

The following table provides drafting advice in the preparation of a stand alone Local Environmental Plan for the site.

1.1 Name of Plan	Adopt, inserting "Ryde Local Environmental Plan 2013 –		
[compulsory]	2-14 Tennyson Road, Gladesville".		
1.1AA Commencement [local]	Adopt.		
1.2 Aims of Plan [compulsory]	Adopt in subclause (1);		
	(1) This Plan aims to make local environmental planning provisions for land in Ryde in accordance with the relevant standard environmental planning instrument under section 33A of the Act.		
	and inserting, at subclause (2)(a):		
Said Vaci	<ul> <li>(a) to facilitate the development of the subject land as mixed use premises;</li> </ul>		
	<ul> <li>(b) to provide opportunities for the development of a range of housing types and density that;</li> </ul>		
	<ol> <li>accords with urban consolidation principles, and</li> </ol>		
	<ol> <li>is compatible with the existing environmental character of the locality, and</li> </ol>		
	<li>III. has a sympathetic and harmonious relationship with adjoining development, and</li>		
	<ul> <li>IV. enhances the amenity and characteristics of the established residential area.</li> </ul>		
	(c) to foster the environmental, economic, social and physical development of Ryde so that it develops as an integrated, balanced and sustainable city;		
04	<ul> <li>(d) to encourage the economic growth of nearby commercial centres by:</li> </ul>		
	<ol> <li>providing for development at densities that permits employment to increase, and</li> </ol>		
	<li>II. retaining and enhancing land used for employment purposes that are significant for the Sydney region;</li>		
	<ul> <li>(e) to encourage development that will integrate with and support the Gladesville Town Centre.</li> </ul>		
	<ul> <li>(f) to achieve a high quality urban form by ensuring that new development exhibits design excellence and reflects the existing or desired future character of particular localities;</li> </ul>		
1.3 Land to which Plan applies [compulsory]	Adopt.		
1.4 Definitions [compulsory]	Adopt.		

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1.5 Notes [compulsory]	Adopt.
1.6 Consent authority [compulsory]	Adopt.
1.7 Maps [compulsory]	Adopt.
1.8 Repeal of other local planning instruments applying to land [compulsory]	Adopt.
Savings provision     relating to development     applications [local]	Adopt, If a development application has been made before the commencement of this Plan in relation to land to which this Plan applies and the application has not been finally determined before that commencement, the application must be determined as if this Plan had been exhibited but had not commenced.
1.9 Application of SEPPs and REPs [compulsory]	Adopt.
1.9A Suspension of covenants, agreements and instruments [compulsory]	Adopt.
Part 2 Permitted or prohibited	development
2.1 Land use zones [compulsory]	Adopt, removing all categories except "Business Zones" and all zones except "B4 Mixed Use". Similarly the Land Use Table should remove all other zones.
2.2 Zoning of land to which Plan applies [compulsory]	Adopt.
2.3 Zone objectives and land use table [compulsory]	Adopt.
2.4 Unzoned land [compulsory]	Adopt.
2.5 Additional permitted uses for particular land [compulsory]	Adopt.
2.6 Subdivision — consent requirements [compulsory]	Adopt, removing 2(b)  Note. A Lot Size Map has not been adopted.
2.7 Demolition requires consent [Compulsory]	Adopt
2.6BB Temporary Use of Land [Optional]	Adopt
Land Use Table	

Zone B4 Mixed Use	Adopt inserting,
Zone b4 Mixed ose	1 Objectives of zone
	To provide a mixture of compatible land uses.
	To integrate suitable business, office, residential, retail and other development in accessible locations so as to maximise public transport patronage and encourage walking and cycling.
	2 Permitted without consent
	Home-based child care; Home occupations
	3 Permitted with consent
	Boarding houses; Bulding identification signs; Business identification signs; Child care centres; Commercial premises; Community facilities; Educational establishments; Entertainment facilities; Function centres; Hotel or motel accommodation; Information and education facilities; Medical centres; Passenger transport facilities; Recreation facilities (Indoor); Registered clubs; Residential Flat Buildings; Respite day care centres. Restricted premises; Roads; Senior housing; Shop top housing; Waste or resource transfer stations; Any development not specified in item 2 or 4.
	4 Prohibited
	Agriculture; Air transport facilities; Animal boarding or training establishments; Biosolids treatment facilities; Camping grounds; Caravan parks; Depots; Eco tourist facilities; Farm buildings; General industries; Heavy industries; Heavy industries; Heavy industrial storage establishment; Home occupations (sex services); Industrial training facilities; Sewage treatment plants; Sex services premises; Signage; Vehicle body repair workshop; Vehicle repair stations; Waste or resource management facilities; Water recycling facilities; Water supply systems.
Part 3 Exempt and Complying	development
3.1 Exempt development [compulsory]	Adopt.
3.2 Complying development [compulsory]	Adopt.
3.3 Environmentally sensitive areas excluded [compulsory]	Adopt.
Part 4 Principal development s	tandards
4.1 Minimum subdivision lot size [optional]	Do not adopt
4.2 Rural subdivision [compulsory if clause 4.1 adopted and land to which	Do not adopt, not applicable

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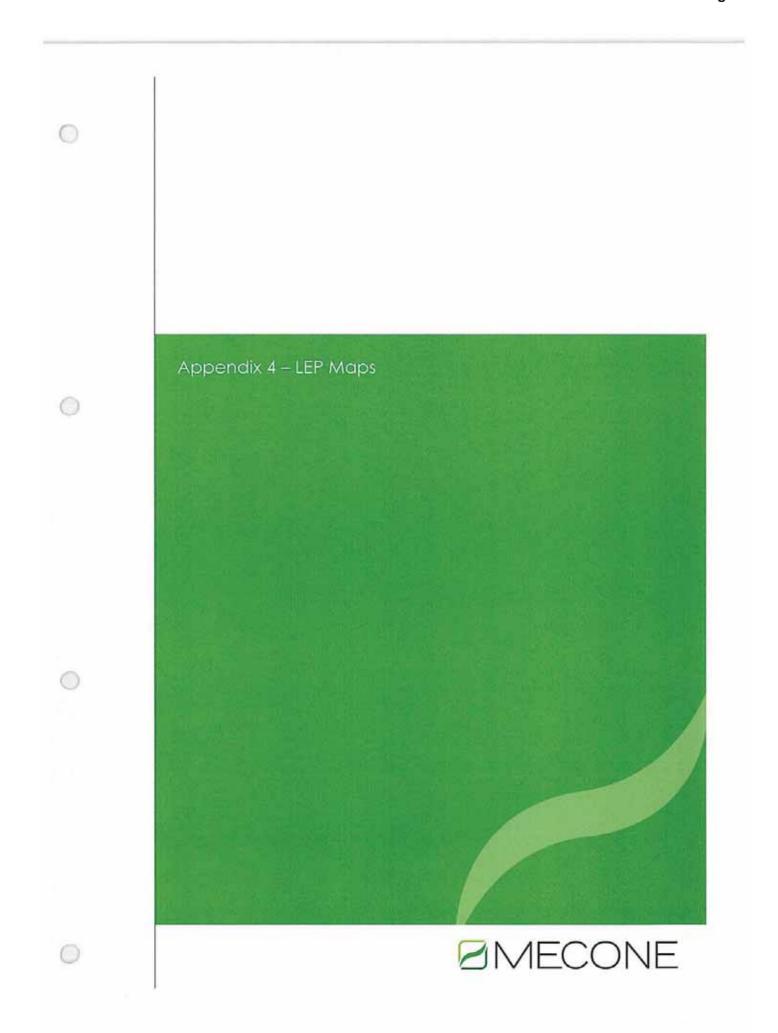
Plan applies includes land zoned RU1, RU2, RU4 or RU6]	
4.3 Height of buildings [optional]	Adopt inserting, at (1):
	The objectives of this clause are as follows:
	<ul> <li>(a) to maintain desired character and proportions of street;</li> </ul>
	<ul> <li>(b) to minimise overshadowing and ensure a desired level of solar access to all properties;</li> </ul>
	<ul> <li>(c) to encourage a built form that relates to human scale and typology;</li> </ul>
	(d) to reinforce the road frontage.
4.4 Floor space ratio	Adopt inserting, at (1):
[optional]	(1) The objectives of this clause are as follows:
	<ul> <li>(a) to provide sufficient floor space to meet the anticipated development needs for the foreseeable future.</li> </ul>
	<ul> <li>(b) to regulate the density of development, built form, land use intensity and to control the generation of vehicle and pedestrian traffic,</li> </ul>
	(c) to ensure that new development reflects the desired character of the locality in which it is located and minimises adverse impacts on the amenity of that locality, and
	(d) to ensure ongoing diversity in housing options.
	(2) The maximum floor space ratio for a building on any land is not to exceed the floor space ratio shown for the land on the Floor Space Ratio Map.
4.5 Calculation of floor space ratio and site area [optional]	Adopt
4.6 Exceptions to development standards [compulsory]	Adopt
Part 5 Miscellaneous provisions	
5.1 Relevant acquisition authority [compulsory]	Adopt
5.2 Classification and reclassification of public land [compulsory]	Adopt
5.3 Development near zone boundaries [optional]	Do not adopt
5.4 Controls relating to miscellaneous permissible	Adopt, inserting "3" as the number of bedrooms in subclause (1), "30" as the number of square metres in subclause (2), "30" as the number of square metres in

uses [compulsory]	subclause (3), "20" and "400" as the percentage and number of square metres, respectively, in subclause (4), "3" as the number of bedrooms in subclause (5), "20" as the number of square metres in subclause (6), "200" as the number of square metres in subclause (7), "8" as the number of square metres in subclause (8), and "10" as the percentage in subclause (9).
5.5 Development within the coastal zone [compulsory if land to which Plan applies includes land in the coastal zone]	Do not adopt.
5.6 Architectural roof features [optional]	Adopt inserting, at subclause (1):  (1) The objectives of this clause are as follows:  (a) to ensure that architectural roof features to which this clause applies are decorative elements only, and  (b) to ensure that the majority of the roof features are contained within the prescribed building height.
5.7 Development below mean high water mark [compulsory if land to which Plan applies contains tidal waters]	Do not adopt.
5.8 Conversion of fire alarms [compulsory]	Adopt
5.9 Preservation of trees or vegetation [optional]	Adopt
5.10 Heritage conservation [compulsory]	Adopt inserting "Ryde" in subclause (1)(a).
5.11 Bush fire hazard reduction [compulsory]	Adopt
5.12 Infrastructure development and use of existing buildings of the Crown [compulsory]	Adopt
Part 6 Local provisions	
6.1 Earthworks	Adopt with wording that has the following effect:  (1) The objectives of this clause are as follows:  (a) to ensure that any earthworks will not have a detrimental impact on environmental functions and processes, neighbouring uses or heritage items and features of surrounding land,  (b) to allow earthworks of a minor nature without separate development consent.

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	(2) Development consent is required for earthworks unless:
	<ul> <li>(a) the work does not alter the ground level (existing) by more than 300 millimetres, or</li> </ul>
	<ul> <li>(b) the work is exempt development under this Plan or another applicable environmental planning instrument, or</li> </ul>
	(c) the work is anciliary to other development for which development consent has been given.
	(3) Before granting development consent for earthworks, the consent authority must consider the following matters:
	<ul> <li>(a) the likely disruption of, or any detrimental effect on, existing drainage patterns and soil stability in the locality,</li> </ul>
	(b) the effect of the proposed development on the likely future use or redevelopment of the land.
	<ul> <li>(c) the quality of the fill or the soil to be excavated, or both,</li> </ul>
	<ul> <li>(d) the effect of the proposed development on the existing and likely amenity of adjoining properties</li> </ul>
	<ul> <li>(e) the source of any fill material and the destination of any excavated material,</li> </ul>
	(f) the likelihood of disturbing relics,
	<ul> <li>(g) proximity to and potential for adverse impacts on any watercourse, drinking water catchment or environmentally sensitive area.</li> </ul>
6.2 Stormwater Quality	Adopt with wording that has the following effect:
	<ol> <li>The objective of this clause is to minimise the impacts of urban stormwater on the environmental values of waterways and bushland areas, and identify how development can maintain or restore those values.</li> </ol>
	(2) The clause applies to all development of 6 or more dwellings, development of 4 storeys or more and/or development with a floor space of more than 2000sqm.
	(3) Development consent will not be granted for a development until the consent authority is satisfied that:
	(a) The stormwater management system includes all reasonable management actions to minimise impacts on and contribute to the achievement or protection of relevant environmental values
	(b) Water sensitive urban design principles are incorporated into the design of the development
Schedules and Dictionary	
Schedule 1 Additional permitted uses	Adopt without insertions.

Schedule 2 Exempt development	Adopt without insertions.
Schedule 3 Complying development	Adopt without insertions.
Schedule 4 Classification	Adopt without insertions.
and reclassification of public land	
Schedule 5 Environmental heritage	Adopt without insertions.
Dictionary	Adopt inserting the appropriate names of maps in the relevant definitions.



**ATTACHMENT 1** io Map -Ratio (n:1) se 4.48 06/2012 © City of Ryde

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**ATTACHMENT 1** 

Maximum Building Height (m) 9.5 Refer to Cl 4.3 (2A) in respect of R2 Low Density Residential k 10.0 L 11.5 M1 12.0 M2 12.5 N1 13.0 N2 14.0 O1 15.0 02 15.5 О3 16.0 Р 18.5 Q 19.0 R1 21.5 R2 22.0 S1 23.0 S2 24.0 T1

26.0 T2 27.5 U1 30.0

U2 30.5 U3 33.0 U4 33.5

44.5

RL RL Controls

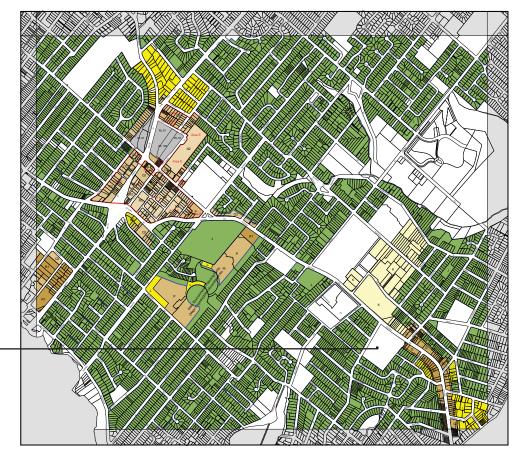
Refer to Clause 4.3(2C) in respect of R2 Low Density Residential. Refer to Clause 4.3(2A) .

Not all codes might be included on this sheet

Cadastre

Cadastre 23/12/2010 © City of Ryde

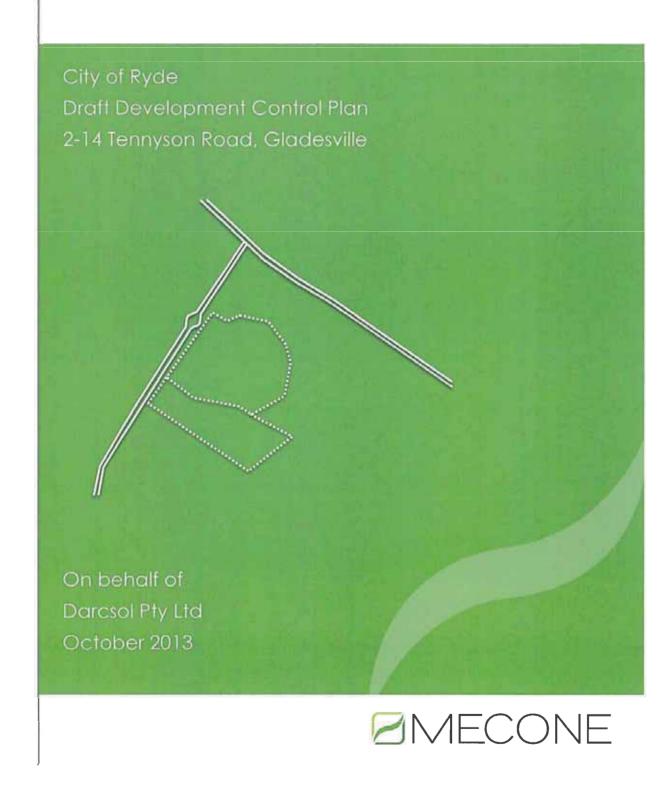


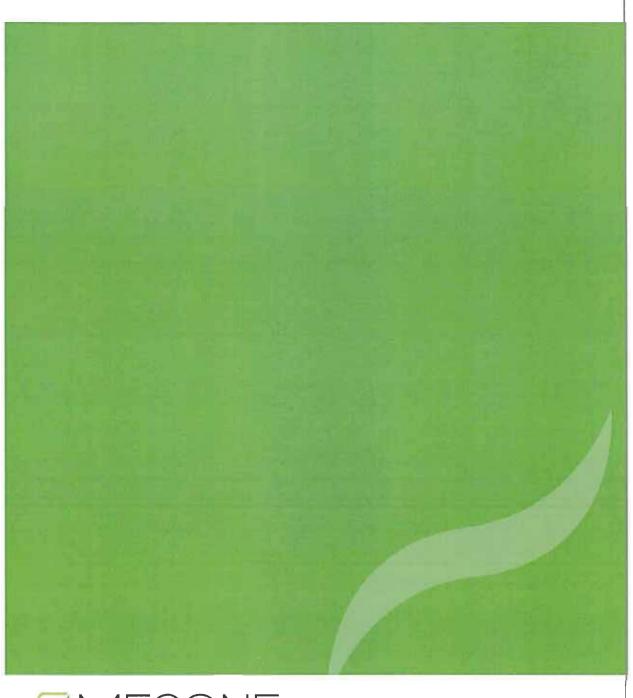


- --- DASHED BLUE LINE NATURAL GROUND LINE PRE QUARRY EXCAVATION
- ---- DASHED BLACK LINE EXISTING QUARRY GROUND LINE
  - BLUE LINE OUTLINE OF POTENTIAL BUILDING
    RED LINE OUTLINE OF LEP HEIGHTS

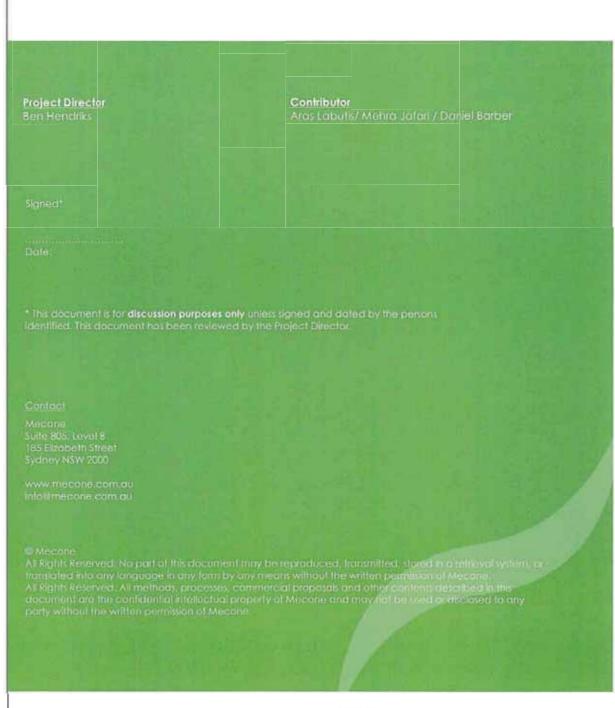


**ATTACHMENT 1 Page 159** Appendix 5 – Draft DCP **MECONE** 















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# 1

# Preliminary

## 1.1 Introduction

This DCP provides objectives and controls for redevelopment of the site located at 2-14 Tennyson Road, Gladesville. The vision, objectives and controls provided in this DCP are supported by extensive studies undertaken by a team of specialist consultants. In the event of any inconsistencies between this DCP and any other DCP, the provisions of this DCP prevail to the extent of the inconsistency.

# 1.2 Name of this part

This part may be cited as City of Ryde Development Control Plan 2010 – Part 6.7 Tennyson Road, Gladesville.

# 1.3 Land and development to which this part applies

This part applies to land located at 2-12 Tennyson Road (hereon referred to as Site A) and 14 Tennyson Road, Gladesville (hereon referred to as Site B) as shown within the shaded area identified in Figure 1.



Figure 1. Land to which DCP applies map

# 1.4 Relationship of this part to other plans and policies

This DCP has been made in accordance with Section 74C of the Environmental Planning & Assessment Act 1979 and complements the provisions of the Ryde Local Environmental Plan 2010.

Where there is any inconsistency between this DCP and the LEP, the LEP prevails. The DCP provides more detailed provisions than those in the LEP for development on the site.

The provisions in this DCP provide specific guidance for development on land covered by this DCP, and complement any other applicable DCPs. In the event



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of any inconsistencies between this DCP and any other DCP, the provisions in this DCP prevail to the extent of the inconsistency.

# 1.5 | Objectives

The objectives of this DCP are to:

- a) Enable future redevelopment to make the best use of the subject land's proximity to public transport, infrastructure, services and community facilities;
- Encourage employment generation on site by providing an appropriate mix of residential, retail, commercial and community uses;
- c) Ensure that building design:
  - Defines the street and the public domain and contributes to the desired urban character of the area;
  - (ii) Is environmentally innovative, durable and of a high quality;
  - (iii) Limits opportunities for crime;
  - (iv) Will not adversely impact surrounding residential developments;
  - (v) Incorporates useable and attractive common open spaces; and Integrates with surrounding development, public places and facilities.
- d) Provide safe, well designed development that is inviting and accessible to all members of the community; and
- e) To ensure the adequate provision of publicly accessible open space.

