoW, 2008). The aims of the SAP are to:

- Ascertain seasonal fluctuations in groundwater levels to define the requirements for fill/subsurface drainage and to ensure that adequate separation distance of housing and infiltration structures from groundwater are achievable;
- Identify and quantify nutrient hotspots so that appropriate management measures can be implemented to avoid exacerbating the current situation; and
- Clarify groundwater quality to provide baseline data against which the effectiveness of future urban stormwater management measures can be assessed.

The baseline data will also provide a basis for future performance criteria to ensure that any future development is able to fulfil the stormwater management requirements of the DoW and engineering standards specified by the City of Cockburn.

1.3 Purpose of this Letter

This letter confirms the completion of Lot 4 & 5 Hammond Road SAP and documents the findings of the groundwater level results of the study area undertaken in August 2010 through to January 2011, as well as the results of the ground water quality monitoring, which was undertaken during August 2010.

2 Sampling and Analysis Plan Methodology

Three shallow groundwater bores were installed on the 12 August 2010 and monitored under the direction of Cardno. These were installed in the study area at locations which would provide the best representation of the underlying groundwater levels. The locations of these groundwater bores are shown in **Figure 2**. These locations allowed for the identification of underlying groundwater contours.

The groundwater bores installed under the direction of Cardno were constructed of 50mm threaded PVC slotted screen and blank casing sections. A three metre screened section was installed in each of the bores to approximately bisect the observed groundwater level. Graded gravel pack was placed around the screened section extending at least 0.5m above the top of the screened section. A bentonite seal was placed above the gravel pack and the bore annulus was backfilled with any available cuttings and concrete to the surface. Each bore was completed with approximately 0.5m of PVC casing extending above the ground surface and a protective steel casing. All bores were logged for hydro-geological parameters on installation. Bore completion log sheets of the three bores being SS1, SS2 and SS3 are contained in **Appendix A.**

2.1 Groundwater Levels

Groundwater levels were to be measured on a monthly basis for six months (i.e. covering the peak of one wet season) on all bores. These bores were measured using an audible dip meter to record standing water levels. All bores were surveyed to provide an accurate elevation, thereby allowing accurate calculation of peak groundwater levels and contours.

2.2 Groundwater Quality

A clear understanding of the existing groundwater quality is important to determine whether the quality of water in the superficial aquifer is slowly improving in time or at least not degrading as a result of development. Bores were purged using an electric pump prior to sampling. Groundwater quality sampling for nutrient concentrations was conducted on the initial monitoring occasion being the 25th of August 2010. Purging of the well was continued for approximately five minutes before samples were collected for *in situ* physiochemical data. Physiochemical parameters *measured in situ* include:

- pH.
- Temperature.
- Electrical Conductivity (EC)/ Salinity.
- Oxidation-Reduction Potential (Eh).

Upon collection, groundwater samples are placed directly into laboratory prepared and supplied containers. The samples are then placed on ice immediately following collection and transported to the laboratory under standard Chain of Custody procedures. Samples are submitted to a National Association of Testing Authority (NATA) accredited laboratory for analysis. The parameters selected for groundwater analysis include:

- Total Nitrogen (TN).
- Total Phosphorous (TP).
- Ortho-Phosphorous (Ortho P).
- Oxides of Nitrogen (NO_x).
- Total Kjeldahl Nitrogen (TKN).
- Ammonium (NH_4).

2.3 Chain of Custody

Standard Chain of Custody forms are completed for all samples transferred to the laboratory, detailing the sample identification, collection date and the requested analysis. Upon receipt of the samples the laboratory completes the Chain of Custody forms and provides a copy to Cardno for confirmation. Completed Chain of Custody forms for sampling undertaken are provided in **Appendix A.**

2.4 Laboratory Analysis

All laboratory analysis was conducted by a National Association of Testing Authorities (NATA) accredited laboratory, including QA/QC samples. Laboratory certificates of analysis are included in **Appendix A.**

3 Assessment Criteria

In order to provide an indication of the relative concentration of nutrient levels and physiochemical parameters within both surface and groundwater, comparison with the 'default trigger values for slightly disturbed ecosystems (lowland river) in South Western Australia' (ANZECC 2000) is made in the following sections. While the default trigger values are applicable to nutrient concentrations within surface water features, they are not specifically intended for application to groundwater nutrient concentrations. However, as there are no nationally published trigger values available for groundwater quality, a comparison of nutrient concentrations and some field chemistry parameters are made to the 'default trigger values' to provide some context to the measured concentrations. As such, the 'default trigger values' are hereafter referred to as the 'guideline values'. These guideline values are shown in **Table** .