# 2 Vision Statement

# 2.1 | Existing character

The site is currently identified as an industrial site and contains existing buildings that are being used as warehouse and office space. The site sits to the south of the Monash Road Precinct of the Gladesville Town Centre. The site is located in a predominantly residential area and is segregated from the larger industrial zoned precinct to the north of Victoria Road. Although the site is identified in the Metropolitan Plan as Category 1 employment land, it is currently being under-utilised and has a low employment generation rate.

# 2.2 Desired future character

The site is to be transformed from an under-utilised and poorly functioning industrial premises into a diverse and vibrant mixed use environment with an appropriate mix of activities and uses. The aim is to improve employment generation on site and provide a variety of residential dwellings to support the non-residential uses on site as well as the nearby Gladesville Town Centre.

Site planning should relate to the existing scale and character of buildings and respond to the natural topography and features while avoiding any adverse impact on the amenity of the surrounding residential developments.



# 3 Objectives and Controls

# 3.1 Land use

#### Objectives

- a) To provide an appropriate mix of residential and non-residential uses;
- b) To encourage employment generation on site;
- c) To create a diverse and vibrant urban space; and
- d) To cater for a range of residents from a diverse socio-economic background including socially or physically disadvantaged groups.

#### Controls

- a) Development is to provide an appropriate mixture of compatible uses including residential and non-residential components;
- b) In order to encourage employment generation on site, a minimum of 20% of total Gross Floor Area proposed on site A and a minimum of 5% of total Gross Floor Area proposed on Site B is to be allocated to non-residential uses;
- c) Non-residential uses are to be located on ground floor and be easily accessible from site entries and communal open spaces;
- d) Uses fronting Tennyson Road at grade are to be primarily non-residential;
- e) Development is to provide a variety of residential types to cater for the needs of different household groups;
- f) As a general guide, not more than 75% of dwellings in any development are to have the same number of bedrooms; and
- g) For multi-unit residential development comprising 10 or more units, at least 10% of dwellings should be designed as adaptable units.

# 3.2 | Built form

## 3.2.1 Height of buildings

#### Objectives

- a) Provide additional detail on the distribution of building height, within the height controls established in the LEP; and
- b) Establish maximum number of storeys permissible to ensure development:
  - (i) reinforces the neighbourhood character;
  - (ii) provides a positive contribution to the public domain; and
  - (iii) maximises the level of sun access.

#### Controls

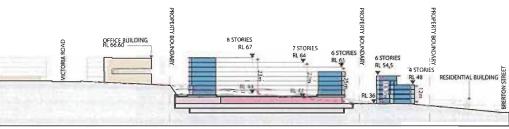
- a) Buildings must comply with the maximum height described in the Height of Buildings plan of the LEP;
- b) Building height in storeys must generally comply with the building height control as shown in Figure 2. Minor variations from the controls contained in Figure 2 are acceptable where the proposed development:
  - i. Is generally in accordance with the LEP height controls and objectives;



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- ii. Generally follows the intent of this clause, which is to be sympathetic to the existing built form and avoid any adverse environmental or amenity impacts on the adjoining buildings; and
- Demonstrates that the proposed variations will not result in any additional adverse impact in terms of overshadowing, overlooking, bulk and scale.
- c) The building height limits in the LEP and DCP correlate to each other and should be read in conjunction;
- d) Floor to ceiling height must be a minimum of 2.7m for habitable rooms of residential spaces. Non habitable rooms within residential units are to comply with the relevant guidelines provided in the Residential Flat Design Code;
- e) Minimum floor to floor height must be kept at minimum 3.6m for non-residential uses; and
- f) To ensure flexibility for adaptive re-use in the future, minimum floor to floor height of 3.6m must be maintained at ground floor regardless of use.





SECTION THROUGH SITE

Figure 2. Building height (No of storeys) map

#### 3.2.2 Setbacks

# Objectives

- a) Ensure development contributes to the comfort and attractiveness of the City's streets by ensuring that:
  - I. Consistency is achieved in the alignment of the building and street edge; and
  - II. Buildings address and define streets and public spaces; and
- b) Achieve development that provides a high level of pedestrian amenity; and
- c) Create suitable separation from buildings on neighbouring properties to protect amenity, privacy and solar access.



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#### Controls

a) Building setbacks at ground level and upper levels must comply with the setback controls provided in Figure 3.

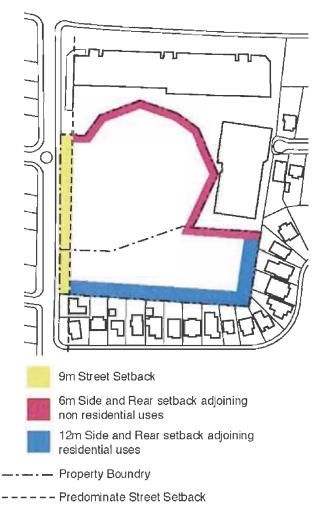


Figure 3. Setbacks map

# 3.2.3 Building width, depth and separation

# Objectives

- a) Ensure that the scale and modulation of development responds to the context of its setting;
- b) Provide permeability between buildings, and adequate separation to achieve privacy, sun light access and open space; and
- c) Ensure building depth maximises potential for cross ventilation and dual aspects within dwellings.



#### Controls

- Residential buildings must be designed to achieve the targets set in the Residential Flat Design Code in relation to building depth, solar access and cross ventilation; and
- b) Seniors housing development is to comply with the relevant requirements contained within the State Environmental Planning Policy (Housing for Seniors and People with a Disability) 2004 in relation to solar access.

# 3.3 Traffic, access and car parking

#### 3.3.1 Vehicular access

#### **Objectives**

- a) Provide safe and easy access to the various uses within development;
- b) Limit the impacts of vehicle entrances and car parking areas on the public domain and street network; and
- Ensure parking areas are designed to integrate with the rest of the building façade and reflect the local character.

#### Controls

- a) Separate vehicular access is to be provided to the residential and nonresidential uses;
- b) Vehicular access to the residential and non-residential uses should be designed to respond to the natural topography of the site, spatial and operational requirements of each use;
- c) Vehicular and pedestrian access to buildings should be separated by means of architectural features, landscaping elements, paving, signage or similar;
- d) Vehicle entrances are to be designed so that vehicles do not queue or reverse across pedestrian crossings or footpaths;
- e) Vehicular access should avoid any adverse impact on streetscape continuity determined in reference to the:
  - I. public domain or the street;
  - II. character of the built form; and
  - III. character of the front landscaping.
- f) Vehicle access and egress is to be a single crossing with a maximum width of 3.5m over the footpath, and perpendicular to the kerb alignment;
- g) Vehicles must be able to enter and leave the site in a forward direction.
   Access arrangements should be in accordance with the relevant Australian Standards;
- h) Loading and unloading should take place at the rear of the site and be away from public open spaces. The design of loading and unloading space should be in accordance with the relevant Australian Standards and guidelines; and
- i) Figure 4 provides the indicative location of vehicular driveways and access points. Should Site A and Site B be developed independently, alternative access arrangements may be required.



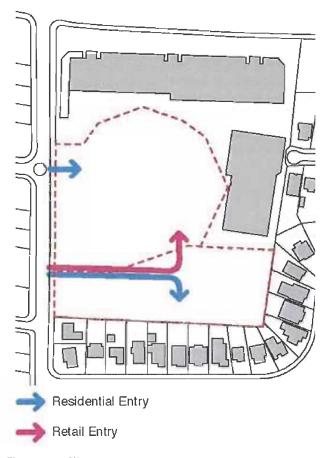


Figure 4. Site access map

# 3.3.2 Pedestrian access

#### **Objectives**

- a) Provide safe access to the various residential and non-residential components of the building;
- b) Ensure that site access meets the requirements of all household groups including children, seniors and people with a disability;
- c) Provide secure access to residential areas of the building; and
- d) Minimise opportunities for crime and vandalism.

#### Controls

- a) Buildings are to be designed to be safe and accessible for pedestrians including children, seniors and people with a disability;
- b) Continuous paths of travel are to be provided;
- Pedestrian entry to buildings should be legible and easily identifiable by means of architectural features, appropriate lighting, landscaping and signage; and
- d) Buildings should be designed to maximise opportunities for passive surveillance of building entries.



# 3.3.3 Parking

#### **Objectives**

- a) Minimise traffic congestion and provide adequate off-street car parking spaces that meets the anticipated demand for the various uses of the building; and
- b) Ensure any car parking facilities provided, ancillary to other land uses, are for a variety of vehicle types, are equally apportioned, and include car share, motorcycle, and accessible parking facilities.

#### Controls

a) Off-street car parking is to be provided as per the rates provided in Table 1 below:

Table 1. Off-street car parking rates

Proposed Use	Residents/Employees	
Residential		
Residential Flat Buildings	0.6 to 1 space per one bedroom dwelling;	
	0.9 to 1.2 spaces per two bedroom dwelling;	
	1.4 to 1.6 spaces per three bedroom dwelling; and	
	1 visitor parking per 5 dwellings	
Seniors Housing	As per the Seniors Housing SEPP	
Child Care Centres	1 space per 8 children; and	
	1 space per two employees.	
Health Consulting Rooms	1 space per doctor or dentist; and	
	1 space per two employees; and	
	1 patient's space per a doctor or dentist	
Office and Business Premises	1 space per 40m² GFA	
Restaurants, Retail Premises and Industrial Retail Outlet	1 space per 25m² GFA	
Other uses	As per Part 9.3 of Ryde DCP 2010.	

- b) Secured parking access is to be provided to the residential component;
- c) Accessible car parking should be provided to all adaptable units;
- d) Car parking should be designed so that vehicles can enter and exit the site in a forward direction;
- e) Parking areas should be designed in accordance with the relevant Australian Standards;
- f) Bicycle parking is to be provided in accordance with Section 2.7 of Part 9.3 of Ryde DCP; and



- g) The design of basement parking is to be in accordance with Section 3.2 of Part 9.3 of Ryde DCP.
- 3.4 Public domain and open spaces
  - 3.4.1 Publicly accessible open spaces

### Objectives

- a) Ensure that the design of publicly accessible open space:
  - i. is of a high quality;
  - ii. provides for a variety of both passive and active uses; and
  - iii. responds to community needs.

#### Controls

- a) Publicly accessible open space of at least 25% of total site area is to be provided within the development;
- To maximise the benefits of the open space for the residents and the community, public space should preferably be provided in the form of a consolidated central open space as per the general layout identified in Figure 5;
- The central open space should be clearly differentiated from adjacent private spaces or buildings, and should be accessible from a variety of points within the development;
- d) Publicly accessible open spaces should be clearly defined by pedestrian entrances and paths; and have appropriate seating;
- e) Open spaces should maximise access for people with mobility difficulties through appropriate design and location of paths and entrances;
- f) The central open space should provide high quality architectural and landscape design;
- g) The design of open spaces should maximise safety and security of all users by providing open sightlines and landscaping, a high level of public surveillance and external lighting; and
- h) The central open space should only be publicly accessible during the hours of operation of the non-residential uses.



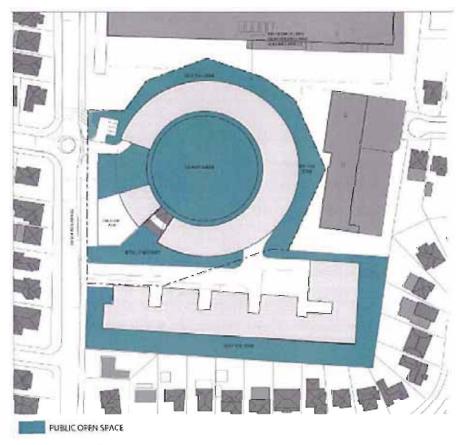


Figure 5. Public open spaces map

# 3.4.2 Private open spaces

### Objectives

a) Ensure that the design provides adequate private open spaces of high quality.

#### Controls

- a) All dwellings within a multi-dwelling housing development shall have at least one area of private open space that is attached to and accessible from the dwelling. The area of private open space should comply with the guidelines provided in the Residential Flat Design Code; and
- b) Private open spaces are to be located such that they receive adequate solar access.

# 3.4.3 Landscaping

#### **Objectives**

- a) To ensure the landscaping of the site within the development complements or enhances the desired future neighbourhood character; and
- b) Ensure that trees and shrubs will have a softening effect on buildings, and the overall environment and trees are planted in sufficient numbers and scales to achieve this aim.



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#### Controls

- a) Development Applications for full buildings must be accompanied by a Landscape Concept Plan;
- b) Trees are to be selected based on the scale of buildings, width of street, aspect, and on environmental parameters such as soil type in accordance with the City of Ryde Public Domain Technical Manual;
- c) Provide landscaping to:
  - i. Screen poor views;
  - ii. Give privacy to occupants and neighbouring properties;
  - iii. Be easily maintained;
  - iv. Use native species, particularly species indigenous to the area; and
  - v. Provide for sufficient depth of soil to support the long-term viability of the landscaping.
- d) Deep soil planting is to be provided to a minimum of 25% of the total site area (refer to Figure 6); and
- e) Deep soil zones are to be located around site perimeters to encourage privacy through screening planting.

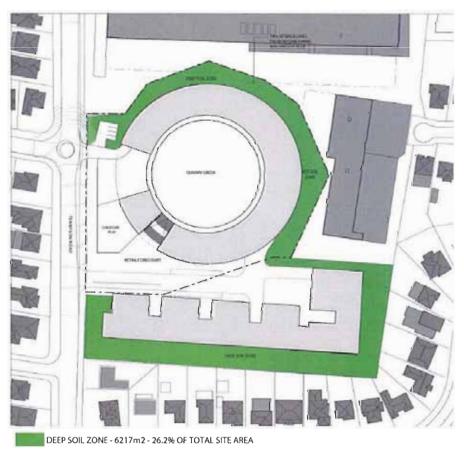
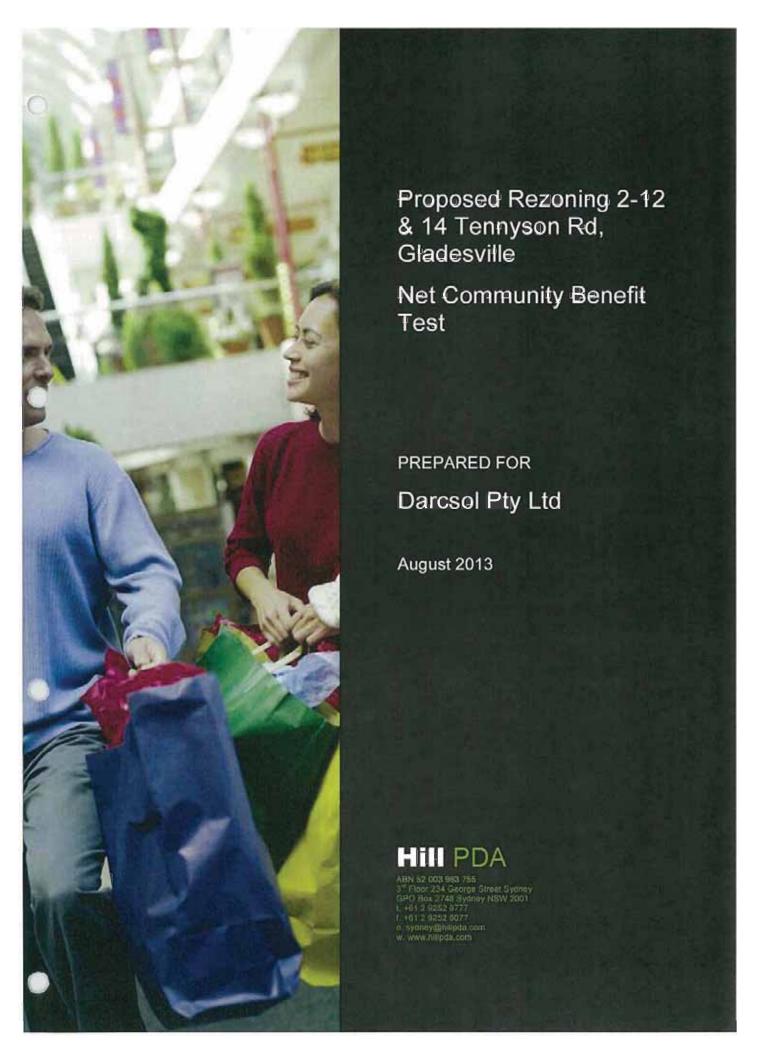


Figure 6. Deep soil zone map



Appendix 6 - Net Community Benefit Test

Planning Propsoal 2-14 Tennyson Road, Gladesville (Meconne Planning Proposal)



Planning Propsoal 2-14 Tennyson Road, Gladesville (Meconne Planning Proposal)



A DAL 52 002 062 756

#### Sydney Office

3<sup>rd</sup> Floor 234 George Street Sydney GPO Box 2748 Sydney NSW 2001

t +61 2 9252 8777

f. +61 2 9252 6077

e. sydney@hillpda.com

#### Melbourne Office

Level 9, 365 Little Collins St Melbourne GPO Box 3424 Melbourne VIC 3001

1 +61 3 9642 2449

f. +61 3 9642 2459

e, melboume@hiilpda.com

w. www.hillpda.com

Liability limited by a scheme approved under the Professional Standards Legislation



## QUALITY ASSURANCE

#### REPORT CONTACT:

#### Tom Duncan

Senior Consultant

BA (Hons) Human Geog, MA Town and Country Planning, MRTPI

Email: thomas.duncan@hillpda.com

### QUALITY CONTROL

This document is for discussion purposes only unless signed and dated by a Principal of Hill PDA.

**REVIEWED BY** 

Date: August 2013

#### Adrian Hack

Principal

M. Land Econ. B.Town Planning (Hons). MPIA

Email: adrian.hack@hillpda.com

### **Esther Cheong**

BEc. BCom (Property), DipArb, AAPI, MISM, MCIArb, CPV, CPP

Principal, Property Economics

esther.cheong@hillpda.com

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2-12 & 14 Tennyson Road Gladesville Net Community Benefit Test

# **EXECUTIVE SUMMARY**

Hill PDA was commissioned by Darcsol Pty Ltd to undertake a Net Community Benefit Test (NCBT) related to the proposed rezoning of a site at 2-12 and 14 Tennyson Road, Gladesville ('the Subject Site'). The Subject Site is zoned IN2 Light Industrial in the Ryde Local Environmental Plan (LEP) 2010 and Draft Ryde LEP 2011. A B4 Mixed Use zoning is sought to enable the mixed use redevelopment of the Subject Site.

The purpose of a NCBT is to help assess the merits of a planning proposal from a community perspective. Based on advice prepared by the NSW Department of Planning & Infrastructure<sup>1</sup> any such test should:

- Provide a level of detail and analysis proportionate to the size and likely impact of the project;
- Only consider the costs and benefits that have a net impact on the community welfare against a Base Case or cases as opposed to transfer costs that do not result in a net change to the community; and
- Undertake an assessment of impacts against the matters specified in the project's justification.

A 'net community benefit' is deemed to arise when the sum of the benefits of a rezoning are greater than the sum of all costs from a community welfare perspective<sup>2</sup>. A NCBT is required to evaluate the external costs and benefits of a proposal to community welfare.

To assist in assessing the NCBT of the proposed rezoning two scenarios were identified:

- The Base Case: The IN2 zoning is retained on the Subject Site and there is no change to existing tenants.
- Alternative 1: Rezoning and Redevelopment. The Subject Site is rezoned as B4 Mixed Use to accommodate 5,800sgm of retail floorspace (inclusive of a 4,000sgm supermarket), a 300sgm childcare centre, 600sgm of non-retail commercial uses, 404 residential units including 135 seniors living units, an assisted living facility of 3,300sqm, 670 car parking spaces and associated landscaping.

Based on our assessment, the following Section summarises the potential benefits and costs of Alternative 1 versus the Base Case from a community perspective.

#### Potential Benefits of Alternative 1 versus Base Case

- Increasing housing supply in the City of Ryde by 404 dwellings, including 135 seniors living dwellings, in addition to assisted living facilities which would contribute towards meeting the forecast population increase in the Gladesville suburb (Significant Positive Impact);
- Providing a wider range of housing types in the City of Ryde reflective of the forecast ageing population and increasing demand for smaller households (Significant Positive Impact);
- Generating a net increase in operational jobs and jobs during the construction process (Significant Positive Impact);
- Minimising the need for residents to travel to work by providing housing close to employment opportunities (Moderate Positive Impact);





<sup>&</sup>lt;sup>1</sup> Source: Guide to Preparing Planning Proposals, NSW Department of Planning & Infrastructure 2009

<sup>&</sup>lt;sup>2</sup> Source: NSW Draft Centres Policy, NSW Department of Planning & Infrastructure 2009

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- Minimising the need for residents to travel to access shops and services (Significant Positive Impact);
- Enhancing local retail choice and increasing price competition (Significant Positive Impact);
- Providing more efficient use of a brownfield site (Significant Positive Impact);
- Supporting investment directly in the Subject Site and in the surrounding area (Moderate Positive Impact);
- Providing a development of a high standard of design and incorporating appropriate landscaping (Moderate Positive Impact);
- Delivering additional social infrastructure over and above the demands of future residents in the form of open space (Slight Positive Impact);
- Alleviating pressure on greenfield sites to be redeveloped for residential uses (Moderate Positive Impact).

#### Potential Costs of Alternative 1 versus Base Case

- Potential land use conflicts with adjacent Gladesville Business Park during the construction process (Slight Negative Impact);
- Short-term increase in local traffic during construction although it is assumed that appropriate mitigation measures would be taken (Slight Negative Impact);
- Net increase in vehicle movements in the locality although we have assumed that appropriate mitigation measures would be incorporated into the development to address this potential issue (neutral overall impact);
- Short-term adverse impacts on environmental amenity during the construction process as a result of noise, visual intrusion and so on although it is assumed that appropriate mitigation measures would be taken (Slight Negative Impact).

In light of the above, on balance it is considered that Alternative 1 could lead to significant positive benefits on the community in the local area resulting from increasing supply and mix of housing, an improved retail offer and price competition, increased environmental amenity and a greater number of jobs. This is balanced against a number of short-term slight negative impacts which could eventuate, although these are not project specific and may eventuate from any redevelopment of the Subject Site. Whilst light industrial land will be lost as a result of Alternative 1, in our view the rezoning can be justified based on the strategic checklist for employment lands<sup>3</sup> and would offset by providing additional employment on the Subject Site and jobs that better match the employment profile of the City of Ryde. In delivering additional residential supply and in assisting to alleviate pressure on greenfield sites for residential development, as well as providing additional jobs and an investment stimulus, Alternative 1 would also have positive broader strategic benefits for Sydney.

A 'net community benefit' is deemed to arise when the sum of the benefits of a rezoning are greater than the sum of all costs from a community welfare perspective. Based on this definition and from the perspective of the community, having consideration of the issues raised above, on balance we conclude that Alternative 1 could deliver an overall net community benefit compared to the Base Case.

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<sup>&</sup>lt;sup>3</sup> Criteria Table 1: Industrial Lands Strategic Assessment, Page 49 Draft Metropolitan Strategy for Sydney, NSW Department of Planning and Infrastructure (2013)

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# INTRODUCTION

Hill PDA was commissioned by Darcsol Pty Ltd to undertake a Net Community Benefit Test (hereafter referred to as 'the NCBT') in relation to the proposed rezoning of a site at 2-12 and 14 Tennyson Road, Gladesville ('the Subject Site'). The rezoning seeks to facilitate the mixed use redevelopment of the Subject Site to accommodate retail and residential uses.

Note that this Study does not consider the planning principle of rezoning the Subject Site beyond its relevance to the net community benefit. A planning report is being completed by Mecone which assesses the suitability of the proposed rezoning from a broader strategic planning perspective.

## 1.1 WHAT IS A NCBT?

The concept of a NCBT has been emerging in various planning policies over recent years. The NSW Department of Planning & Infrastructure (DoPI) guide⁴ to preparing planning proposals identifies that "The Net Community Benefit Test should be used to help assess the merits of a planning proposal". The guide identifies that any such test should:

- Provide a level of detail and analysis proportionate to the size and likely impact of the project;
- Only consider the costs and benefits that have a net impact on the community welfare against a Base Case or cases as opposed to transfer costs that do not result in a net change to the community; and
- Undertake an assessment of impacts against the matters specified in the project's justification.

The guide adds that consideration must be given to changes that reflect a higher community benefit. An example is given where as a result of changes in rent caused by a proposal, there is a change in the value the community places on a land use.

The NSW Draft Centres Policy (2009) also requires a NCBT be undertaken for all rezoning applications seeking to facilitate retail or commercial floorspace. A 'net community benefit' is deemed to arise when the sum of the benefits of a rezoning are greater than the sum of all costs from a community welfare perspective (i.e. welfare effects. Note: Hill PDA emphasis). The draft Centres Policy states that:

"The [net community benefit test] assessment should be prepared by the proponent in conjunction with the relevant planning authority to be submitted to council for endorsement prior to submitting to the Department of Planning as part of the Gateway test."

The requirements of a net community benefit test are that it evaluates the external costs and benefits of the proposal to the community and should be assessed against a base case or cases (i.e. retaining the existing zoning or locating the development on appropriately zoned land in a centre).



<sup>&</sup>lt;sup>4</sup> Guide to Preparing Planning Proposals, NSW Department of Planning & Infrastructure July 2009

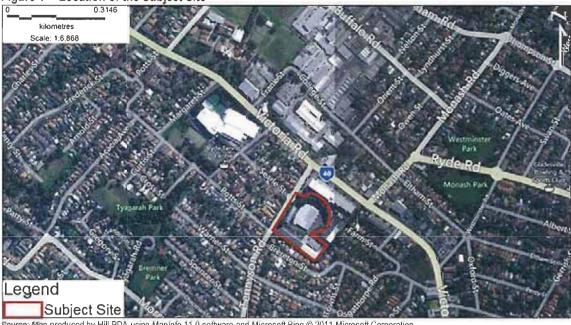
2-12 & 14 Tennyson Road Gladesville Net Community Benefit Test

## 1.2 THE SUBJECT SITE

The Subject Site comprises some 2.4ha of land area. It is bounded by existing commercial uses fronting Victoria Road to the north, Tennyson Road to the north east, residential uses fronting Brereton Street to the south east and commercial and residential uses to the east. It is situated within the City of Ryde Local Government Area (City of Ryde).

The location of the Subject Site is shown in the figure below.

Figure 1 - Location of the Subject Site



Source: Map produced by Hill PDA using MapInfo 11.0 software and Microsoft Bing @ 2011 Microsoft Corporation

# THE BASE CASE: RETAIN EXISTING ZONING

The Subject Site is zoned IN2 Light Industrial in the Ryde Local Environmental Plan (LEP) 2010 and Draft Ryde LEP 2011. For the purpose of this NCBT the Base Case assumes that these zonings are retained.

Based on desk-top research we understand that 2-12 Tennyson Road currently comprises a two-storey commercial building on the side fronting Tennyson Road and a large portal frame clear span warehouse to the rear, in addition to surface level car parking. Existing tenants include Asset Link, Amarco Enterprises, Youthsafe Ltd, Springfree Trampoline Enterprises and GH Packaging International. 14 Tennyson Road comprises light industrial warehousing. It is occupied by Latham Australia<sup>5</sup>. We understand that approximately 50 full and part time jobs are currently provided on the Subject Site6.

The Base Case assumes that these uses would continue in perpetuity.



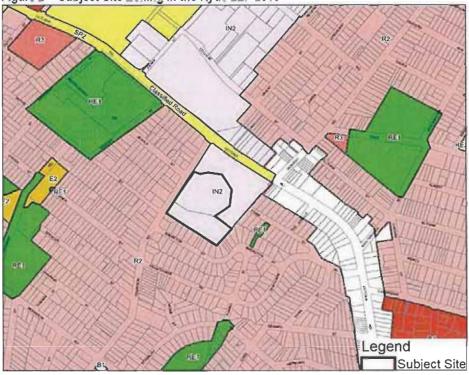
<sup>5</sup> Source: Googlemaps and examination of registered leases

<sup>&</sup>lt;sup>6</sup> Source: As advised by Wow Developments in email dated 13/12/2012

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The land uses zonings in the Ryde LEP 2010 and the draft Ryde LEP 2011 within the context of surrounding zonings is shown in the following figures.

Figure 2 - Subject Site Zoning in the Ryde LEP 2010



Source: Ryde LEP 2010

Figure 3 - Subject Site Zoning in the draft Ryde LEP 2011



Source: draft Ryde LEP 2011



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## 1.4 ALTERNATIVE 1: REZONING AND REDEVELOPMENT

The proposed rezoning seeks to incorporate a B4 Mixed Use zoning on the Subject Site. This would facilitate the redevelopment of the Subject Site to incorporate the following uses<sup>7</sup>:

- Retail floorspace of 5,800sqm gross lettable area (GLA<sup>8</sup>), including a full-line supermarket of 4,000sqm;
- 404 residential dwellings including 135 seniors living dwellings;
- Childcare/ community floorspace of 300sqm GLA;
- Other non-retail commercial floorspace of 600sqm GLA;
- An assisted living facility of 3,300sqm gross floor area (GFA9);
- 245 retail car parking spaces and 425 residential car parking spaces; and
- Associated landscaping works.

Rezoning of the Subject Site and redevelopment to incorporate the uses outline above has been taken as the Alternative 1 scenario.

## 1.5 STUDY STRUCTURE

To meet the requirements of the project brief the Study is set out in the following manner:

- Chapter 2 provides analysis of relevant considerations from Metropolitan, subregional and local planning policies to help inform the NCBT;
- Chapter 3 provides important contextual information to inform the NCBT by undertaking an in-depth analysis of the socio-demographic characteristics of residents in the Gladesville suburb and the City of Ryde;
- Chapter 4 identifies potential community welfare costs and benefits associated with Alternative 1 versus the Base Case;
- Chapter 5 provides a matrix-based assessment of the community welfare costs and benefits of Alternative 1 versus the Base Case; and
- Chapter 6 summarises the main findings and concludes the NCBT.



<sup>&</sup>lt;sup>7</sup> Source: Tennyson Road- Rezoning Application Schedule Scenario A, Grimshaw (26/06/2013)

Note: Gross Lettable Area (GLA) is the common measure used for lease and for other descriptive purposes in retail centres and shops. It is usually defined as the total area of the lease and includes back of house, storage, offices and mezzanine levels but usually excludes loading docks and common mall spaces. GLA is more commonly used in the industry because it defines the area of the lease. Shopping centre owners report rents and turnover figures on the leased area and benchmarking is usually made on the GLA. For the purpose of Hill PDA's demand modelling all floor areas expressed are in GLA

<sup>&</sup>lt;sup>9</sup> Note: Gross Floor Area (GFA) is Gross Lettable Area plus common mall spaces (including amenities), centre management area and plant rooms. In a typical indoor centre with at least one department store and supermarket the GLA makes up around 72% to 75% of the GFA

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# RELEVANT POLICY CONSIDERATIONS

To help inform the NCBT, this Chapter provides analysis of relevant considerations from Metropolitan, subregional and local planning policies.

# STATE PLANNING POLICY AND STRATEGIES

## 2.1.1 NSW 2021- A PLAN TO MAKE NSW NUMBER ONE (2011)

The NSW 2021 Plan aims to rebuild the NSW economy, provide quality services, improve infrastructure, restore government accountability and strengthen NSW's local environment and communities.

The Plan comprises five key strategies, with "Rebuild the Economy" being of particular relevance to the NCBT. Restoring economic growth in NSW is stated as the State Government's number one priority. This strategy seeks to secure new jobs and ensure that more land is made available for housing and employment.

The NSW 2021 Plan sets a target of +60,000 new jobs in Sydney by 2021 and +25,000 new dwellings annually to 2031. The NSW 2021 Plan highlights that housing development opportunities within the Metropolitan area will play a key role in the future economic growth of NSW. Housing is recognised as a contributor towards economic development.

## 2.1.2 METROPOLITAN PLAN FOR SYDNEY 2036

The DoPI's Metropolitan Plan for Sydney 2036 was released in December 2010. The Plan aims to shape the future growth of Sydney to 2036 ensuring a more resilient, compact, connected, multi-centred and sustainable city. The Metropolitan Plan integrates land use and transport



planning by integrating the Metropolitan Transport Plan, which was published for consultation earlier in 2010.

The Plan aims to address key challenges facing Sydney which includes managing a growing and changing population, providing more jobs closer to home, more efficient transport delivery, climate change and maintaining our global competiveness. These challenges are addressed through strategic directions.

The Plan anticipates Sydney's population will reach close to 6 million by 2036. To accommodate this population growth, land use service provision and infrastructure capacity must be planned to provide for +770,000 additional homes and +760,000 additional jobs by 2036. Of these, the Plan nominates an additional +44,000 dwellings and +62,000 additional jobs for the Inner North Subregion (of which the City of Ryde is part) between 2006 and 2036.

Strategic Direction B "Growing and Renewing Centres" seeks to concentrate the focus of employment and residential opportunities within or adjacent to existing or new centres. The target of 80% of new housing within the walking catchments of existing and planned centres is set by the Plan, in order to ensure that more jobs are located closer to home. Alternative 1 would, in effect, constitute a new retail centre.

Strategic Direction D "Housing Sydney's Population" contains four housing related objectives which are relevant considerations to the NCBT. These are:





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Objective D1: To ensure an adequate supply of land and sites for residential development;

Objective D2: To produce housing that suits our expected future needs;

Objective D3: To improve housing affordability; and

Objective D4: To improve the quality of new housing development and urban renewal.

Strategic Direction E "Growing Sydney's Economy" aims to ensure that Sydney's economy is strong and continues to grow. The need for up to 10m sqm of additional commercial floorspace, 5m sqm of retail floorspace and 8,500ha of employment lands is identified in order to meet forecast population growth. In land use planning terms the imperative is to ensure that levels of land supply which reflect demand are maintained to ensure that housing growth is not constrained.

Objective E3 under Strategic Direction E seeks "to provide employment lands to support the economy's freight and industry needs". Action E3.2 is to "identify and retain strategically important employment lands" which should be retained and protected from redevelopment. This is in recognition that such land is coming under increasing pressure for redevelopment but is essential to support key regional industries sustaining Sydney's economy.

The Subject Site forms part of "existing zoned employment lands" in the Plan (Figure E2).

## 2.1.3 DRAFT METROPOLITAN STRATEGY FOR SYDNEY TO 2031 (2013)

The DoPI published the draft Metropolitan Strategy for Sydney to 2031 ('the draft Strategy') for consultation in March 2013. It seeks to achieve the following outcomes:

- Balanced Growth;
- A liveable City;
- Productivity and prosperity;
- Healthy and resilient environment; and
- Accessibility and connectivity.

The draft Strategy seeks to promote and facilitate growth which acknowledges market considerations and which integrates transport, infrastructure and land use. Job growth will thus be concentrated on Metropolitan areas. An additional +625,000 new jobs across Sydney by 2031 is targeted and minimum job targets have been set across the Subregions in Sydney to achieve this. For the Central Region of which the Subject Site forms part, an additional +230,000 jobs to 2031 are sought as a minimum.

Minimum housing targets are also set for the Central Region of +82,000 additional dwellings by 2021 and +138,000 new dwellings by 2031 targeted as a minimum.

# 2.1.4 Draft Inner North Subregional Strategy (2007)

The City of Ryde forms part of the Inner North Subregion. The draft Inner North Subregional Strategy (July 2007) seeks to achieve six key outcomes for the Subregion over the 2004 to 2031 period. Of relevance to this NCBT are the following objectives:



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- "Protect strategic employment lands; and
- Improve housing choice and create sustainable and liveable communities".

Overall, the draft Subregional Strategy aims to accommodate +60,100 new jobs and +30,000 new dwellings in the Inner North Subregion between 2004 and 2031. Of these +21,000 jobs (35%) and +12,000 dwellings<sup>10</sup> (40%) are to be accommodated within the City of Ryde.

Chapter A "Economy and Employment" emphasises the need to protect existing employment lands in the Inner North Subregion. The Subject Site is identified as forming part of the Gladesville (local industry) employment lands area which is:

"...a suburban industrial area (23 hectares) servicing the local population, including automotive businesses and trade supplies".11

Gladesville is identified as one of seven Employment Lands of subregional strategic importance. The draft Subregional Strategy notes that Section 117 Ministerial Direction related to industrial zonings will apply to potential rezoning of employment lands.

Chapter B "Centres and Corridors" seeks to accommodate the majority of new residential and employment opportunities in the Inner North Subregion within or adjacent to centres. The focus for new retail activity should be within centres and net community benefit criteria should be applied to out-of-centre retail proposals prior to Principal LEPs adopting Standard LEP zones.

Chapter C "Housing" contains a range of aims and objectives which are pertinent considerations to the NCBT:

- C1 Ensure adequate supply of land and sites for residential development;
- C2 Plan for housing mix near jobs, transport and services; and
- C4 Improve housing affordability.

# LOCAL PLANNING POLICY AND STRATEGIES

# 2.2.1 CITY OF RYDE LOCAL PLANNING STUDY (DECEMBER 2010)

City of Ryde Council ('Council') prepared the City of Ryde Local Planning Study to inform the preparation of the draft LEP 2011.

Chapter 2 "Centres and Corridors" seeks to support and strengthen the role of existing retail centres in the LGA. It considers the role of the Gladesville industrial precinct and notes that it will be essential for the economic sustainability of this precinct to be maintained. In order to achieve this, a number of additional permissible land uses are included on plots within the precinct which permit bulky goods and commercial offices uses on individual sites. None of these apply to the Subject Site however it may appear Council has recognised the challenges in seeking to accommodate economically viable industrial uses in parts of the Gladesville industrial precinct.

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<sup>&</sup>lt;sup>10</sup> Outside of the North West Growth Centre

<sup>&</sup>lt;sup>11</sup> Source: Page 26, Draft Inner North Subregional Strategy (2007)

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It is notable that land previously zoned for industrial uses fronting Victoria Road was rezoned to B6 Enterprise Corridor uses in the draft Ryde LEP (2011) as a result of slow development uptake leading to vacant and underdeveloped sites.

Also important to the NCBT Chapter 2 emphasises the need for the LGA to achieve economic self sufficiency by locating a diverse range of housing opportunities close to employment opportunities, services and facilities.

Council's approach towards housing in the LGA is outlined in Chapter 3 of the Local Planning Study. It commits to achieve the dwellings targets set by State Government and focus residential development on centres.

Chapter 7 "Employment" identifies all industrial land in the LGA, including the Gladesville industrial Precinct, as being Category 1 employment lands (i.e. land to be retained for employment purposes).

Demand for industrial land within the LGA is expected to decline and then stabilise to 2031 according to the Local Planning Strategy, which is based on the Employment and Centres Study for the City of Ryde (Mecone, October 2009). The effect of this will be to reduce the need for additional "traditional" industrial land in the LGA. The focus for the uses provided in the Gladesville industrial precinct is noted as being for local level business services such as small repairers, storage, light engineering, printing, small scale logistics and showrooms which operate on low employee ratios.

Chapter 7 recognises that there is significant latent capacity in Macquarie Park and North Ryde to accommodate future employment growth in the City of Ryde. It also notes that, whilst demand for industrial uses in general will decline, demand for local service related activities such as automotive repairs, domestic storage and so on will increase.

Ryde's industrial areas are acknowledged in the Local Planning Strategy to be at a disadvantage compared to competing industrial areas in Western Sydney. This is because these locations are more easily accessible, offer cheaper land and are located closer to the labour market. Nonetheless, there is a need to retain industrial lands in the City of Ryde where such areas provide local services.

# 2.3 KEY FINDINGS

In light of the policies considered above, some of the key considerations relevant to the NCBT include:

- Planning policy seeks to increase the supply of housing in the City of Ryde to support the growing population of Sydney and continue the City's economic growth. This would also help to alleviate supply constraints and may assist in easing house price inflation. The focus for new housing should be on centres in the interests of reducing the need for residents to travel and promoting sustainable development;
- Employment opportunities should be supported to satisfy increased demand resulting from population growth. Supporting jobs would also assist in stimulating the continued economic growth of Sydney. A decline in demand for "traditional" industrial lands is forecast with emerging jobs expected to be largely in the white collar sector;
- Strategically important employment lands, of which the Subject Site forms part, should be retained.

Alternative 1 would result in the loss of employment lands identified as being strategically important. However, a relevant mitigating factor may be the extent to which Alternative 1 would increase the number of employees and



provide jobs that better match the labour market profile of the City of Ryde. The draft Metropolitan Strategy for Sydney (2013) provides a checklist which should be considered in relation to employment land rezoning proposals. This is reviewed subsequently in this Study. The key consideration for the NCBT is therefore whether the net community welfare benefits of the Alternative 1 would be greater than the net community welfare benefits of the Base Case.

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# DEMOGRAPHIC TRENDS ANALYSIS

This Chapter seeks to provide contextual information to inform the NCBT. It provides analysis of the socio-economic, lifestyle and social characteristics of Gladesville suburb, the City of Ryde and Greater Sydney<sup>12</sup> where relevant. Data is sourced from the ABS Census (2001, 2006 and 2011) and NSW Bureau of Transport Statistics (BTS) forecasts.

## 3.1 EXISTING AND FORECAST POPULATION

## 3.1.1 EXISTING POPULATION AND HISTORICAL GROWTH

Based on the ABS 2011 Census, the Gladesville suburb had a population of 10,973 persons comprising 11% of the population of the City of Ryde (103,040 persons). It is not possible to examine population growth in the Gladesville suburb between 2001 and 2011 given that the boundary of this suburb changed over this period. Notwithstanding this, the broader City of Ryde recorded an average annual population growth rate of 0.9% between 2001 and 2011 which was marginally lower than the rate for Greater Sydney (1%).

### 3.1.2 POPULATION FORECASTS

The BTS provides population projections down to the travel zone level<sup>13</sup>. These forecast that the population of the Gladesville suburb will grow from approximately 11,494 residents in 2011<sup>14</sup> to 15,373<sup>15</sup> persons by 2046. This represents an increase of 3,879 residents over the 35 year period from 2011 or 0.9% per annum on average. Note that this does not include any allowance for the redevelopment of the Subject Site to accommodate residential uses.

With respect to the City of Ryde, the resident population is forecast to increase from 110,122 persons in 2011 to 155,819 persons by 2046. This represents an overall increase of 52,779 persons over the 2011 to 2046 period or an annual compounded growth rate of 1.2%.

# 3.2 EXISTING EMPLOYMENT PROFILE

The key employment characteristics of the Gladesville suburb and the City of Ryde based on the 2006 and 2011 Census is shown in the following table. Note that whilst the boundary for the Gladesville suburb changed between 2006 and 2011, comparison of the proportional change in the occupation of residents is still considered of benefit.



<sup>12</sup> Source: Based on the ABS Greater Capital City Statistical Areas (GCCSAs) for Sydney- The GCCSAs represent the socio-economic extent of each of the eight State and Territory capital cities The GCCSAs combined with the 'Rest of State' regions cover the whole of Australia without gaps or overlaps and aggregate directly to State/Territory

<sup>13</sup> Travel Zone - a small geographic area used as the basis for the NSW Bureau of Transport Statistics modelling and data analysis

<sup>&</sup>lt;sup>14</sup> Note: the BTS population estimates differ from the ABS Census based estimates.

<sup>&</sup>lt;sup>15</sup> Please note that the BTS forecasts for the suburb of Gladesville included the Travel Zones (TZs) of 2450, 2524, 2527 and 2530 although in 2006 of which is the projections base year the suburb also was comprised of a small proportion (around 25%) of the TZs of 2529 and 2521. This has been laken into account and a proportion of 25% of these two TZs have been added to the projections for Gladesville suburb.