Table 3 ANZECC Guideline Values for lowland rivers

TN (µg/L)	TP (µg/L)	Ortho P (µg/L)	NH4 (µg/L)	NOx (µg/L)	DO (% Sat)	pH	Salinity (mS/cm)
1200	65	40	80	150	80-120	6.5-8.0	0.12-0.3

Discussion of nutrient concentrations in the following sections refers to their relative concentration compared to the guideline values. The terms 'low', 'moderate', high' and 'very high' are used in the following manner:

- 'Low' – nutrient concentration below, equal to or marginally above default trigger value.
- 'Moderate' – nutrient concentration up to five times the default trigger value.
- 'High' – nutrient concentration between five and 10 times the default trigger value.
- 'Very High' – nutrient concentrations more than 10 times the default trigger value.

Principally, comparison is made for the TN and TP concentrations. However, some comment is also provided for nutrient species (Ortho P, NH_4, NO_X) where these form a substantial portion of the overall nutrient concentrations.

4 Monitoring Results

4.1 Groundwater Levels

Monthly groundwater monitoring from August 2010 to January 2010 has been conducted at the three bores located within the study area. The results have been recorded in order to capture the 2010 winter peak. The groundwater depths are shown in **Table 4.1**

Table 4.1 Groundwater Levels in metres Below Ground Surface (mBGS) – June 2010 to November 2010

Bore number	August 2010	September 2010	October 2010	November 2010	December 2010	January 2011
SS1	5.72	5.24	5.70	5.91	5.98	6.50
SS2	5.85	4.84	4.85	5.07	5.06	5.18
SS3	10.40	9.92	9.97	10.27	10.24	10.35

Surface to groundwater separation distances ranged from 4.84mBGS (SS2, September 2010) to 10.4mBGS (SS3, August 2010). **Figure 4.1** presents these results in metres Australian Height Datum (mAHD). The monitored groundwater levels recorded concur with the groundwater contours in the *Perth Groundwater Atlas* (DoE, 2004) which shows the approximate water table being six metres below the natural ground surface at the site and indicates a westerly groundwater flow direction (recorded in the month of May 2003). Site specific groundwater contours have been generated upon completion of the SAP and incorporated in **Figure 3**.

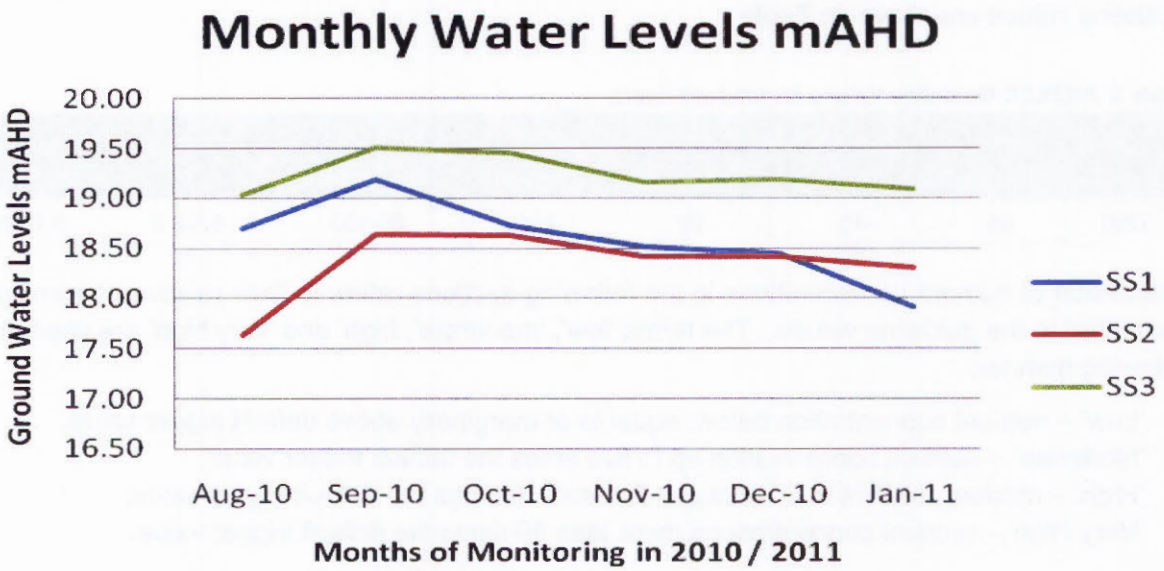


Figure 4.1 Hydrograph of Ground Water Levels in metres Australian Height Datum (mAHD) – August 2010 to January 2011