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Table 1 - Employment Characteristics for Gladesville Suburb and the City of Ryde (2006, 2011)

	Glad	esville Subur	b	City of Ryde		
Occupation	2006	2011	% Point Change	2006	2011	% Point Change
Labour Force by Occupation						
Managers	16.5%	16.7%	+0.2	13.1%	13.0%	0.0
Professionals	30.0%	31.3%	+1.2	27.9%	30.1%	+2.2
Technicians & Trade Workers	9.5%	8.5%	-1.0	10.8%	10.0%	-0.8
Community & Personal Services Workers	6.9%	7.8%	÷1.0	6.9%	7.4%	+0.5
Clerical and Administrative Workers	16.3%	15.8%	-0.5	16.8%	16.0%	-0.8
Sales Workers	8.2%	7.3%	-0.9	8.6%	8.0%	-0.6
Machinery Operators & Drivers	3.1%	2.1%	-0.9	3.2%	2.9%	-0.3
Labourers	5.0%	4.5%	-0.5	6.4%	5.2%	-1.2
Inadequately described or N.S.	1.5%	1.6%	+0.1	1.7%	1.8%	+0.1
Unemployment	3.0%	4.2%	+1.3	4.6%	5.5%	+0.9
Total	100%	100%	-	100%	100%	-

Source: ABS Census 2006 and 2011

The data presented above indicates that managers and professionals accounted for the largest proportion of the workforce in the Gladesville suburb in 2011 and that these occupations have grown in relative terms since 2006. Professionals were the most prolific occupation in the City of Ryde and their proportional representation grew strongly between 2006 and 2011.

By contrast, more traditional manufacturing and blue collar industries (such as technicians and trade workers and machinery operators and drivers) have declined in the proportion of working residents for which they account in both the Gladesville suburb and City of Ryde between 2006 and 2011.

The increased professionalism of the workforce and the declining importance of industrial uses to employment provision are reflective of wider trends. It is interesting to note that unemployment rose in both the Gladesville suburb and the City of Ryde between 2006 and 2011. This emphasises the need for new localised economic and employment opportunities to be supported.

With an unemployment rate in 2011 of 4%, the Gladesville suburb experienced lower levels of unemployment than the City of Ryde (6%). The Gladesville suburb also contained a relatively high proportion of households within the higher income brackets with 30% of households having an average weekly income of \$2,500 or more. This compares to 25% of households in the City of Ryde and 24% for Greater Sydney.

#### HOUSEHOLDS AND FAMILIES 3.3

The 2011 ABS Census records the average household size for Gladesville suburb as 2.4 persons which was smaller than that of City of Ryde (2.6 persons) and Greater Sydney (2.7 persons). Household sizes in the City of Ryde increased slightly from 2.5 persons in 2001 whilst household sizes in Greater Sydney remained constant over the period. The BTS forecasts that the average household occupancy rate in the City of Ryde will fall to 2.3 persons per household in 2046 and this trend is also likely to be witnessed in Gladesville suburb. This is likely to increase demand for dwellings, particularly small dwellings.



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Separate house dwellings accounted of 52% of dwelling types within Gladesville suburb in 2011 which compared to 53% of dwellings in the City of Ryde and 61% in Greater Sydney. Flat-unit-apartment type dwellings comprised 39% of all dwelling types in Gladesville suburb in 2011 compared to 32% in City of Ryde and 26% in Greater Sydney.

The Gladesville suburb had a lower proportion of family households in 2011 (64%) than the City of Ryde (69%) and Greater Sydney (69%) based on 2011 ABS Census data. Correspondingly, Gladesville suburb contained a higher proportion of lone person households (32%) compared to City of Ryde and Greater Sydney (25% and 23% respectively). To some extent this is likely to reflect the housing stock in the area with an above average proportion of flat-unit-apartment dwellings. The proportion of couples without children was marginally greater in Gladesville suburb (36%) compared to City of Ryde (35%) and Greater Sydney (34%).

The proportion of homes being owned or purchased within the Gladesville suburb (63%) in 2011 was comparable to the proportion in the City of Ryde (63%) but marginally lower than the proportion in Greater Sydney (65%).

## 3.4 AGE AND CULTURAL DIVERSITY

Gladesville is a relatively established locality. The suburb has experienced a marginal shift towards a greater diversity of cultures since 2001 based on ABS Census data, its population continues to be dominated by residents born in Australia and Oceania (70%) which differentiates it from the characteristics recorded for residents in the City of Ryde (55%) and Greater Sydney (63%).

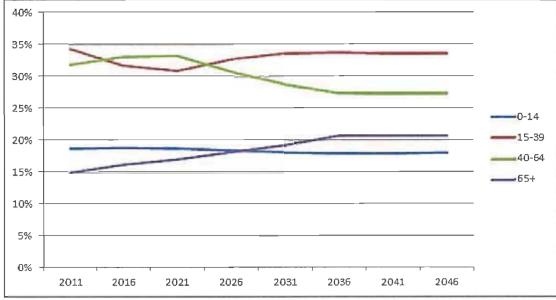
The population of Gladesville suburb is characterised as being older than is typical for the City of Ryde and Greater Sydney. Based on the 2011 ABS Census the median age of residents in the Gladesville suburb was 38 years of age compared to 36 in the City of Ryde and in Greater Sydney. The population of the suburb increases from 36 years in 2001 which was consistent with broader trends which have seen an aging population and a declining fertility rate.

In forecasting the likely age distribution of residents in Gladesville suburb between 2011 and 2046 based on BTS data, it is expected to experience a decline in the proportion of the population aged in the 15 to 39 years of age cohort and a concurrent increase in the proportion of elderly residents (aged over 65 years). This is also true for the City of Ryde. These trends are shown in Figures 4 and 5 below.

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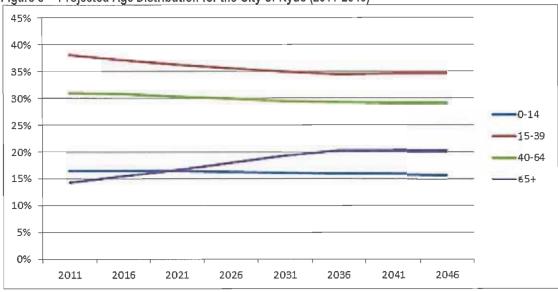
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Source: NSW Bureau of Transport Statistics (August 2012)

Figure 5 - Projected Age Distribution for the City of Ryde (2011-2046)



Source: NSW Bureau of Transport Statistics (August 2012)

The trend towards an ageing population being experienced Australia wide and is expected to have a number of consequences, including a decline in household sizes and an increased demand for smaller dwellings. Older residents may also require easier access to support services locally, including retail facilities, as they may be less physically mobile than younger residents and are likely to spend a greater proportion of retail expenditure locally. The changing demographic profile of the City of Ryde and Gladesville suburb is therefore likely to necessitate a greater number and wider range of dwellings, particularly apartment buildings in appropriate locations. Indeed the seniors living and assisted living components of the proposed development are a direct response to the projected aging of the population evident in both the Gladesville suburb and the City of Ryde LGA.

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# POTENTIAL NET IMPACT ON COMMUNITY WELFARE

This Chapter identifies potential costs and benefits associated with Alternative 1, versus the Base Case, which could impact (positively or negatively) on community welfare. It informs a matrix of the net community impacts provided in Chapter 5. Note that this NCBT does not comment on the appropriateness of the loss of industrial lands from a planning perspective but considers the loss and benefit from a community perspective.

## 4.1 CONTRIBUTION TO HOUSING SUPPLY AND MIX

The policy documents considered in Chapter 2 emphasise the importance of increasing the number of dwellings provided in Sydney and in the City of Ryde. In particular, an increase in the number of small dwellings is encouraged. Residential market demand is being driven by population growth from intra- and interstate migration to Sydney and natural population increase and household sizes are declining. Affordability and house price inflation are important issues for Sydney.

Alternative 1 would contribute a net increase of 404 dwellings towards achieving the housing targets set by the draft Inner North Subregional Strategy (2007), the Metropolitan Plan for Sydney 2036 (2010) and the draft Metropolitan Strategy for Sydney to 2031 (2013). Of the dwellings proposed, 135 would be for seniors living which are a direct response to projected population aging. The proposed development would assist to ensure that an appropriate supply of housing is provided to cater for the needs of existing and future residents in the LGA.

By increasing the number of dwellings in the City of Ryde, Alternative 1 could also assist in easing house price inflation resulting from constrained supply. In increasing housing supply, Alternative 1 would also help to broaden opportunities for households to access the residential market. The proposed development comprises predominately 1- and 2-bed units. These can be more affordable types of dwellings and reflect the growing propensity for smaller household sizes which is expected to continue to emerge over the next 20 years.

Another key issue linked to housing affordability is retaining the supply of key or essential workers, whilst also ensuring these workers have access to accommodation options close to their employment (in line with strategic policies). The workers employed in service industries (such as sales assistants, cleaners, administrators) cannot command the salary expectations of some professions however they are equally required to access jobs and housing within the City of Ryde. Whilst we do not know the precise sale values of the proposed units at this point in time but on account of their predominant 1- and 2-bedroom mix we have assumed that Alternative 1 could equate to a positive impact to community welfare in this respect.

The provision of seniors and assisted living as part of the proposed development is particularly important given demographic characteristics which show an aging population in the Gladesville suburb and the City of Ryde. Seniors living is an expanding market driven by older residents increasingly seeking to downsize but still be within proximate access of retail goods and services, transport and entertainment facilities and thus maintain their independence. The proposed development would offer the opportunity for older residents to do this in the City of Ryde.



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The provision of assisted living facilities would increase access to homes for the most vulnerable and at risk members of the community. This component would be an important contribution supporting access to the housing market for all community members.

## 4.2 JOB CREATION

## 4.2.1 Construction Related Employment

Alternative 1 would generate employment in two ways - through construction and through retail operations upon completion.

Hill PDA has estimated that the total construction cost of the proposed development is around \$160m (inclusive of GST)<sup>16</sup>. Economic multipliers supported by these construction costs have been sourced from the ABS Australian National Accounts: Input-Output Tables 2008-09 (ABS Pub: 5209.0). These tables identify first round effects, industrial support effects and consumption induced multiplier effects at rates of \$0.6463, \$0.6734 and \$0.9891 respectively to every dollar of construction.

Construction related employment sustained by the proposed development is shown in the table below.

Table 2 - Employment Generated by Construction (job years)

	Direct	Production	n Induced Effects	Consumption	Total	
	Effects	First Round Effects	Industrial Support Effects	Induced Effects		
Multipliers	1	0.64	0.70	1.34	3.68	
Employment No. per \$million	2.85	1.83	1.98	3.81	10.48	
Total job years created	456	293	317	610	1,677	

Source: ABS Australian National Accounts: Input-Output Tables 1996-1997 (ABS Pub: 5209.0), IBIS World Construction Industry Report 2011

The 1996-97 ANA Input-Output Tables identified employment multipliers for first round, industrial support and consumption induced effects of 0.33, 0.45 and 2.33 respectively for every job year in direct construction. Including the multiplier impacts of a \$160m development will therefore have potential to generate 1,667 jobs years directly and indirectly.

Note that the multiplier effects are national, and not necessarily local. The ABS states that:

"Care is needed in interpreting multiplier effects; their theoretical basis produces estimates which somewhat overstate the actual impacts in terms of output and employment. Nevertheless, the estimates illustrate the high flow-on effects of construction activity to the rest of the economy. Clearly, through its multipliers, construction activity has a high impact on the economy."

In particular the multiplier impacts can leave the impression that resources would not have been used elsewhere in the economy had the development not proceeded. In reality many of these resources would have been employed elsewhere. It should also be noted, as stated in the NSW Treasury guidelines, that:

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<sup>&</sup>lt;sup>16</sup> Source: Economic Impact Assessment, Proposed Rezoning 2-12 & 14 Tennyson Rd, Gladesville, Hill PDA (2012)

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"Direct or flow on jobs will not necessarily occur in the immediate vicinity of the project – they may be located in head office of the supplier or in a factory in another region or State that supplies the project" <sup>17</sup>.

Nevertheless, economic multiplier impacts represent additional value add to the Australian economy resulting from Alternative 1.

## 4.2.2 ECONOMIC MULTIPLIERS DURING CONSTRUCTION

The construction industry is a significant component of the economy. The industry has strong linkages with other sectors, so its impacts on the economy go further than the direct contribution of construction. Multipliers refer to the level of additional economic activity generated by a source industry. There are two types of multipliers:

Production induced made up of:

- First round effect all outputs and employment required to produce the inputs for construction; and
- An industrial support effect the induced extra output and employment from all industries to support the production of the first round effect.

Consumption induced: which relates to the demand for additional goods and services due to increased spending by the wage and salary earners across all industries arising from employment.

It is important to reiterate when reviewing these estimates that multiplier effects have a national impact and not necessarily a local impact. At this stage, it is not possible to quantify with precision the State or local benefits of the development as a result of its multiples because factors that feed into the assessment of multipliers (such as the origin of materials and construction contracts) are yet to be determined.

However the table below indicates that the \$160m development facilitated by Alternative 1 will generate a further \$211m of activity in production induced effects and \$158m in consumption induced effects. Total economic activity generated by the construction of the proposed development is therefore approximately \$529m.

Table 3 - Economic Multipliers

	Direct	Productio	n Induced Effects	Consumption	Total
	Direct -	First Round Effects	Industrial Support Effects	Induced Effects	
Output multipliers	1	0.6463	0.6734	0.9891	3.3088
Output (\$million)	\$160	\$103	\$108	\$158	\$529

Source: ABS Australian National Accounts: Input-Output Tables 1996-1997 (ABS Pub: 5209.0)

## 4.2.3 JOB GENERATION

Alternative 1 would support permanent employment post-construction through the operation of retail uses, other commercial uses and assisted living facilities on the Subject Site. The following table applies industry standard worker ratios<sup>18</sup> to the assumed floorspace mix to calculate the number of permanent jobs which would be supported.

<sup>18</sup> Sourced from ABS Retail Census and Hill PDA





<sup>&</sup>lt;sup>17</sup> Source: Office of Financial Management Policy & Guidelines Paper: Policy & Guidelines: Guidelines for estimating employment supported by the actions, programs and policies of the NSW Government (TPP 09-7) NSW Treasury

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Table 4 - Estimated Total Employment Generation

Retail Store Type	Employment Rate*	GLA (sqm)	Workers
Full-Line Supermarket	1:21sqm	4,000	190
Mini-Major	1:30sqm	900	30
Cafe	1:30sqm	150	5
Specialty Food	1:12sqm	250	13
Non-Food Specialties	1:40sqm	250	6
Personal Services	1:25sqm	250	10
Non-retail Commercial Floorspace	1:25sqm	600	24
Childcare Centre	1:25sqm	300	12
Assisted Living**	-	-	54
TOTAL	-	6,700	344

<sup>\*</sup> Job per square metre of GLA. Sourced from the ABS Retail Census and Hill PDA \*\* Source: Page 35 Employees Per Est. 2016-17, IBIS World Accommodation for the Aged in Australia (August 2011)

Based on Table 4 the proposed development could support an estimated 344 permanent jobs post-construction across the range of retail store types. These would be full and part-time jobs.

The Subject Site is in active use and currently provides in the order of 50 full and part time jobs 19. As such, not all of the jobs quantified in Table 4 would be net additional to the LGA. Notwithstanding this Alternative 1 would still equate to a net increase in full and part time jobs directly provided on the Subject Site in the order of +294.

## 4.2.4 OTHER IMPACTS ON EMPLOYMENT

The generation of jobs creates opportunities for prospective future residents of the LGA as well as existing residents. With respect to the former, the provision of more employment opportunities close to home would support benefits to community welfare in keeping with the changing skills sets of local residents noted in Chapter

The generation of jobs would support a reduction in journey to work travel times and a reliance on private cars. Key welfare benefits associated with jobs closer to home relate to reduced stress and increasing the time available for leisure activities. To exemplify this point, economists Frey and Stutzer found that commuters who travel for more than an hour to their place of employment would need to earn 40% more money than they currently do to be as satisfied with their lives as non-commuters<sup>20</sup>.

New residents on the Subject Site would also be employed in a range of industries. Increasing the pool of workers in the locality will contribute towards the economy and employment in the wider area. New residents would also sustain jobs in support services such as schools, hospitals, public transport and so on.

#### IMPACT OF THE RETAIL CENTRE 43

### 4.3.1 IMPROVED RETAIL OFFER

Hill PDA has completed an Economic Impact Assessment (December 2012) as part of the proposed rezoning package for the Subject Site. The main findings of the Economic Impact Assessment are:

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<sup>&</sup>lt;sup>19</sup> Source: As advised by client in email dated 13/12/2012

<sup>&</sup>lt;sup>20</sup>Ania Wieckowski, 'Back to the City', Harvard Business Review, May 2010

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 There is localised retail floorspace undersupply in the area around the Subject Site with unmet demand for some 8,200sqm in Gladesville Village Centre. Alternative 1 would address some of this floorspace undersupply;

- A Main Trade Area has been defined for the retail component of Alternative 1 based on the location of competing centres, natural and artificial barriers and accessibility<sup>21</sup>. A gap analysis of retail provision within this area indicates that it lacks any significant retail offer or a full-line supermarket despite a resident population of 13,221 persons in 2011. A full-line supermarket is sustained by a trade area of 9,000-10,000 people; and
- Strong growth in the amount of retail expenditure generated by residents in the Main Trade Area, including from new residents on the Subject Site, is forecast over the 2011 to 2031 period. Total retail expenditure generated in the Main Trade Area is expected to increase from \$193m in 2011 to \$332m in 2031 (\$2009), an increase of \$139m or 72% over the 20 year period.

Based on the findings of the Economic Impact Assessment there is demonstrable need for the retail component of Alternative 1 and in particular a full-line supermarket, to service the Main Trade Area. The addition of retail floorspace to meet the undersupply which currently exists under Alternative 1 is therefore a positive outcome for the local community. It would facilitate greater access to a wider range of retail goods and services.

### 4.3.2 IMPACTS ON THE CENTRES HIERARCHY

The Economic Impact Assessment quantifies trade diversion from existing centres. It finds that all other centres in the locality of the Subject Site would continue to experience growth in trade over the 2011 to 2016 period even with the retail component of Alternative 1 being developed. There is sufficient expenditure available within the Main Trade Area to support the additional facilities and the impacts would not threaten the vitality or viability of any other centre. Accordingly competition and the increase in retail floorspace supply resulting from Alternative 1 should be viewed positively.

New residents on the Subject Site will generate retail expenditure. A small proportion of this will be captured by the new retail facilities on the Subject Site and some will be directed to nearby centres which will mitigate some of the redirected trade. A proportion will also be directed to retail facilities such as department and discount department stores and bulky goods retails from which no trade will be redirected. This represents a net positive impact on these businesses as a result of Alternative 1.

#### 4.3.3 Shopper Convenience and Sustainability

The location of the Subject Site close to Victoria Road and at one of the major access/ egress routes to the Main Trade Area would ensure that it would be easily accessible to residents. By providing a range of retail stores serving the daily and some weekly shopping needs of residents in an accessible location, Alternative 1 would support shopper convenience. In reducing the need for residents to travel and dependency upon the car related transportation, Alternative 1 would also support the principles of sustainable development.



<sup>&</sup>lt;sup>21</sup> Note: The Main Trade Area can be understood as the geographical area where residents would spend the majority of their regular shopping (in particular food, groceries and liquor) at the proposed retail facilities on the Subject Site. The Economic Impact Assessment defines the Main Trade Area is defined as comprising the area to the south east of Church Street (Route 3), to the south and west of Victoria Road (Route 40) and west of the Gladesville Hospital site.

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This is particularly important given that the Main Trade Area which the retail component would serve, an area of 13,221 people in 2011, does not have a full-line supermarket. Residents in the Main Trade Area will therefore currently have to cross the busy Victoria Road and endure associated inconvenience in terms of travel times and delays in order to undertake the majority of their main food and grocery shopping. Alternative 1 will therefore have a positive impact upon competition, sustainability and shopper convenience.

#### 44 BROADER INVESTMENT STIMULUS

The comprehensive development of the Subject Site under Alternative 1 is likely to assist in stimulating further investment in the Gladesville suburb and the wider area. It would result in direct stimulus of \$160m in construction costs and the associated multipliers previously quantified. Alternative 1 is also likely to increase the attractiveness of the City of Ryde LGA has a place to live, in turn making the area more attractive as a place for potential employers to invest.

Investment would be supported in higher order centres and bulky goods destinations which would not compete with the retail component of Alternative 1. This is in addition to support services like schools, hospitals and public transport and in businesses which new residents would themselves be employed.

#### 45 SUSTAINABILITY

The Subject Site constitutes previously developed land, or urban infill, and as such it is the preferred location for residential development in accordance with sustainability principles embodied in planning policy. The provision of high density residential development in this location would capitalise on existing infrastructure and services such as transport, electricity, water and public transport. It is therefore likely to present a lesser capital cost to the community than a similar development in a greenfield area. In doing so it would assist in achieving urban renewal and reduce the pressure on other less suitable lands, including greenfield lands, to accommodate housing. Alternative 1 would also make more intensive use of the Subject Site compared to the existing, low-level employment issues.

The importance of locating residential development in urban areas which have existing accessibility to goods and services is emphasised in State planning policy documents examined in Chapter 2. The Metropolitan Plan for Sydney to 2036 (DoPI, 2010) targets the provision of 80% of new housing within the walking catchments of existing and planned centres in order to ensure that more jobs are located closer to home. Alternative 1 therefore presents a positive community welfare impact in this respect compared to the Base Case.

Alternative 1 would assist in reducing the need for residents and workers to travel to work or to access retail facilities.

#### **ENVIRONMENTAL AMENITY** 4.6

Alternative 1 represents a high standard of design and would include site landscaping. It may also reduce pressure on other sites in Sydney, including greenfield sites, to accommodate residential development. On this basis we consider that Alternative 1 would have a positive impact upon community environmental amenity in the long-term.





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The development process itself may lead to some short-term adverse impacts on residents in the immediate area. These could result from issues such as noise, detraction from visual amenity, increased traffic from deliveries and so on. These would be short-term and we have assumed that necessary steps would be taken to minimise the extent of any impacts by, for example, ensuring deliveries take place outside of peak periods.

## 4.7 SOCIAL INFRASTRUCTURE

New residents on the Subject Site would increase demand for social infrastructure and support services such as schools, hospitals, public transport and so on. For the purposes of this NCBT it has been assumed that any increase in demand on infrastructure and support services would be mitigated by monetary contributions to State or local government and provisions in the development itself. On this basis in terms of monetary value, the impact to the community from Alternative 1 compared to the Base Case would be neutral.

It is assumed that the additional capacity created by these contributions would be absorbed by new residents on the Subject Site and therefore the overall community impact on access to social infrastructure such as schools and hospitals in Alternative 1 would be neutral.

## 4.8 Loss of Industrial Lands

The Subject Site forms part of the Gladesville industrial precinct which is identified as Category 1 lands. This is because it is believed to support or has the potential to support regional industries and provides important local service functions to residents of Sydney and is therefore strategically important. Notwithstanding this, Hill PDA has undertaken analysis of the industrial market in Gladesville and the wider City of Ryde which indicates that:

- Industrial land within the City of Ryde is characterised by a mix of large and small enterprises, most of which are involved in traditional forms of manufacturing and light industry. Chapter 7 of the City of Ryde Local Planning Study predicts that the demand for 'traditional' industrial land in the City of Ryde will decline over the period to 2031<sup>22</sup>;
- Industrial land in the City of Ryde faces difficulties in competing with industrial areas in Western Sydney which can offer easier accessibility, larger land plots and more affordable accommodation<sup>23</sup>; and
- Council identified the potential for some additional land uses that could be permissible with consent within
  the Gladesville industrial precinct in the draft Ryde LEP 2011 to try and ensure that it remains economically
  sustainable.

The draft Metropolitan Strategy (2013) provides a checklist against which proposals to rezone employment land should be assessed. This is provided in Table 5 together with our assessment of Alternative 1 against each criterion.



<sup>&</sup>lt;sup>22</sup> Source: City of Ryde Local Planning Study Chapter 7, City of Ryde Council, 2010

<sup>&</sup>lt;sup>23</sup> Source: Source: City of Ryde Local Planning Study Chapter 7, City of Ryde Council, 2010

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Table 5 - Checklist for Rezoning of Existing Industrial Land to Other Uses

Criteria	Response	Satisfied by Alternative 12
Is the proposed rezoning consistent with State and/or council strategies on the future role of industrial lands?	Notwithstanding the loss of employment lands, the proposed development is a response to market demand and reflects the changing nature of the area. This is consistent with the need to promote economic development and jobs recognised in the policies and strategies considered in Chapter 2 of this Study.	<b>Ø</b>
Is the site: - near or within direct access to key economic infrastructure? - contributing to a significant industry cluster?	The Subject Site is separated from the wider Gladesville industrial precinct. It does not currently contribute towards the operation of the precinct and there are no nexus relationships between existing businesses on the Subject Site and those in the wider area.	
How would the proposed rezoning impact the industrial land stocks in the Subregion or region and the ability to meet future demand for industrial land activity?	Unlikely. The Subject Site is not well connected to the wider industrial precinct and existing uses provide no nexus relationship to the operation of the precinct.  Demand for 'traditional' industrial land is set to decline and, in any case, as this site is not well connected to the wider employment precinct and adjoins residential uses, alternative industrial uses may not be appropriate.  Alternative 1 is not expected to adversely impact upon the ability of the Subregion to meet future employment land demand for these reasons.	
How would the proposed rezoning impact on the achievement of the subregion/region and LGA employment capacity targets and employment objectives?	Alternative 1 would yield a net uplift in the number of jobs provided on the Subject Site and would support jobs directly and indirectly during the construction process. The jobs that would be provided may be better suited towards the demographic characteristics of residents in the City of Ryde LGA. It would thus contribute positively to the achievement of employment targets and objectives.	<b>Ø</b>
Is there a compelling argument that the industrial land cannot be used for an industrial purpose now or in the foreseeable future and what opportunities may exist to redevelop the land to support new forms of industrial land uses such as high-tech or creative industries?	The site is unlikely to be suitable for higher value employment uses given its limited size, poor connectively to industrial areas and surrounding residential land uses	<b>Ø</b>
Is the site critical to meeting the need for land for an alternative purpose identified in other NSW Government or endorsed council planning strategies?	No. The Subject Site is not identified as being critical to meet the need for alternative purposes in any State or local Government planning strategies.	<b>Ø</b>

Source: Criteria Table 1: Industrial Lands Strategic Assessment, Page 49 Draft Metropolitan Strategy for Sydney, NSW Department of Planning and Infrastructure (2013)

In the context of the checklist presented in the table above, the rezoning of the Subject Site under Alternative 1 appears to be justified based on the draft Metropolitan Strategy for Sydney. The existing use of the Subject Site does not make a meaningful contribution towards the operation of the wider Gladesville industrial precinct and the scope for it to do so under the existing zoning is considered to be limited. Alternative 1 would lead to a net uplift in employment and provide jobs better suited to the characteristics of residents in the City of Ryde LGA. As such, it would make a greater contribution towards employment comparative to the Base Case.

# IMPACT ON EXISTING LAND USES

The Subject Site is located adjacent to existing residential uses to the north west and south west. These uses may experience short-term adverse impacts during the construction process resulting for noise, visual amenity and so on although we have assumed that appropriate steps would be taken to mitigate the extent of any impacts.



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Land to the east and north east of the Subject Site is zoned for IN2 Light Industrial uses. This land comprises one site, owned by Dexus, which accommodates the Gladesview Business Park. The 2ha site comprises 10 units and provides a mixture of commercial office and warehouse uses<sup>26</sup>. The Gladesville Business Park includes a range of existing occupiers including Spotless, Alliance, Downer EDI, Bio-Rad and Ultraceuticals<sup>27</sup>. These occupiers do not appear to be subject to nexus relationships to the adjacent employment uses on the Subject Site i.e. they are operating independently and do not appear to be reliant upon inter-dependent relationships.

Given that some warehousing uses appear to be present on the adjacent site, the presence of residential development in Alternative 1 creates the possibility for land use conflicts for example traffic and noise conflicts resulting from deliveries. We should note, however, that there are already adjoining residential uses situated to the west of Gladesview Business Park. We assume that appropriate measures (soundproofing such as screening and so on) could be incorporated in Alternative 1 to assist in mitigating any potential impact, however there still may be some adverse impacts compared to the Base Case in terms of externalities such as noise and sound. This is a potential issue which will need to be addressed at the concept design and DA stage, should the rezoning be approved.

The Subject Site is not well connected to the wider Gladesville industrial precinct and is separated from it by the busy Victoria Road. The Subject Site is also bounded by residential uses on two sides. As such, it is not typical of industrial plots in the wider LGA which are usually more sizable and incorporate a cluster of industrial uses. In view of the isolation of the Subject Site, Alternative 1 is unlikely to set a precedent for the rezoning of other parts of the Gladesville industrial precinct (on the other side of Victoria Road) because it is atypical of industrial lands in the wider precinct and LGA.

# 4.10 TRAFFIC

Local residents and business may suffer short-term adverse traffic impacts as a result of vehicles associated with the construction process. It is assumed that appropriate measures would be taken to mitigate the extent of these impacts.

Alternative 1 may generate additional volumes of traffic locally when it is compared to the Base Case. Unmitigated, this could lead to additional local congestion and associated externalities, travel times and pollution to the detriment of existing residents. It is assumed that appropriate measures would be taken to minimise any potential adverse impacts on traffic resulting from Alternative 1.

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Planning Propsoal 2-14 Tennyson Road, Gladesville (Meconne Planning Proposal)

<sup>&</sup>lt;sup>26</sup> Source: http://www.dexus.com/properties/details.aspx?id=230&sector=Industrial

<sup>&</sup>lt;sup>27</sup> Source: Based on desk-top examination only

# NET COMMUNITY BENEFIT TEST

This Chapter provides an assessment of the benefits of Alternative 1 against the Base Case. The draft Centres Policy clarifies:

"...a net community benefit arises where the sum of all benefits of a development or rezoning outweigh the sum of all costs".

When assessing the community impacts, the impacts have been described as either:

- 1. Positive or negative;
- 2. Significant, moderate, neutral; and
- 3. During construction and/or upon operation.

Table 5 below provides a definition of the terms provided under points one and two above. The definitions are adapted from the rating levels recommended by the Strategic Merit Test which forms part of the National Guidelines for Transport System Management in Australia (2nd Edition). The definitions have however been amended so that they are suitable for a NCBT.

Table 6 - Assessment Rating Levels

Rating Level	Description
Significant Negative	Costs with serious, long term and possibly irreversible effects leading to serious damage, degradation or deterioration of the environment. Requires a major re-scope of concept, design, location, justification, or requires major commitment to extensive management strategies to mitigate the effect.
Moderate Negative	Costs may be short, medium or long term in duration and most likely to respond to management actions.
Slight Negative	Costs have minimal effect, could be short term, can be mitigated and would not cause substantial detrimenta effects. May be confined to a small area.
Neutral	No discernable or predictable positive or negative costs or benefits.
Slight Positive	Benefits have minimal effect, could be short term. May be confined to a small area.
Moderate Positive	Benefits may be short, medium or long term in duration. Positive outcome may be in terms of new opportunities and outcomes of enhancement or improvement.
Significant Positive	Benefits resulting in substantial and long term improvements or enhancements to the existing environment.

Source: Adapted from the Strategic Merit Test, National Guidelines for Transport System Management in Australia (2nd Edition)

Based on the rating levels identified above, the table below provides an assessment of the net community impacts eventuating from the Base Case versus Alternative 1.

Table 7 - Assessment of Net Community Impacts

Net Community Benefit	Base Case Scenario		Alternative 1		
Increasing the supply of housing in the City of Ryde.	Neutral	No housing is currently provided on the Subject Site.	Significant Positive upon Operation	The provision of 404 residential units including 135 senior living units, in addition to an assisted living facility, would contribute towards achieving the housing targets set for the City of Ryde and the Inner North Subregion and meet forecast population growth.	
A wider range of housing.	Neutral	No housing is currently provided on the Subject Site.	Significant Positive upon Operation	Alternative 1 would provide a mix of housing types catering specifically for the current and future needs of the population (ageing and decreasing household sizes), particularly for the most vulnerable community members.	



Generating additional jobs.	Neutral	Existing uses perpetuating would lead to not change in job provision.	Significant Positive during Construction and upon Operation	Alternative 1 would support an estimated +1,677 job years (directly and indirectly) as a result of the construction process, +344 permanent full and part time jobs post-development of which +294 would be net additional, jobs off-site in support services such as schools, hospitals and public transport and jobs within the industries new residents would be employed. The jobs provided would be in a range of industry sectors. It would deliver a net positive impact on jobs.
Minimising the need to travel to work.	Neutral	Existing uses perpetuating would lead to not change in minimising the need to travel to work.	Moderate Positive upon Operation	The provision of housing in this location and close to centres of employment provides the opportunity for workers to live locally.
Enhancing retail choice and increasing price competition.	Neutral	The Subject Site does not provide shops or services at the current time and the IN2 zoning prohibits such uses from being provided in the future.	Significant Positive upon Operation	The provision of retail uses would increase competition in the retail sector, which would have a positive impact on prices, widen access to retail goods and services and increase choice.
Impact on the Centres Hierarchy	Neutral	Existing uses perpetuating would lead to not change in impact to existing centres.	Neutral	Alternative 1 would lead to some adverse impacts on existing centres with which it would compete. However, all centres would still experience growth in trade over the 2011 to 2016 period regardless and their vitality or viability would be unharmed.  The impact on retail facilities with which the proposed development would not compete,
Minimising the need	Neutral	The Subject Site does not	Significant	such as department and discount department stores and bulky goods stores, would be net positive. The provision of retail uses would reduce the
to travel to access shops and services.		provide shops or services at the current time and the IN2 zoning prohibits such uses from being provided in the future.	Positive upon Operation	distance residents in the Main Trade Area must travel in order to visit shops and services. This is particularly important in view of the seniors living and assisted living components of the proposed development who are likely to be less mobile than other community members
Stimulating investment in the local area.	Neutral	The Base Case is not likely to support significant investment on the Subject Site or in the local area.	Significant Positive	Alternative 1 would result in the direct investment of \$160m and \$529m in total multipliers. It would support investment in social infrastructure and retail floorspace not provided on the Subject Site. It would support the economic competitiveness of the City of Ryde as a place to live and as a location for employers to investment.
Overall Sustainability Impacts.	Neutral	The Base Case would not lead to any change in sustainability in this locality.	Moderate Positive upon Operation	Alternative 1 would support positive sustainability impacts by:     Supporting urban renewal and more intensive uses on previously developed land;     Minimise the need for residents to trave to work and to access retail facilities.
Impact on Environmental Amenity.	Neutral	The Base Case would not lead to any further impact on local environmental amenity.	Slight Negative during Construction Moderate Positive upon Operation	Short-term construction-related impacts may eventuate from Alternative 1 although it is assumed that appropriate mitigation measures would be taken to ensure these are minimised.  Alternative 1 represents a high standard of design and would incorporate landscaping. It may assist in reducing pressure on other



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				sites, including greenfield sites, to accommodate residential development.
Social Infrastructure.	Neutral	The Base Case would not lead to any impact on social infrastructure.	Slight Positive	The financial cost of additional community support infrastructure is assumed to be balanced by monetary and in kind contributions to State and local government and agencies. Any additional capacity created is assumed to be occupied by new residents. As such overall community impacts would be nil.  Alternative 1 provides open space which will benefit future residents on the Subject Site and also existing residents in the surrounding area comparative to the Base Case. This constitutes a slight positive benefit.
Impact on Industrial Lands Policy Objectives.	Neutral	There would be no change to the existing IN2 zoning.	Neutral	Alternative 1 would lead to the loss of Category 1 Industrial Lands. It would remove strategically important industrial land from industrial use. Notwithstanding this, Alternative 1 is deemed to pass the criteria which permits rezoning of employment lands to alternative uses set out in the draft Metropolitan Strategy for Sydney (2013). The overall impact on industrial lands policy objectives would therefore be nil, it would neither support nor contravene such polices.
Impact on Adjoining Land Uses.	Neutral	There would be no change in the existing use.	Slight Negative during Construction Neutral upon Operation	Existing land uses may experience some adverse impacts during the construction process as a result of noise, visual amenity, traffic and so on. It is assumed that appropriate mitigation measures would be taken.  Under Alternative 1 IN2 zoned land would still adjoin the Subject Site to the east and north east. We understand that the proposed scheme has been designed in order to remove potential conflicts with these uses. The Subject Site already has a residential interface and Alternative 1 may assist to minimise potential conflicts in this regard.
Traffic.	Neutral	The Base Case would not lead to any further impact on local traffic.	Slight Negative during Construction Neutral upon Operation	Local residents and business may suffer short-term adverse traffic impacts as a result of vehicles associated with the construction process. It is assumed that appropriate measures would be taken to mitigate the extent of these impacts.  Alternative 1 would be likely to increase local traffic compared to the Base Case. It is assumed that appropriate measures would be taken to mitigate any traffic impacts as far as possible. As such overall impact on traffic is assumed to be neutral.

The above matrix shows that Alternative 1 would lead to a range of positive benefits to community welfare including six "significant positive" impacts. Alternative 1 not deliver any "significant negative" impacts but is expected to lead to three "slight negative" impacts during construction only. These will be short-term in duration. This compares to the Base Case which is estimated to deliver no change and neutral impacts.

In light of the above matrix, the final Chapter of this NCBT considers the extent to which Alternative 1 would deliver a net community benefit compared to the Base Case.





# Conclusion

This NCBT has found that Alternative 1 would result in a range of benefits for the existing and prospective community of the Subject Site, the Gladesville suburb, City of Ryde and the broader Inner West Subregion and Sydney Region.

The following benefits and costs of Alternative 1 versus the Base Case, from a community perspective, have been identified:

#### Potential Benefits of Alternative 1 versus Base Case

- Increasing housing supply in the City of Ryde by 404 dwellings, including 135 seniors living dwellings, in addition to assisted living facilities which would contribute towards meeting the forecast population increase in the Gladesville suburb (Significant Positive Impact);
- Providing a wider range of housing types in the City of Ryde reflective of the forecast ageing population and increasing demand for smaller households (Significant Positive Impact);
- Generating a net increase in operational jobs and jobs during the construction process (Significant Positive Impact);
- Minimising the need for residents to travel to work by providing housing close to employment opportunities (Moderate Positive Impact);
- Minimising the need for residents to travel to access shops and services (Significant Positive Impact);
- Enhancing local retail choice and increasing price competition (Significant Positive Impact);
- Providing more efficient use of a brownfield site (Significant Positive Impact);
- Supporting investment directly in the Subject Site and in the surrounding area (Moderate Positive Impact);
- Providing a development of a high standard of design and incorporating appropriate landscaping (Moderate Positive Impact);
- Delivering additional social infrastructure over and above the demands of future residents in the form of open space (Slight Positive Impact);
- Alleviating pressure on greenfield sites to be redeveloped for residential uses (Moderate Positive Impact).

### Potential Costs of Alternative 1 versus Base Case

- Potential land use conflicts with adjacent Gladesville Business Park during the construction process (Slight Negative Impact);
- Short-term increase in local traffic during construction although it is assumed that appropriate mitigation measures would be taken (Slight Negative Impact);
- Net increase in vehicle movements in the locality although we have assumed that appropriate mitigation measures would be incorporated into the development to address this potential issue (neutral overall impact);

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 Short-term adverse impacts on environmental amenity during the construction process as a result of noise, visual intrusion and so on although it is assumed that appropriate mitigation measures would be taken (Slight Negative Impact).

In light of the above, on balance it is considered that Alternative 1 could lead to significant positive benefits on the community in the local area resulting from increasing supply and mix of housing, an improved retail offer and price competition, increased environmental amenity and a greater number of jobs. This is balanced against a number of short-term slight negative impacts which could eventuate, although these are not project specific and may eventuate from any redevelopment of the Subject Site. Whilst light industrial land will be lost as a result of Alternative 1, in our view the rezoning can be justified based on the strategic checklist for employment lands<sup>28</sup> and would offset by providing additional employment on the Subject Site and jobs that better match the employment profile of the City of Ryde. In delivering additional residential supply and in assisting to alleviate pressure on greenfield sites for residential development, as well as providing additional jobs and an investment stimulus, Alternative 1 would also have positive broader strategic benefits for Sydney.

A 'net community benefit' is deemed to arise when the sum of the benefits of a rezoning are greater than the sum of all costs from a community welfare perspective. Based on this definition and from the perspective of the community, having consideration of the issues raised above, on balance we conclude that Alternative 1 could deliver an overall net community benefit compared to the Base Case.