The ground water levels from the three bores ranged from 17.63mAHD (SS2, August 2010) to 19.51mAHD (SS3, September 2010). The 2010 winter peak period occurred in September at all three bores. As such the September readings have been referenced to Department of Water bore 3183 to generate AAMGL's and groundwater contours. These contours are presented in **Figure 3**. The contours show a south westerly groundwater flow direction.

4.2 Groundwater Quality

Groundwater quality was measured once on the 25th of August 2010. The results for the laboratory analysed nutrient concentrations and the *in situ* physiochemical parameters can be seen in **Table 4.2**. The full list of parameters of the analysis can be seen in **Appendix A**.

Table 4.2 Groundwater Quality Results 25/08/2010

Parameters	Trigger Values	SS1	SS2	SS3
Field Chemistry (*in situ*) Parameters				
Temp (℃)	-	19.71	19.01	20.25
Salinity (mS/cm)	0.12-0.3	0.19	0.19	0.16
DO (%)	80-120	29.20	18.20	3.74
pH	6.5-8.0	5.79	4.65	5.94
Redox	-	190	202	182
Laboratory Analyses				
TN (µg/L)	1.20	2.50	4.80	10.60
TP (µg/L)	0.065	0.03	0.02	0.03
NH4 (µg/L)	0.08	0.02	0.01	0.01
NO2+NO3 (ug/L)	0.15	1.68	4.46	9.15
TKN (µg/L)	-	0.80	0.30	1.50
Ortho-P (µg/L)	0.04	0.01	0.03	0.01

As shown in **Table 4.2**, comparison of the physiochemical parameters and nutrient concentrations with the ANZECC guideline values indicated:

- 'Low' to 'moderate' TN concentrations with the exception of bore SS3 recording a 'very high' reading.
- 'Low' TP concentrations.
- 'Very high' NO_x concentrations.
- Salinity values within the default trigger range.
- pH values below the guideline range at all bores.

:

5 Conclusions

Results of the groundwater level monitoring indicated that groundwater level elevations across the study area vary appreciably spatially. Furthermore, significant separation distance between the natural ground level and the groundwater table was observed at bore SS3; a moderate separation distance was observed at bores SS1 and SS2. Peak groundwater levels occurred in September and the minimum depth to groundwater recorded was 4.84 metres.

Results of the SAP have characterised the 2010 winter peak groundwater levels within the study area. It should be noted that the SAP was conducted within a below average rainfall year as Perth recorded only 72% of its average rainfall being 349.2mm over the 2010 winter period, compared with the average of 482 mm (BOM, 2010). However, when compared to the calculated long term AAMGL, the minimum depth to groundwater is calculated to be 3.44m. This suggests a significantly larger separation than the 1.2 metre general earth work level design criteria. Given the extent of separation, it is considered to be sufficient to record only one year's groundwater peak, as the results will provide adequate reference to progress development designs within the study area.

Results of the groundwater quality monitoring for nutrient concentration incorporated in the initial monitoring occasion show generally 'low' readings with the exception of NO_x which recorded 'very high' readings for all bores. Additionally, bore SS3 recorded 'very high' readings for TN concentrations. The generated groundwater contours show a south westerly groundwater flow direction. This indicates that the groundwater flow is heading towards the coast and more immediately towards Thompsons Lake.

This letter concludes the scope of work with regards to hydrological monitoring of the study area. As no inherent deficiencies have been identified in the SAP, the monitoring parameters and methodology are considered to be adequate to have achieved the aims of the pre-development groundwater investigation.

Please feel free to contact the undersigned if you wish to discuss any aspect of the above investigation.

Yours faithfully

David Meyer
Senior Engineering Hydrologist
For ***Cardno***

References

Australian and New Zealand Environment and Conservation Council (ANZECC), 2000, *National Water Quality Management Strategy,* Australian and New Zealand Guidelines for Fresh and Marine Water Quality, ANZECC, Canberra

Western Australian Planning Commission (WAPC), 2010, *Metropolitan Regional Scheme Map: Metropolitan Region Scheme zones and reservations amended to: 24th July 2007*, Government of Western Australia, Perth.