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<sup>28</sup> Criteria Table 1: Industrial Lands Strategic Assessment, Page 49 Draft Metropolitan Strategy for Sydney, NSW Department of Planning and Infrastructure (2013)

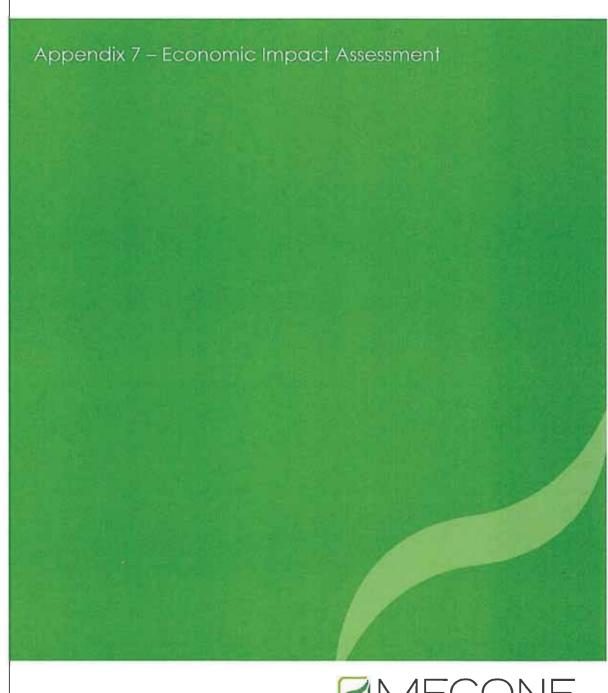
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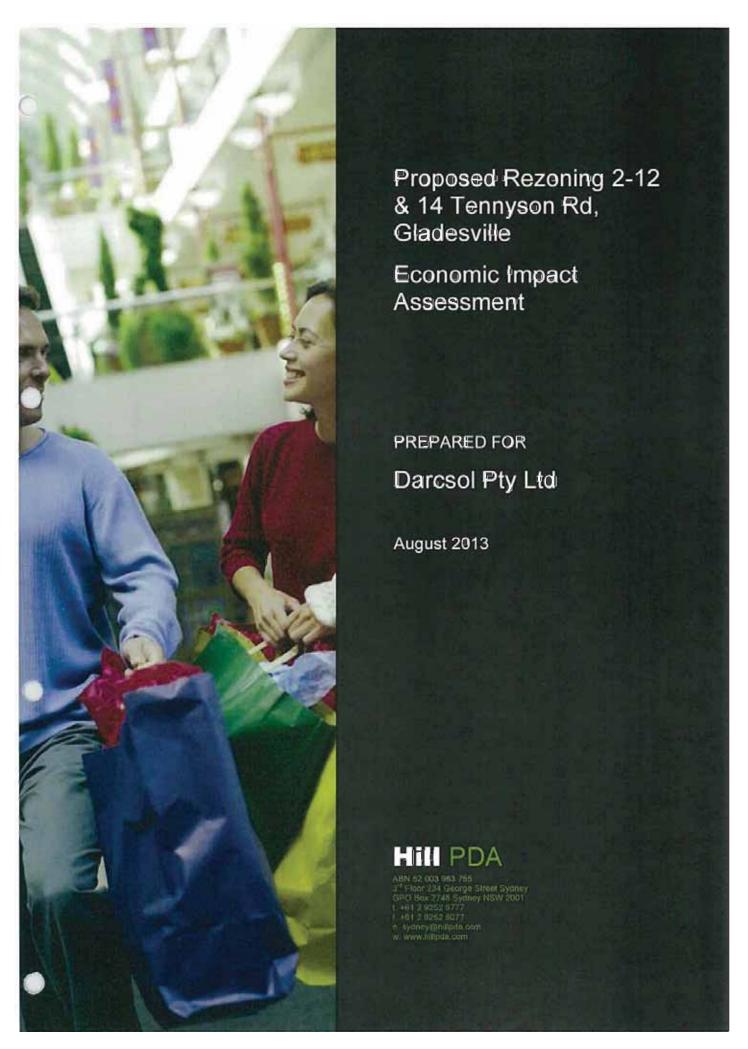
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Sydney Office

3<sup>rd</sup> Floor 234 George Street Sydney GPO Box 2748 Sydney NSW 2001

t. +61 2 9252 8777

f. +61 2 9252 6077

e. sydney@hillpda.com

Melbourne Office

Level 9, 365 Little Collins St Melbourne

GPO Box 3424 Melbourne VIC 3001

t. +61 3 9642 2449

f, +61 3 9642 2459

e. meiboume@hilipda.com

w. www.hillpda.com

Liability limited by a scheme approved under the Professional Standards Legislation



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### QUALITY ASSURANCE

#### REPORT CONTACT:

#### Tom Duncan

Senior Consultant

BA (Hons) Human Geog, MA Town and Country Planning, MRTPI

Email: thomas.duncan@hillpda.com

#### Adrian Hack

Principal

M. Land Econ. B. Town Planning (Hons). MPIA

Email: adrian.hack@hillpda.com

### QUALITY CONTROL

This document is for discussion purposes only unless signed and dated by a Principal of Hill PDA.

**REVIEWED BY** 

Date: August 2013

Adrian Hack

Principal

M. Land Econ. B.Town Planning (Hons). MPIA

Email: adrian.hack@hillpda.com

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# **EXECUTIVE SUMMARY**

#### Introduction (Chapter 1)

Hill PDA was commissioned by Darcsol Pty Ltd to undertake an economic impact assessment relating to the proposed rezoning of a site at 2-12 and 14 Tennyson Road, Gladesville ('the Subject Site'). The land is zoned IN2 Light Industrial in the Ryde Local Environmental Plan (LEP) 2010 and Draft Ryde LEP 2011. A 84 Mixed Use zoning is sought. The rezoning is sought in order to facilitate the mixed use redevelopment of the Subject Site to accommodate a 5,800sgm retail centre including a full-line supermarket, 600sgm of non-retail commercial floorspace, a childcare centre, 404 residential units including 135 seniors living apartments, assisted living facilities, 670 car parking spaces and associated landscaping.

#### Planning and Policy Review (Chapter 2)

Metropolitan, Subregional and local planning policies support economic growth by encouraging the development of housing and employment opportunities to meet Sydney's growing population. Housing itself is recognised as a contributor towards economic growth. Competition in the retail sector is encouraged through the Draft SEPP (Competition) (2010) although the NSW Draft Centres Policy (2009) mandates that the protection of existing centres and the preservation of the retail hierarchy is also a priority.

#### Competitive Retail Review (Chapter 3)

An analysis of existing centres in the area around the Subject Site indicates that the closest centres which offer full-line supermarkets are at Gladesville Village Centre and Ryde Town Centre.

Ryde Town Centre or 'Top Ryde' has recently been redevelopment and comprises a high order shopping centre serving a wide trade area with a range of retail goods and services. It is located approximately 2km or a 4 minute drive1 north west of the Subject Site

Gladesville Village Centre is situated approximately 1.2km or a 2 minute drive<sup>2</sup> south east of the Subject Site on Victoria Road. It contains a Coles supermarket and is currently trading well. A range of bulky goods retailers are also located in the vicinity of the centre.

The remainder of nearby retail provision is small-scale and serves localised shopping needs only.

### Demand for Retail Floorspace (Chapter 4)

A Main Trade Area (MTA) for the proposed development has been defined which incorporates the area to the south east of Church Street (Route 3), to the south and west of Victoria Road (Route 40) and west of the Gladesville Hospital site. This area contains only modest provision of retail floorspace which does not include a full-line supermarket.

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<sup>&</sup>lt;sup>1</sup> Source: Googlemaps

<sup>&</sup>lt;sup>2</sup> Source: Googlemaps

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Based on population and expenditure growth in the MTA, including from new residents on the Subject Site, the amount of expenditure generated by residents is expected to increase from \$193m in 2011 to \$332m in 2031. This is equivalent to an increase of \$139m or 72% over the 20 year period.

The turnover of the retail component is forecast to be \$50m in 2016. Around 70-75% of this is expected to be captured from residents in the MTA and the residual 25-30% from beyond the MTA. These capture rates are sustainable. Expenditure capture from within the MTA by the proposed development would equate to between 16-17% of the total expenditure generated by residents in 2016 or between 46-49% of total supermarket and grocery store related expenditure. The vast majority of expenditure would continue to be directed towards the (modest) shopping facilities within the MTA or to escape the MTA even if the proposed development were implemented.

These capture rates should also be considered in the context of the local undersupply of retail floorspace, with unmet demand for some 8,200sqm in Gladesville historically identified by Hill PDA and others. The proposed development would address some of this undersupply.

The MTA lacks a full-line supermarket at the current time although it has a resident population of 13,221 persons in 2011. A full-line supermarket is sustained by a trade area of 9,000-10,000 people. The MTA should be served by a full-line supermarket.

#### Retail Impact Assessment (Chapter 5)

The retail impact assessment indicates that the majority of the turnover of the proposed development would be redirected from Top Ryde and Gladesville which are the closest centres offering full-line supermarkets. Over the 2011 to 2016 period all centres will still experience growth in trade even with the proposed development.

Trading impacts of less than 10% are usually considered by the industry to be within the normal competitive range, dependent upon the performance of a centre and planned development. The Hill PDA gravity modelling indicates that immediate impacts of the retail centre on existing centres would be less than 10% in all cases and for most centres would be less than 5% which is considered 'insignificant'.

The gravity model indicates that the proposed development would not jeopardise the role or function of Gladesville or any other existing centre in the locality. As such the trading impacts which would eventuate from it are a matter of competition only and there are no grounds for refusal on the basis of economic impact.

#### Residential Impact Assessment (Chapter 6)

An assessment of residential market trends indicates that despite demand for dwellings is increasing resulting from a growing population and demographic shifts towards smaller households.

In providing additional housing the proposed development could:

- Support housing market affordability by increasing housing supply of small units, which are the most affordable housing types. This is important given the median house prices in Gladesville and the broader City of Ryde are well above the Greater Sydney median;
- Contribute towards meeting the housing targets for the City of Ryde, the Inner North/ Central Subregion and the broader Sydney Metropolitan Area;



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Increase the supply of seniors and assisted living accommodation in the City of Ryde in a location which is close to shops, services and transportation. Seniors and assisted living will be increasingly demanded across the City of Ryde and the wider Sydney Metropolitan area as a result of an aging population;

- Underpin the local economy by creating additional retail expenditure available to be capture by centres and supporting demand for jobs in support services and in the industries in which residents themselves would be employed:
- Ensure that labour supply and population growth are not constrained by a lack of housing to accommodate local workers:
- Ensure that new residential development occurs in an existing urban location and would thus capitalise on the availability of existing infrastructure, services and public transport. It is assumed that, in terms of funding such services, any increase in demand on infrastructure and support services would be mitigated by contributions to State or local government and provisions within the proposed development itself;
- Generate additional traffic locally which may provide a community dis-benefit for existing residents. This should be balanced against the positive impacts of the residential development.

### Other Economic Impacts (Chapter 7)

A range of additional economic impacts are identified which include:

- An estimated +\$160m in direct capital investment which would support a further +\$369m in economic multipliers;
- Support +456 job years directly<sup>3</sup> and a further +1,221 jobs indirectly as a result of the construction process;
- Potential short-term negative impacts locally as a result of increased traffic related to site-works, noise during construction and so on. Only a minority of these would be economic and we have assumed that the development process would take necessary steps to minimise the extent of any impacts;
- Support for an estimated permanent +344 jobs directly post-development of which +294 would be net additional to the Subject Site;
- Contribute towards convenient access to retail floorspace for residents of the MTA and reduce the need for them to travel in accordance with sustainable development principles; and
- Promote competition in the retail sector without threatening the vitality or viability of any existing centres.

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<sup>3</sup> Note: One job year equals one full-time job for one full year

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# Introduction

Hill PDA was commissioned by Darcsol Pty Ltd to undertake an economic impact assessment (hereafter referred to as 'the Study') in relation to the proposed rezoning of a site at 2-12 and 14 Tennyson Road, Gladesville ('the Subject Site'). The rezoning is sought in order to facilitate the mixed use redevelopment of the Subject Site to accommodate retail and residential uses.

## 1.1 THE SUBJECT SITE

The Subject Site comprises some 2.4ha of land area. It is bounded by existing commercial uses fronting Victoria Road to the north, Tennyson Road to the north east, residential uses fronting Brereton Street to the south and commercial and residential uses to the east. It is situated within the City of Ryde Local Government Area (City of Ryde).

2-12 Tennyson Road currently comprises a two-storey commercial building on the side fronting Tennyson Road and a large portal frame clear span warehouse to the rear, in addition to surface level car parking. Existing tenants include Asset Link and GH Packaging International. 14 Tennyson Road comprises light industrial warehousing. It is occupied by Latham Australia.

The location of the Subject Site is shown in the figure below.



The Subject Site is zoned IN2 Light Industrial in the Ryde Local Environmental Plan (LEP) 2010 and Draft Ryde LEP 2011. The proposed rezoning seeks to incorporate a B4 Mixed Use on the Subject Site. Note that this Study considers the economic impact of the proposed development only. It does not consider the planning principle of rezoning the Subject Site.



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# 1.2 THE PROPOSED REZONING AND DEVELOPMENT

The proposed rezoning seeks to facilitate the redevelopment of the Subject Site to incorporate the following uses4:

- Retail floorspace of 5,800sqm gross lettable area (GLA5) including a full-line supermarket of 4,000sqm;
- Additional non-retail commercial floorspace of 600sqm;
- 404 market residential dwellings of including 135 seniors living units;
- An assisted living facility of 3,300sqm gross floor area (GFA<sup>6</sup>);
- Childcare/ community floorspace of 300sqm;
- 245 retail car parking spaces and 425 residential car parking spaces; and
- Associated landscaping works.

### 1.3 STUDY STRUCTURE

To meet the requirements of the project brief, the Study is set out in the following manner:

- Chapter 2 undertakes an assessment of the planning and legislative background relevant to consideration of economic impact;
- Chapter 3 examines the network of centres and destinations around the Subject Site which constitute the existing retail hierarchy;
- Chapter 4 defines a Main Trade Area for the proposed development, undertakes demographic analysis and considers growth forecasts within this area, projects retail floorspace demand, estimates the turnover of the proposed development and considers the extent to which there is sufficient demand to support this;
- Chapter 5 assesses the trading impacts of the proposed development on existing centres in the retail hierarchy and their ability to sustain these impacts;
- Chapter 6 assesses the economic impact of the residential component of the proposed development; and
- Chapter 7 considers a range of other economic impacts which would eventuate from the proposed development such as employment, economic multipliers and so on.

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<sup>&</sup>lt;sup>4</sup> Source: Tennyson Road- Rezoning Application Schedule Scenario A, Grimshaw (26/06/2013)

<sup>&</sup>lt;sup>5</sup> Note: Gross Lettable Area (GLA) is the common measure used for lease and for other descriptive purposes in retail centres and shops. It is usually defined as the total area of the lease and includes back of house, storage, offices and mezzanine levels but usually excludes loading docks and common mall spaces. GLA is more commonly used in the industry because it defines the area of the lease. Shopping centre owners report rents and turnover figures on the leased area and benchmarking is usually made on the GLA. For the purpose of Hill PDA's demand modelling all floor areas expressed are in GLA

<sup>6</sup> Note: Gross Floor Area (GFA) is Gross Lettable Area plus common mall spaces (including amenities), centre management area and plant rooms. In a typical indoor centre with at least one department store and supermarket the GLA makes up around 72% to 75% of the GFA

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# 2. PLANNING & POLICY REVIEW

This Chapter undertakes an appraisal of the planning and legislative context relevant to economic impact based on State, Metropolitan, Subregional and local planning guidelines.

### 2.1 STATE PLANNING POLICY AND STRATEGIES

#### NSW 2021- A Plan to Make NSW Number One (2011)

The NSW 2021 Plan aims to rebuild the NSW economy, provide quality services, renovate infrastructure, restore government accountability and strengthen NSW's local environment and communities.

The Plan comprises five key strategies. The main strategy that is of relevance to the proposed redevelopment of the Subject Site is "Rebuild the Economy" which seeks to secure new jobs and ensure that more land is made available for housing in order to support economic growth.

The NSW 2021 Plan sets a target of +60,000 new jobs in Sydney by 2021 and +25,000 new dwellings annually to 2031. The NSW 2021 Plan highlights that housing development opportunities within the Metropolitan area will play a key role in the future economic growth of NSW. Housing is thus recognised as a contributor towards economic development.

#### Metropolitan Plan for Sydney 2036

The NSW Department of Planning and Infrastructure's (DoPl's) Metropolitan Plan for Sydney 2036 was released in December 2010. The Plan aims to shape the future growth of Sydney to 2036 ensuring a more resilient, compact, connected, multi-centred and sustainable city. The



Metropolitan Plan integrates land use and transport planning by integrating the Metropolitan Transport Plan, which was published for consultation earlier in 2010.

The Plan aims to address key challenges facing Sydney which includes managing a growing and changing population, providing more jobs closer to home, more efficient transport delivery, climate change and maintaining our global competiveness. These challenges are addressed through strategic directions.

The Plan anticipates Sydney's population will reach close to 6 million by 2036. To accommodate this population growth, land use service provision and infrastructure capacity must be planned to provide for +769,000 additional homes and +760,000 additional jobs by 2036.

Of relevance to this Study the Plan nominates an additional +44,000 dwellings and +62,000 additional jobs for the Inner North Subregion (of which the City of Ryde is part) between 2006 and 2036.

The Plan forecasts that an additional 10 million sqm of additional commercial floorspace and 5 million sqm of additional retail floorspace will be required across Sydney by 2036 in order to cater for employment growth and increasing demand. The focus for accommodating employment growth will be in centres, particularly those on the public transport network.

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#### Draft Metropolitan Strategy for Sydney to 2031 (2013)

The DoPI published the draft Metropolitan Strategy for Sydney to 2031 ('the draft Strategy') for consultation in March 2013. It seeks to achieve the following outcomes:

- Balanced Growth;
- A liveable City;
- Productivity and prosperity;
- Healthy and resilient environment; and
- Accessibility and connectivity.

The draft Strategy seeks to promote and facilitate growth which acknowledges market considerations and which integrates transport, infrastructure and land use. Job growth will thus be concentrated on Metropolitan areas. An additional +625,000 new jobs across Sydney by 2031 is targeted and minimum job targets have been set across the Subregions in Sydney to achieve this. For the Central Region of which the Subject Site forms part, an additional +230,000 jobs to 2031 are sought as a minimum.

Minimum housing targets are also set for the Central Region of +82,000 additional dwellings by 2021 and +138,000 new dwellings by 2031 targeted as a minimum.

#### NSW Draft Centres Policy (2009)

Over the past few years there has been a growing awareness and investigation of barriers to competition in Australia, particularly in the retail industry. As a result of these investigations the Australian Government directed state governments and planning authorities to review the flexibility of planning regulations and policies regarding retail development. In response the DoPI released the draft Centres Policy in April 2009. The draft Centres Policy has been publicly exhibited.

The draft Centres Policy focuses around six key principles. The principles relate to:

- 1. The need to reinforce the importance of centres and clustering business activities;
- 2. The need to ensure the planning system is flexible, allows centres to grow and new centres to form;
- 3. The market is best placed to determine need. The planning system should accommodate this need whilst regulating its location and scale;
- 4. Councils should zone sufficient land to accommodate demand including larger retail formats;
- 5. Centres should have a mix of retail types that encourage competition; and
- 6. Centres should be well designed to encourage people to visit and stay longer.

The draft Centres Policy requires that a net community benefit test be undertaken for all rezoning applications seeking to facilitate retail or commercial floorspace. A 'net community benefit' is deemed to arise when the sum of the benefits of a rezoning are greater than the sum of all costs from a community perspective. The net community benefit test forms a separate report in the rezoning submission package.

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#### Draft SEPP (Competition) (2010)

Following a review undertaken by the DoPl and the Better Regulation Office into how economic growth and competition were impacted by the planning system, a new Draft State Environmental Planning Policy (SEPP) has been prepared and was placed on public exhibition in July 2010. The proposed state-wide planning policy removes artificial barriers on competition between retail businesses.

The Draft SEPP states that:

- The commercial viability of a proposed development may not be taken into consideration by a consent authority, usually the local council, when determining development applications;
- The likely impact of a proposed development on the commercial viability of other individual businesses may also not be considered unless the proposed development is likely to have an overall adverse impact on the extent and adequacy of local community services and facilities, taking into account those to be provided by the proposed development itself; and
- Any restrictions in local planning instruments on the number of a particular type of retail store in an area, or the distance between stores of the same type, will have no effect.

#### **Draft Inner North Subregional Strategy (2007)**

The Draft Inner North Subregional Strategy (July 2007) plans to accommodate +60,100 new jobs and +30,000 new dwellings in the Inner North Subregion between 2004 and 2031. Of these, +21,000 jobs (35%) and +12,000 dwellings<sup>7</sup> (40%) are to be accommodated within the City of Ryde.

# 2.2 LOCAL PLANNING POLICY AND STRATEGIES

### Ryde Local Environmental Plan (2010) and draft Local Environmental Plan (2011)

The Subject Site is zoned IN2 Light Industrial in the Ryde Local Environmental Plan (LEP) 2010 and the draft LEP 2011. This zone prohibits the development of retail and residential uses, hence a rezoning of the Subject Site is sought.

#### City of Ryde Local Planning Study (December 2010)

Council prepared the City of Ryde Local Planning Study to inform the preparation of the draft Local Environmental Plan. The Local Planning Study requires that proposals for retail expansion should be supported by studies to ensure that impacts on existing centres are manageable. This Study responds to this requirement.

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<sup>&</sup>lt;sup>7</sup> Outside of the North West Growth Centre

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# 3. COMPETITIVE RETAIL REVIEW

This Chapter examines the retail hierarchy around the Subject Site to determine the extent of existing and planned future retail provision. Understanding the extent of existing provision is also crucial in quantifying the economic impacts which may eventuate from the proposed development on centres and retail facilities. The information within this Chapter has been sourced from previous Hill PDA reports, the Property Council of Australia's Shopping Centres Directory (2011/2012), Shopping Centre News and other consultant studies where indicated.

# 3.1 RETAIL HIERARCHY

The table below identifies the defined role and hierarchy of relevance to this Study based on the Draft Inner North Subregional Strategy. Note that only centres which may influence the Subject Site or its potential trade area have been listed in the table, it does not include all of the centres in the Inner North Subregion.

Table 1 - Inner North Subregion Centres Hierarchy

Typology	Characteristics	Centres		
Specialised	Areas containing major airports, ports, hospitals, universities,	Macquarie Park		
Centre	research and business activities. These perform a vital economic			
	and employment role which generate metropolitan-wide benefits			
Town Centre	Town Centres have one or two supermarkets, community facilities,	Ryde, Lane Cove		
	medical centre, schools, etc. Contain between 4,500 and 9,500			
	dwellings. Usually a residential origin than employment destination			
Village	A strip of shops and surrounding residential area within a 5 to 10 Gladesville			
	minute walk contains a small supermarket, hairdresser, take-away			
	food shops. Contain between 2,100 and 5,500 dwellings			
Small Villages	A small strip of shops and adjacent residential area within a 5 to 10	Boronia Park, Hunters Hill, Putney		
	minute walk. Contain between 800 and 2,700 dwellings			
Neighbourhood	One or a small cluster of shops and services.	Pittwater Road Gladesville,		
Centres	Contain between 150 and 900 dwellings	Tennyson Road Tennyson Point		

Source: Draft Inner North Subregional Strategy, NSW Department of Planning and Infrastructure (2007)

The location of these centres is depicted in the following figure. Each of the centres identified is examined individually in the remainder of this Chapter.

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Figure 2 - Retail Hierarchy around the Subject Site Lindfield cale: 1:42,810 Carlingford Marsfield Macquarie Park **Eastwood** Dundas East Valley Chatswood West Denistone East North Ryde 29 Denistone Pank West Ryde Victoria West Ruce Ryde East Ryde Lane Cove Lane Cove Lane Cove West Ermington Melrose Park Meadowbank Riverside Riverview Pulley Legend Peel Linley Point Specialised Centre Longueville Gladeville Hunters Hill Gladesville Arthur Rhodes Town Centre

Source: Map produced by Hill PDA using MapInfo 11.5 software and Microsoft Bing (c) 2011 Microsoft Corporation

Concord West Owl

# 3.2 SPECIALISED CENTRES

#### Macquarie Park

Village

Small Village

Macquarie Park Regional Shopping Centre, or the Macquarie Centre, is located approximately 7.5km or an 11 minute drive<sup>8</sup> north of the Subject Site. It contains approximately 98,000sqm<sup>9</sup> gross lettable area (GLA) of retail and entertainment floorspace. It forms the focal point of the Macquarie Specialised Centre as defined in the draft Inner North Subregional Strategy.

Ron Mortlake Cabania

Macquarie Centre is operated by AMP Capital. Reflecting its subregional significance the shopping centre includes such anchor tenants as Myer, Big W, Target, Woolworths and Franklins. Macquarie Centre reported a turnover of \$482.9m<sup>10</sup> for the year to 2012. This equates to a turnover per square metre of \$5,382/sqm which was 19% below the median for all of the 88 similar sized shopping centres in Australia (centres with retail floorspace of greater than 45,000sqm GLA) in 2012. We should note that the reported turnover of the centre fell from \$554m in 2010 largely as a result of the opening of Top Ryde Shopping Centre.

The City of Ryde approved a development application (DA) in February 2009 for an extension to Macquarie Centre. This comprised an additional 35,000sqm of retail floorspace on the site<sup>11</sup>. The expansion will include provision for a

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Woolwich

Henley

<sup>8</sup> Source: Googlemaps

<sup>&</sup>lt;sup>9</sup> Source: Property Council of Australia Shopping Centre Database NSW/ ACT 2012/13

<sup>&</sup>lt;sup>10</sup> Source: Shopping Centre News Big Guns 2013

<sup>&</sup>lt;sup>11</sup> Source: Macquarie Shopping Centre Expansion Stage 1, August 2012

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new David Jones store (14,664sqm), a new supermarket (3,891sqm), a fresh food market and specialty stores (16,396sqm) and 1,050 car parking spaces<sup>12</sup>. Construction has commenced<sup>13</sup>.

#### Olympic Park- Rhodes

The Specialised Centre comprises two separate precincts located in Olympic Park and Rhodes.

Retailing in Rhodes comprises the Rhodes Shopping Centre which was developed in 2004 and is owned and operated by Mirvac. It comprises 51,000sqm of retail floorspace of which 26,000sqm (51%) is occupied by IKEA <sup>14</sup>. The residual 25,000sqm is occupied by a range of retailers including Target (3,800sqm), Coles (3,500sqm) and Reading Cinemas (2,800sqm)<sup>15</sup>. Rhodes is situated approximately 5km or a 7 minute drive south west of the Subject Site<sup>16</sup>, accessible via Concord Road.

According to Shopping Centre News (2013), Rhodes Shopping Centre (excluding IKEA) achieved a turnover of \$171m in the October 2011 to September 2012 period<sup>17</sup>. Note that this figure excludes the turnover of IKEA, in order to allow trading comparison with other similar sized centres. This equates to a turnover of \$7,053/sqm, which ranks it 46th of 99 similar sized centres in Australia (centres with GLA retail floorspace of 20,000sqm to 45,000sqm). This is marginally below the median of \$7,093/sqm.

Given the presence of the IKEA store (one of only two such stores in Sydney with the other in Tempe), Rhodes Shopping Centre is a destination centre. As a result, the centre would benefit from less frequent shoppers who travel from further afield to visit IKEA, and would result in dual and incidental shopping (e.g. visit IKEA and pick up a few items at Coles).

We understand that Development Application (DA) consent for 12,345sqm of additional mixed-use floorspace at Rhodes Shopping Centre has been approved but has yet to be implemented 18.

# 3.3 TOWN CENTRES

#### Ryde

Ryde Town Centre, also known as 'Top Ryde', is located approximately 2km or a 4 minute drive <sup>19</sup> north-west of the Subject Site. Retailing in the centre is focused on the recently developed Top Ryde Shopping Centre which provides some 78,000sqm of retail and leisure floorspace. It is anchored by a Myer department store (10,500sqm<sup>20</sup>), Woolworths, Big W, JB Hi-Fi, ALDI, Supa IGA and Dan Murphy's in addition to providing leisure related floorspace. Residential development in the town centre is continuing.

<sup>12</sup> Source: Cordell's

<sup>13</sup> Source: http://www.macquariecentre.com.au/Community/Your-centre.aspx

<sup>&</sup>lt;sup>14</sup> Source: Rhodes Shopping Centre Profile, Mirvac (January 2011)

<sup>&</sup>lt;sup>15</sup> Source: Property Council of Australia Shopping Centre Database NSW/ ACT 2012/13

<sup>&</sup>lt;sup>16</sup> Source: Googlemaps

<sup>&</sup>lt;sup>17</sup> Source: Shopping Centre News Little Guns 2012

<sup>&</sup>lt;sup>18</sup> Source: Canada Bay Local Planning Strategy 2010-2030, City of Canada Bay (2010)

<sup>19</sup> Source: Googlemaps

<sup>20</sup> Source: Welcome Myer Top Ryde, Myer

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No trading information on the performance of Top Ryde Shopping Centre has yet been made publically available. It is believed to be trading satisfactorily based on observations and an assessment of its trading influence.

#### Lane Cove

Lane Cove is located 8.7km or an 11 minute drive north-east<sup>21</sup> of the Subject Site. It is focused predominately on Burns Road and Longueville Road. The centre contained in the order of 12,000sqm of strip retail at the time of the Hill PDA's previous survey (2007), including a Coles supermarket (2,100sqm). Since the Hill PDA survey a Woolworths supermarket (3,325sqm) and specialty stores (1,454sqm)<sup>22</sup> have been developed in the centre increasing the quantum of floorspace provided to a little under 17,000sqm.

In addition to retail, the centre also includes a library, community centre, leisure centre and Lane Cove Council offices. No trading information on the performance of this centre is available but the recent development of a Woolworths supermarket and associated specialty stores indicates that the centre is deemed to have commercial potential.

### **Eastwood Town Centre**

Eastwood currently provides approximately 51,000sqm<sup>23</sup> of retail floorspace of which 11,000sqm is provided in Eastwood Shopping Centre (anchored by a 1,830sqm Woolworths) and 5,000sqm is associated to Eastwood Village Square (anchored by a 1,500sqm Franklins)<sup>24</sup>. The remaining floorspace is provided in strip retail. In addition to retail floorspace, the centre contains some 37,000sqm of commercial floorspace<sup>25</sup>. An ALDI supermarket has recently been developed on Rowe Street. Eastwood is located approximately 6.4km or a 12 minute drive north west of the Subject Site<sup>26</sup>.

The exact mix of retail floorspace is unknown. A Hill PDA survey in 1997 identified 25% of the retail space to be food retailers including restaurants. This proportion is likely to have increased over the past decade with an increase in Asian supermarkets, specialty foods and restaurants. The predominance of Asian supermarkets is notable. In many cases they have taken over large retail tenancies previously occupied by national retailers.

Redevelopment of the existing Eastwood Shopping Centre was approved in February 2009 although this has yet to be implemented. This will result in an additional 500sqm of retail floorspace being provided and includes the expansion of the existing Woolworths to 3,200sqm and allows for mini major retail tenants<sup>27</sup>.

There is no published trading information concerning the performance of Eastwood Shopping Centre, Eastwood Village Square or other retail facilities. Historically it is recognised that the centre suffered significantly with the opening of Macquarie Centre, however, the increase in Asian retailers revitalised the centre into what it is today, and gave it a point of difference to surrounding locations. Anecdotal evidence suggests the centre is currently trading well. The shopping centre is busy, available car parking is constantly occupied, and there are low vacancies (especially on the western side of the railway station).



<sup>&</sup>lt;sup>21</sup> Source: Googlemaps

<sup>&</sup>lt;sup>22</sup> Source: http://www.lanecove.nsw.gov.au/Living%20in%20the%20Area/Current%20Issues/LaneCoveMarketSquare.htm

<sup>&</sup>lt;sup>23</sup> Source: City of Ryde Local Planning Study 2010 plus additional 4,450sqm of retail floorspace recently developed on the former Complete Hardware site on Rowe Street

<sup>&</sup>lt;sup>24</sup> Source: Property Council of Australia Shopping Centre Database NSW/ ACT 2012/13

<sup>&</sup>lt;sup>25</sup> Source: City of Ryde Employment Centres Study (Mecone, 2009)

<sup>26</sup> Source: Googlemaps

<sup>&</sup>lt;sup>27</sup> Source: City of Ryde Employment Centres Study 2009 (Mecone, 2009)

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### 3.4 VILLAGE CENTRES

#### Gladesville Village Centre

The Gladesville Shopping Village is located on Flagstaff Street and consists of a Coles supermarket (2,530sqm) and 27 specialty shops<sup>28</sup>. In total the centre provides in the order of 5,070sgm of retail floorspace (GLA)<sup>29</sup>. Further strip retail is provided outside of the Gladesville Shopping Village along Victoria Road. In total, the centre provides an estimated 14,000sqm (GLA) retail floorspace<sup>30</sup>.

Gladesville Shopping Village is currently trading well due to a lack of competition - particularly from supermarkets in the surrounding area. The catchment is not well served by neighbourhood centres and is also constrained by proximity to waterways and limited arterial access roads. An extended shopping centre of 8,200sqm is supportable in this location as suggested by the Gladesville Shopping Village Assessment by DEEP Consultants in 2006.

We understand that the potential redevelopment of both the Gladesville Shopping Village and the former Clock Tower site have been mooted, to include retail and residential floorspace, but no DA consent has yet been granted for either scheme.

Outside the indoor centre Gladesville has almost 10,000sqm of strip shops, mainly fronting Victoria Road. Many of these shops appear to be underperforming particularly on the fringes of the centre. Gladesville also contains a few bulky goods retailers along Victoria Road. This gives Gladesville a dual character to its retailing centre with the strip shops deriving an independent momentum from the adjacent enclosed centre facing Flagstaff Street. It also contains some representation of cafes and restaurants.

This centre is situated approximately 1.4km or a 4 minute drive31 south east of the Subject Site along Victoria Road.

#### West Ryde

West Ryde Village Centre is located approximately 4km by road or an 8 minute drive north-west of the Subject Site<sup>32</sup>. Retailing in West Ryde Village Centre is focused upon West Ryde Marketplace (6,100sqm) which is anchored with a full-line Woolworths supermarket of 4,200sqm<sup>33</sup>. Based on previous Hill PDA floorspace surveys, outside of the Woolworths Marketplace there is around 16,000sqm of strip retail floorspace.

A Coles supermarket (3,467sqm) and additional specialities (548sqm) has recently (May 201334) opened in West Ryde<sup>35</sup>.





<sup>&</sup>lt;sup>28</sup> Source: Property Council of Australia Shopping Centre Database NSW/ ACT 2012/13

<sup>&</sup>lt;sup>29</sup> Source: Property Council of Australia Shopping Centre Database NSW/ ACT 2012/13

<sup>30</sup> Source: Employment and Centres Study, City of Ryde (Mecone, October 2010)

<sup>31</sup> Source: Googlemaps

<sup>32</sup> Source: Googlemaps

<sup>33</sup> Source: Property Council of Australia Shopping Centre Database NSW/ ACT 2012/13

<sup>34</sup>Source: http://www.westrydeurbanvillage.com.au/index.php

<sup>35</sup> Source: Cordell's Construction Data 2012

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Published trading data for West Ryde Marketplace indicates that it achieved a turnover of \$75.61m for the August 2011 to July 2012 period<sup>36</sup>. This equates to a floorspace turnover of \$13,917/sqm and some 70% greater than the median of \$8,172/sqm for similar sized centres in Australia (centres of between 6,000sqm and 20,000sqm GLA retail floorspace). This ranks West Ryde 9th nationally out of the 166 similar sized centres listed by SCN. This indicates that the centre is trading very strongly.

#### Meadowbank Village Plaza

Meadowbank Village Plaza is a new centre and part of the Shepherds Bay redevelopment. It includes a Supa IGA, ALDI foodstore, a medical centre and additional specialty retailers<sup>37</sup>. It is located just southeast of the train station, 4km west of the Subject Site.

### Boronia Park Small Village Centre

Retailing in Boronia Park Small Village Centre is focused on the western side of Pittwater Road (130-150 Pittwater Road), either side of the junction with Thompson Street. It is situated 1.7km or a 5 minute drive<sup>38</sup> east of the Subject Site along Ryde Road. Boronia Park provides an estimated 1,000sqm<sup>39</sup> of retail floorspace, including a Woolworths Metro supermarket (664sqm<sup>40</sup>). It had no vacancies at the time of the City of Ryde's Employment and Centres Study (2009) and was deemed to be a busy, vibrant centre by Council<sup>41</sup>.

#### **Putney Small Village Centre**

Putney is located 1.7km or a 3 minute<sup>42</sup> drive west of the Subject Site, adjacent to the junction of Morrison Road and Charles Street. It provides around 1,000sqm of retail floorspace<sup>43</sup> including an IGA supermarket of around 500sqm<sup>44</sup>. It performs a top-up shopping role to the surrounding residential population. It had no vacancies at the time of the City of Ryde's Employment and Centres Study (2009) and was noted as being a very busy, vibrant shopping centre by Council<sup>45</sup>.

# 3.5 NEIGHBOURHOOD CENTRES

### Pittwater Road Gladesville

This small centre is located 1.4km or a 3 minute drive<sup>46</sup> east of the Subject Site on Pittwater Road. It comprises a parade of shops between 20-32 Pittwater Road, immediately north of the junction with Harvard Street. It provides around 500sqm of retail floorspace (GLA)<sup>47</sup>.



<sup>35</sup> Source: Shopping Centre News Mini Guns 2012

<sup>37</sup> Source: http://www.villageplaza.com.au/

<sup>38</sup> Source: Googlemaps

<sup>39</sup> Source: Employment and Centres Study, City of Ryde (Mecone, October 2010). Note: referred to as 'Pittwater Road Shops' in the Employment and Centres Study

<sup>40</sup> Source: Hunters Hill Retail Development Economic Impact Assessment, (Hill PDA, September 2008)

<sup>&</sup>lt;sup>41</sup> Source: Local Planning Study, Small Centres Appendices (December 2009)

<sup>42</sup> Source: Googlemaps

<sup>&</sup>lt;sup>43</sup> Source: Employment and Centres Study, City of Ryde (Mecone, October 2010)

<sup>44</sup> Source: Measured off Nearmap

<sup>&</sup>lt;sup>45</sup> Source: Local Planning Study, Small Centres Appendices (December 2009)

<sup>46</sup> Source: Googlemaps

<sup>&</sup>lt;sup>47</sup> Source: Measured off Nearmap

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#### Tennyson Rd Tennyson Point

Tennyson Road Neighbourhood Centre is a modest size and caters for localised shopping provision only. It is situated around 550m or a 1 minute drive<sup>48</sup> south of the Subject Site on Tennyson Road. It comprises one freestanding retail unit, and a Foodworks convenience store of approximately 150sqm49 on the corner of Tennyson Road and Morrison Road.

# 3.6 PLANNED/ PIPELINE DEVELOPMENT

Hill PDA is aware of the following proposals which may implicate retail demand in Gladesville:

- Rezoning of a site from IN2 Light Industry to B5 Business Development to facilitate the development of a Bunnings Warehouse of 15,255sqm and further bulky goods retail of 21,885sqm is proceeding at 461 Victoria Road, Gladesville<sup>50</sup>.
- In addition to the expansion of Macquarie Centre, we are aware that DA consent has been granted for the change of use and internal fitout for a 1,122sqm tenancy at 297-307 Victoria Road<sup>51</sup>. This would facilitate the occupation of this unit for a supermarket and restaurant to be operated by Piave Market Fresh Pty Ltd.
- DA consent has been granted, and construction is ongoing for a mixed use development at 297-307 Victoria Road, Gladesville, incorporating ground floor retail of 1,190sqm and 32 residential units52.
- DA consent has also been granted for a mixed use development at 1-9 Monash Road and 407-417 Victoria Road, close to the Subject Site on the north-eastern side of Victoria Road, which includes 70 dwellings and 2,520sgm of retail floorspace on the ground floor<sup>53</sup>. The use of this retail floorspace has not been specified.

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<sup>48</sup> Source: Googlemaps

<sup>49</sup> Source: Measured off Nearmap

<sup>50</sup> Source: Measured off Nearmap

<sup>51</sup> Source: Cordells

<sup>52</sup> Source: Cordells

<sup>53</sup> Source: Cordells

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# 4. DEMAND FOR RETAIL FLOORSPACE

This Chapter examines the justification of the proposed retail floorspace on the Subject Site in the context of demand. It begins by defining a trade area for the proposed development and undertakes demographic analysis and assesses population growth within this area. Subsequently the Chapter undertakes household expenditure modelling to quantify growth in retail demand. The turnover of the proposed development is then estimated and considered in the context of demand.

### 4.1 RETAIL TRENDS

Over the past three decades significant changes have occurred in the retail industry such as the introduction of new technologies, the ageing of the population, increased female participation in the workplace and changing consumer preferences. These changes have placed increased pressure on many existing retail centres to either adapt or lose market share.

In the 1980's, Australian retail floorspace totalled approximately 1.8sqm per person (excluding commercial space and automotive retailing), which was roughly divided into equal components of regional, district and neighbourhood/local centres. Today we have around 2.1sqm per capita due to increasing affluence and consumerism.

In particular economic rationalism from 1991 to 2006 resulted in considerable growth in living standards and an increase in household income disparity. During this period retail spend per person grew at almost 2% per annum in real terms. Families became typically cash-rich/time-poor or time-rich/cash-poor. Very few families were both time-rich/cash-rich, providing interesting challenges for the retail industry. Households in The Hills Shire are aspirational upper-middle class. As such they have high expenditure levels but are typically dual income and time poor.

Population growth, rising real disposable incomes and innovation and change within the retail industry have underpinned a rapid increase in the supply of retail floorspace throughout Australia. Population growth and increasing levels of disposable income have provided the means to support new retail development, but it is the innovative nature of the industry itself that has generated major increases in more and larger centres.

Without a doubt the 'Global Financial Crisis' has had an impact on the Australian retail property markets in the past couple of years. The period from late 2007 to the present has been characterised by weaker consumer sentiment and poor leasing and investment markets (i.e. weak income and capital returns). This trend was common to most commercial markets nationwide.

Retail spend per capita has stagnated since 2006 due to a combination of factors including the credit squeeze, a propensity for households to save more and reduce debt, a strong Australian dollar, relatively high interest rates compared to our trading partners and reduced job certainties.

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Also the rise of internet shopping is providing challenges for the retail industry. Whilst this market is relatively small at around 4% of total retail sales<sup>54</sup> it is expected to increase to as high as 10% to 15% over the next decade or so based on industry sources.

The long term trends of rising affluence, consumerism and technological change are likely to ensure that retail expenditure will continue to increase over the long term owing to real growth in retail spend per capita. The current economic climate of low consumer sentiment is viewed as a short term condition rather than a long term one. In the future it is inevitable that there will be periods of economic growth and adjustment.

### 4.2 TRADE AREA IDENTIFICATION

To assess retail demand a trade area must first be defined for the proposed development. For the purpose of this assessment, the trade area can be understood as the geographical area where residents would spend the majority of their regular shopping (in particular food, groceries and liquor) at the proposed retail facilities.

Within this context, the extent of the trade area is dependent upon a range of factors including:

- The strength and attraction of the centre in question, determined by factors such as the composition, layout, ambience/atmosphere and car parking in the centre;
- Competitive retail centres, particularly their proximity to the subject centre and respective sizes, retail offer and attraction:
- The location and accessibility of the centre, including the available road and public transport network and travel times; and
- The presence or absence of physical barriers, such as rivers, railways, national parks and freeways.

Having regard to the above, we defined a Main Trade Area (MTA) based on travel zones<sup>55</sup> which incorporates an area bound by Church Street, Victoria Road and the Gladesville Hospital site. This area comprises a relatively self contained trade area. The trade area comprises all of the Tennyson Point and Putney suburbs and parts of the Ryde and Gladesville suburbs.

The extent of the MTA is shown in Figure 3.

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<sup>54</sup> Source: Retail in the Spotlight Forum, Property Council of Australia 17/11/2011

<sup>&</sup>lt;sup>55</sup> Travel Zone – a small geographic area used as the basis for Bureau of Transport Statistics (formerly Transport Data Centre) modelling and data analysis. Travel Zones provide a level of analysis between Census Collection District and Statistical Local Areas as defined by the Australian Bureau of Statistics.

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Figure 3 - Main Trade Area for Retail Facilities on the Subject Site

Sydney

Huntley Cove

Broad Site

Trade Area

Source: Map produced by Hill PDA using MapInfo 11.5 software and Microsoft Bing © 2011 Microsoft Corporation

Victoria Road is a busy arterial roadway. It is a barrier to convenience and an impediment to movement to the north and east of the MTA and thus bounds the MTA in these directions. The Parramatta River forms a natural barrier to south west of the MTA. Church Street is also a busy vehicular route and bounds the north west of the MTA. The MTA extends to Punt Road in the south east which forms the boundary with the Gladesville Hospital site. Church Street is a significant barrier due to its traffic and the inability to turn right south of Victoria Road.

Currently the MTA is not well-served by convenience retail provision. The only existing centres are Putney Small Village (1,000sqm GLA retail floorspace) and Tennyson Road Neighbourhood Centre (150sqm GLA retail floorspace), plus limited strip retail in Gladesville to the west of Tennyson Road. The MTA does not contain any full-line supermarkets and residents must therefore travel outside of it to meet their weekly main food shopping needs. The majority of convenience expenditure is currently likely to be directed towards Gladesville Shopping Village (which is trading strongly) and Top Ryde.