Bureau of Meteorology (BOM), 2010, *Bureau of Meteorology Climate Data*, Available Online: <http://www.bom.gov.au/climate/current/season/wa/archive/200808.perth.shtml,Accessed:> [November 2010].

Department of Water (DOW), 2008 Better Urban Water Management Plans: Guidelines for Preparing Plans and for Complying with Subdivision Conditions, DOW, Perth.

Department of Environment (DoE), Second edition 2004, Perth Groundwater Atlas, DoE, Perth.

APPENDIX 2

LWMS/UWMP Correspondence

Rob Sklarski

From: Samuel Cleary (Perth) [Samuel.Cleary@cardno.com.au]
Sent: Monday, 12 September 2011 9:36 AM
To: Rob Sklarski
Subject: FW: Success DWMS

From: Rosalind Serventy [mailto:rserventy@cockburn.wa.gov.au]
Sent: Monday, 16 May 2011 4:40 PM
To: Samuel Cleary (Perth)
Cc: Carol Catherwood
Subject: FW: Success DWMS

Hi Samuel

As per Sabbir's email below, this City is prepared to support you approach to preparing a UWMP, rather than a LWMS that covers all remaining issues and is based on the studies identified by the DWMS. This support is subject to the support of the Department of Water of this approach.

Please feel free to call me to discuss this matter further.

Kind regards

Rosy Serventy

Planning Officer - Strategic Planning
City of Cockburn

PO Box 1215
BIBRA LAKE DC WA 6965
Direct line: 9411 3448
Fax: 9411 3333

From: Sabbir Hussain
Sent: Wednesday, 11 May 2011 4:30 PM
To: Rosalind Serventy
Cc: Carol Catherwood
Subject: RE: Success DWMS

Hi Rosy
Yes I agree that although DWMS refers to the need to undertake a LWMS but all these can be dealt with at the UWMP stage...I therefore don't have any issue if a combined LWMS and UWMP is done for the development.
Cardno still need to check with DoW to see if they are ok this approach.
Thanks

From: Rosalind Serventy
Sent: Tuesday, 10 May 2011 2:10 PM
To: Sabbir Hussain
Cc: Carol Catherwood
Subject: RE: Success DWMS

Hi Sabbir

As per the email below, Cardno who prepared the Branch Circus DWMS for the City as part of the Branch Circus District Structure Plan have now been commissioned by a major landowner within the DSP area. They now believe that the DWMS which was finalised in February of this year is adequately detailed to act as a LWMS and that only a UWMP should be required to facilitate a local structure planning and subdivision.

Can you please advise whether you support Cardno's position? I have attached the DWMS for you to refresh yourself with the document.

The DWMS refers to the need to undertake a LWMS as per *Better Urban Water Management* and there are what appears to be some substantial studies to be undertaken as part of the LWMS (p39). However, it may be that this can all be dealt with at the UWMP stage, prior to subdivision approval.

Many thanks

Rosy Serventy

Planning Officer - Strategic Planning
City of Cockburn

PO Box 1215
BIBRA LAKE DC WA 6965
Direct line: 9411 3448
Fax: 9411 3333

From: Samuel Cleary (Perth) [mailto:Samuel.Cleary@cardno.com.au]
Sent: Thursday, 5 May 2011 10:48 AM
To: Rosalind Serventy
Subject: Success DWMS

Hello Rosy

In following up on our conversation we had the other day regarding the level of detail present in the DWMS. We have been engaged by the Mair Group to undertake groundwater quality and level monitoring on Lot 4 and 5 Hammond Road. The Mair Group are preparing to submit a development application (DA) for Lot 4 Hammond Road. As stated in *Better Urban Water Management* a DA is to be supported (sometimes) by an Urban Water Management Plan (UWMP) of which the local government is the agency responsible for approval.

Given the level of detail in the DWMS adheres to the requirements of a Local Water Management Strategy (LWMS) we propose that a UWMP be prepared for the DA. The DWMS provides the overall strategic approach to how water will be managed within the development of which the UWMP will comply with. Is the city comfortable with this approach?

Should you have any queries please feel free to give me a call
Regards

Samuel Cleary
Environmental Engineer
WA Environmental Services

Phone: +61 8 9273 3888
Direct: (08) 6461 0727
Fax: (08) 9388 3831
Email: mailto:samuel.cleary@cardno.com.au
Web: http://www.cardno.com.au