# 4.3 DEMOGRAPHIC ANALYSIS

Demand for retail floorspace is dependant not only on the number of households in the MTA but also the demographic characteristics of those households. This Section examines data from the 2011 ABS Census for the four suburbs which, in total or in part, constitute the MTA (Gladesville, Putney, Ryde, Tennyson Point). This

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demographic data is then compared to Ryde LGA and Greater Sydney<sup>56</sup> in order to provide a snapshot of the demographic characteristics of the resident population of the MTA.

The table below provides a summary of the population and dwelling characteristics of the four suburbs which constitute the MTA based on 2011 ABS Census data.

Table 2 - Main Trade Area Population and Dwelling Characteristics (2011)

Characteristic	Gladesville	Putney	Ryde	Tennyson Point	Ryde LGA	Greater Sydney
Population and Dwellings						
Total Population	10,973	4,076	21,598	1,118	103,040	4,391,674
Total Private Dwellings	4,857	1,432	8,836	424	41,676	1,720,333
Occupied Private Dwellings	4,373	1,329	8,001	382	37,677	1,521,398
Occupied Private Dwellings (%)	90%	93%	91%	90%	90%	88%
Average Household Size	2.4	3.0	2.6	2.8	2.6	2.7
Age Distribution						
0-14	19%	21%	18%	19%	17%	19%
15-29	17%	18%	20%	14%	22%	21%
30-44	25%	19%	24%	19%	23%	23%
45-59	19%	23%	19%	21%	19%	19%
60-74	12%	12%	12%	19%	12%	12%
75+	8%	7%	9%	7%	8%	6%
Median Age	38	40	37	44	36	36

Source: ABS Census (2011)

From the above table it can be determined that:

- The proportion of occupied private dwellings in the four suburbs was equal to, or greater than, the proportion in Ryde LGA and above that recorded in Greater Sydney;
- The average household size in the four suburbs varied from 2.4 in Gladesville to 3.0 in Putney. With the exception of Gladesville, the other suburbs all had comparable or greater average households sizes than Ryde LGA;
- The four suburbs contained a greater proportion of residents in the youngest age cohort (0-14 years of age) and the oldest age cohort (75 years or older) compared to Greater Sydney; and
- Residents of the four suburbs were on average older than those in either Ryde LGA or Greater Sydney.

The following table details household characteristics of residents in the four suburbs.

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<sup>&</sup>lt;sup>56</sup> Source: Based on the ABS Greater Capital City Statistical Areas (GCCSAs) for Sydney– The GCCSAs represent the socio-economic extent of each of the eight State and Territory capital cities The GCCSAs combined with the 'Rest of State' regions cover the whole of Australia without gaps or overlaps and aggregate directly to State/Territory

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Table 3 - Main Trade Area Household Characteristics (2011)

Characteristic	Gladesville	Putney	Ryde	Tennyson Point	Ryde LGA	Greater Sydney
Home Ownership						
Owned or Being Purchased	63%	83%	61%	84%	63%	65%
Rented	35%	15%	36%	14%	34%	32%
Household Structure		_				
Family Households	64%	82%	70%	94%	69%	73%
Lone Person Households	32%	16%	26%	3%	25%	23%
Group Households	3%	2%	5%	3%	5%	4%
Family Type						
Couple family w. children	49%	60%	49%	56%	49%	49%
Couple family w/o children	36%	26%	34%	33%	35%	34%
One parent family	14%	12%	15%	9%	13%	16%
Other family	2%	1%	2%	2%	2%	2%
Dwelling Type				_		
Separate house	52%	87%	55%	81%	53%	61%
Townhouse	9%	12%	12%	18%	15%	13%
Flat-Unit-Apartment	39%	1%	33%	1%	32%	26%

Source: ABS Census (2011)

#### The data presented above indicates that:

- There is a significant variation in home ownership across the four suburbs. The proportion of households who owned or were purchasing their home in Gladesville and Ryde was comparable to, or lower than, the average for Ryde LGA. However, the Putney and Tennyson Point suburbs recorded a significantly greater proportion of home owners compared to Ryde LGA;
- Possibly reflective of the greater levels of home ownership, Putney and Tennyson Point recorded a much greater than average proportion of family households compared to the Ryde LGA and Greater Sydney. The proportion of family households in Ryde was marginally greater than the Ryde LGA average, whilst the proportion in Gladesville was below average and a correspondingly higher proportion of lone person households was recorded in this suburb;
- The proportion of couple families with children was above average in Putney and Tennyson Point when compared to the Ryde LGA and Greater Sydney average and accounted for most family types in these suburbs. In Gladesville and Ryde the proportion of family households was lower and comparable to the average for the Ryde LGA and Greater Sydney;
- Separate houses were the dominant dwelling type in all of four suburbs but accounted for a significantly greater proportion of dwellings in Putney and Tennyson Point. Gladesville and Ryde both recorded above average proportions of flats-units-apartments when compared to the Ryde LGA and Greater Sydney.

The following table identifies the employment and income characteristics for the four suburbs, Ryde LGA and Greater Sydney.

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Table 4 - Main Trade Area Employment and Income Characteristics (2011)

Characteristic	Gladesville	Putney	Ryde	Tennyson Point	Ryde LGA	Greater Sydney
Labour Force by Occupation						
Managers	17%	18%	13%	23%	13%	13%
Professionals	31%	29%	26%	27%	30%	24%
Technicians & Trade Workers	8%	10%	12%	9%	10%	11%
Community & Personal Services Workers	8%	6%	8%	7%	7%	8%
Clerical and Administrative Workers	16%	18%	16%	16%	16%	15%
Sales Workers	7%	9%	8%	8%	8%	8%
Machinery Operators & Drivers	2%	2%	4%	3%	3%	5%
Labourers	5%	4%	6%	2%	5%	7%
Inadequately described or N.S.	2%	2%	2%	0%	2%	2%
Unemployment	4%	3%	5%	4%	6%	6%
Weekly Household Income						
\$0-\$599	19%	14%	20%	16%	19%	18%
\$600-\$1,249	19%	14%	22%	15%	21%	21%
\$1,250-\$2,499	24%	21%	26%	21%	26%	27%
\$2,500-\$3,999	23%	27%	18%	26%	20%	18%
\$4,000+	7%	12%	5%	12%	6%	5%
Partial income stated	6%	9%	7%	9%	7%	8%
All incomes not stated	2%	2%	2%	2%	2%	2%
Median Weekly Household Income	\$1,558	\$2,154	\$1,380	\$2,057	\$1,466	\$1,447

ABS Census (2011)

From the above table, the following can be determined:

- The proportion of managers and professionals in the four suburbs was above the average for Greater Sydney and in most cases was also above that recorded for the Ryde LGA;
- The proportion of blue collar workers employed as machinery operators and drivers or labourers in the four suburbs was below average for the Ryde LGA and for Greater Sydney;
- The rate of unemployment in the four suburbs was below average for the Ryde LGA and for Greater Sydney;
- With the exception of Ryde, the remaining four suburbs recorded a lower proliferation of low earning households earning less than \$1,250 per week;
- In terms of higher earners, it is notable that both Putney and Tennyson Point are affluent suburbs with the proportion of high earning households with an income of \$4,000 or greater per week being twice the average for Ryde LGA and more than twice that of Greater Sydney; and
- With the exception of Ryde, all of the four suburbs recorded a median weekly household income which was greater than the Ryde LGA and the Greater Sydney average.

In summary, the demographic characteristics of the Gladesville and Ryde suburbs are broadly comparable to those of Ryde LGA with a mixture of household types and a range of incomes being recorded. By contrast residents of Putney and Tennyson Point recorded much greater levels of affluence reflected by greater than



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average incomes, greater home ownership, a greater proportion of family households and of detached dwellings. Greater disposal incomes lead to greater levels of discretionary retail spending which in turn lead to above average demand for retail floorspace.

To some extent this reflects the smaller scale of the Putney and Tennyson Point suburbs which contained 4,076 residents and 1,118 residents respectively at the time of the 2011 ABS Census, compared to 10,973 residents in the Gladesville suburb and 21,598 residents in the Ryde suburb.

### 4.4 POPULATION PROJECTIONS

MTA population projections are sourced from the NSW Bureau of Transport Statistics (BTS). These were based on the 2006 Census and were published in August 2012, constituting the latest projections available. The population projections for the MTA are shown in Table 5.

An additional allowance has been made for new residents on the Subject Site which would result from the proposed rezoning and subsequent redevelopment. No allowance for the redevelopment of the Subject Site has been made in the BTS projections. The estimated number of residents has been calculated based on 404 units being developed and the 2011 ABS Census-based average unit occupancy rate for the City of Ryde LGA of 1.9 persons. This leads to an estimated 768 residents living on-site post development<sup>57</sup>. For the purposes of this Study we have assumed that half of these units would be occupied by 2016 and that all would be occupied by 2021.

Table 5 - Population Projections and Growth in the Trade Area

	Forecast Population					Growth 2	011-2031
	2011	2016	2021	2026	2031	Persons	Average Per Annum
BTS Forecasts*	13,221	14,167	15,717	16,634	17,530	4,309	1.4%
Subject Site**	-	384	768	768	768	768	-
Total	13,221	14,551	16,485	17,402	18,298	5,077	1.6%

Source: \* Population and Employment Travel Zone Forecasts - August 2012, NSW Bureau of Transport Statistics (BTS). Based on travel zones 2523, 2530, 2529, 2528, 2526, 2525 \*\* Hill PDA

The MTA contained an estimated 13,221 residents in 2011. This is forecast to increase by 5,058 residents to 18,279 residents in 2031. This equates to a per annum average growth rate of 1.6% between 2011 and 2031. We have used these population forecasts to inform our expenditure modelling.

Note that the 3,300sqm of assisted living floorspace would accommodate additional residents over and above this level. The purpose of deriving these population projections is to inform the retail demand modelling and as such we have assumed for the purposes of this Study that assisted living residents will not create demand for local goods and services. Given that assisted living would largely be provided with nursing care, housekeeping and prepared meals in-house, demand for retail services off-site from residents is assumed to be limited. Staff in the assisted living facility would support demand for local retail goods and services.

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<sup>&</sup>lt;sup>57</sup> Note: The seniors living units range from 1- to 3-bed. Given that the ABS average for the City of Ryde LGA includes other seniors living facilities within the LGA, we consider it reasonable to apply the same persons per unit rate to both the seniors living and the market residential units proposed.

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# 4.5 FORECAST HOUSEHOLD RETAIL EXPENDITURE IN THE TRADE ARFA

Households within the MTA generate retail expenditure, some of which will be available to be captured by retail facilities on the Subject Site. For the purposes of this Study estimated household expenditure was sourced from:

- The ABS Household Expenditure Survey (HES) 2003-04 which provides household expenditure by broad commodity type by household income quintile; and
- MarketInfo 2009 which is generated by combining and updating data from the 2006 Census and ABS HES Survey<sup>58</sup>.

For the purposes of this Study future residents on the Subject Site are assumed to generate the same per capita expenditure levels as residents in the trade area.

MarketInfo combines the data from the Census, ABS HES Survey and other sources to derive total ABS HES Survey by commodity type. This data, which was validated using taxation and national accounts figures, quantifies slightly more expenditure than the ABS HES Survey. Total expenditure generated by residents in the trade area is shown in the following table.

Table 6 - Main Trade Area Expenditure Forecast by Broad Commodity Type (\$m2009)

			- V ·		
Commodity Type	2011	2016	2021	2026	2031
Food, Groceries & Liquor take-away*	61.3	71.2	85.2	95.0	105.5
Food Catered	28.5	33.2	39.7	44.2	49.1
Apparel	15.1	17.5	21.0	23.4	26.0
Bulky Goods	25.4	29.6	35.4	39.4	43.8
Other Personal & Household Goods	43.5	50.6	60.5	67.5	74.9
Personal Services	6.4	7.4	8.9	9.9	11.0
Total Trade Area	180.2	209.5	250.7	279.5	310.4

<sup>\*</sup> Excludes Liquor on Premises and Cinema Expenditure

The ABS Retail Survey 1998-99 (Cat No. 8624.0) provides a cross tabulation of store type (defined by ANZIC), by commodity type. Multiplying the percentages in the cross tabulation by total dollars spent generates household expenditure by retail store type. Turnover by retail store type generated by household expenditure is provided in Table 7.

Forecast assumes 1.1% growth in real retail spend per capita per annum in line with historic trend since 1986.

<sup>58</sup> Note: MarketInfo combines the data from the Census, HES and other sources to derive total HES by commodity type. This data, which was validated using taxation and national accounts figures, quantifies around 14% more expenditure than the ABS HES Survey. The ABS Retail Survey 1998-99 (Cat No. 8624.0) provides a cross tabulation of store type (defined by ANZIC), by commodity type. Multiplying the percentages in the cross tabulation by total dollars spent generates household expenditure by retail store type.

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Table 7 - Main Trade Area Expenditure Forecast by Retail Store Type (\$m2009)

		<b>∀</b> 1			
Retail Store Type	2011	2016	2021	2026	2031
Supermarkets & Grocery Stores	54.5	63.3	75.7	84.5	93.8
Specialty Food Stores	18.1	21.1	25.2	28.1	31.2
Fast-Food Stores	15.5	18.0	21.6	24.0	26.7
Restaurants, Hotels and Clubs*	18.4	21.4	25.6	28.5	31.6
Department Stores	16.2	18.9	22.6	25.2	28.0
Clothing Stores	10.5	12.2	14.6	16.3	18.1
Hardware and Bulky Goods	25.5	29.6	35.4	39.5	43.9
Other Personal & Household Goods Retailing	27.6	32.1	38.4	42.8	47.5
Selected Personal Services**	6.4	7.4	8.9	9.9	11.0
Total Trade Area	192.6	223.9	268.0	298.8	331.8

<sup>\*</sup> Tumover relating only to consumption of food and liquor (excludes all other types of revenue such as accommodation, gaming and gambling) \*\*
\*\*Selected Personal Services includes hair and beauty, laundry, clothing hire and alterations, shoe repair, optical dispensing, photo processing and hire of videos

Based on the table above the total expenditure generated by residents on the MTA will grow from \$193m in 2011 to \$332m in 2031. This equates to an increase of \$139m or 72% over the period.

Note that the total expenditure generated by residents by retail store type (\$193m in 2011) is greater than that by commodity type (\$180m in 2011). This is because retail stores derive a small proportion of expenditure from other sources, such as trade-related sales and rentals, which do not form part of household expenditure by commodity type.

# 4.6 ESTIMATED TURNOVER OF PROPOSED DEVELOPMENT

Hill PDA has assumed that a 5,800sqm (GLA) centre on the Subject Site would trade at close to industry benchmark levels for metropolitan areas and above financially sustainable levels. The Study assumes that the centre would be fully developed and would have achieved a settled pattern of trading in 2016.

The table below applies target turnover rates to proposed floorspace to derive marginal turnover<sup>59</sup>.

Table 8 - Retail Turnover Subject Site in 2016 (\$2009)

Use	Floorspace (sqm GLA)	Target Turnover (\$/sqm)*	Total Turnover (\$m)
Supermarket	4,000	10,281	41.1
Mini-Major	900	4,883	4.4
Cafe	150	4,626	0.7
Specialty Food	250	7,967	2.0
Non-Food Specialties	250	4,883	1.2
Personal Services	250	3,341	0.8
Total Shopfront Retail	5,800	•	50.3

<sup>\*</sup> Source: Various including ABS Retail Survey 1998-99 indexed to 2011 dollars, Shopping Centre News, Urbis Retail Averages, various consultancy studies and Hill PDA research. Target turnover levels are expected to increase at a rate of 0.55% per annum above the CPI rate in line with the historic trend.



Forecast assumes 1.1% growth in real retail spend per capita per annum in line with historic trend since 1986.

<sup>&</sup>lt;sup>59</sup> Derived from Tennyson Road – Rezoning Application Schedule Scenario A, Grimshaw Architects (26/06/2013). Note Hill PDA has assumed that the 750sqm of 'specialty retail' would be split equally between 'specialty food', 'non-food specialities' and 'personal services'. The Mini-Major is assumed to be a non-food retailer such as a pharmacy.

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Based on our calculations the retail component of the proposed development would turnover \$50m retail sales in 2016 (\$2009).

### 4.7 Sources of Expenditure

#### Residents in the Trade Area

We estimate that of the \$50m turnover of the proposed development around 70-75% (\$35m to \$37.5m) would be derived from residents in the MTA. This is based on the lack of supermarket and grocery store provision within the MTA, the easy accessibility of the Subject Site from within this area and its location at a main vehicular entrance to the MTA via Victoria Road.

As previously discussed the majority of supermarket and grocery store related expenditure generated by residents within the MTA escapes to centres which offer full-line supermarkets, particularly Top Ryde and Gladesville. In this context the Subject Site offers an excellent alternative for MTA residents, potentially providing a much stronger retail offer than Putney which provides only modest supermarket provision and more convenient access than either Gladesville or Top Ryde.

The capture of \$35-37.5m of expenditure from within the MTA in 2016, including \$29-31m of supermarket and grocery store related expenditure would be sustainable. Based on the total quantum of expenditure generated by residents within the MTA (Table 7) this expenditure capture would equate to 16% to 17% of expenditure generated in the MTA in 2016 or 46% to 49% of supermarket and grocery store related expenditure. These are modest rates of capture. Even with the proposed development the majority of expenditure generated by residents across all retail stores types would continue to be directed towards (modest) shopping facilities within the MTA or escape the MTA.

Growth in expenditure in the MTA equates to some \$139m between 2011 and 2031. As such, the turnover of the proposed development derived from within the MTA accounts for just 25% to 27% of expenditure growth over the 2011 to 2031 period.

### **Expenditure Capture from Beyond the Trade Area**

The proposed retail facilities on the Subject Site can also expect to capture some expenditure from outside of the MTA as a result of passing trade and commuting workers who live outside of the MTA. Victoria Road is an arterial road which carries a significant level of evening commuter traffic westbound. The Subject Site is on the left side of Victoria Road from Sydney CBD makes it an ideal location for evening commuters. It would be the only supermarket on that side of Victoria Road between Drummoyne and Ermington<sup>60</sup>. At least 25-30% of its turnover is likely to come from beyond the MTA, equivalent to around \$12.5-15m in 2016. In our view this is achievable.

#### **Existing Floorspace Undersupply and Gap Analysis**

The assessment above is based on examining total current and future expenditure levels only. Gladesville shopping centre is trading strongly due to a lack of competition in the local area and an undersupply of neighbourhood centres in its (Gladesville's) trade area. Sufficient demand was deemed to have existed for an

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<sup>60</sup> The exception is Shepherds Bay but this centre has a localised trade area and is in an inconvenient location for passing commuters.

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additional 8,200sqm of retail floorspace in the Gladesville Shopping Village (as proposed in the Gladesville Shopping Village Assessment by DEEP consultants in 2006). There has been no significant floorspace expansion since 2009. This suggests that there is current demand for additional retail facilities, particularly neighbourhood-type retail floorspace, in Gladesville's trade area which includes part of the MTA. Indeed the level of floorspace undersupply is a symptom of the modest supply within the MTA, with residents travelling to Gladesville and Top Ryde to fulfil their main food shopping needs.

Furthermore we note that a full-line supermarket is required for every 9,000-10,000 people. Given the MTA contains over 13,000 residents in 2011, forecast to increase to nearly 16,500 residents by 2021, it warrants a full-line supermarket. This is in accordance with ensuring local access to daily and weekly shopping provision for residents and reducing the need for residents to travel.

#### Conclusion

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Based on the capture rates which would be required to support the proposed development from the MTA, the turnover of the proposed development is sustainable. Even if 70-75% of the turnover of the proposed development, and the supermarket component in particular, is derived from within the MTA, the majority of expenditure would still be directed towards existing retail facilities within and outside of the MTA.

Gladesville Shopping Village has unmet demand for some 8,200sqm of additional retail floorspace. This is reflective of the lack of supermarket provision in the MTA which the proposed development would assist in addressing.

Furthermore we note that a full-line supermarket is required for every 9,000-10,000 people. Given the size of the residential population of the MTA in 2011 (13,221 residents), it warrants its own be served by a full-line supermarket.

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# 5. RETAIL IMPACT ASSESSMENT

In terms of assessing economic impacts, previous court judgements such as "Fabcot Pty Ltd v Hawkesbury City Council (97) LGERA" and "Cartier Holdings Pty Ltd v Newcastle City Council and Anor [2001] NSWLEC 170" have provided some guidance on relevant issues. The NSW Land & Environment Court has stated that Councils should not be concerned about competition between individual stores as this is a matter of fair trading. It should however concern itself with impacts in the locality.

This Chapter assesses the impact of the retail components of the proposal on existing retail centres in the locality. The EPA & Act (1979) is not clear on what is meant by locality, however for the purpose of this assessment we have assumed it to be the geographical influence of the proposal.

# 5.1 METHODOLOGY TO DETERMINE IMPACT

To assess economic impact of the proposed development Hill PDA employed the following steps in the methodology:

- Recorded reported turnover levels of the competing centres and/or estimated turnover levels based on industry benchmark turnover levels, expenditure modelling and by survey and observation (type and mix of retailers, levels of vacancies, etc) in Chapter 3;
- Estimated the turnover of proposed retail provision on the Subject Site based on industry benchmarks and having regard to trade areas and potential capture in Chapter 4;
- Redirected the turnover from competing centres utilising a gravity model;
- Measured the "point in time" impacts on competing centres as percentage shifts in turnover;
- Measured the shifts in turnover over time taking into consideration growth in expenditure generated by the respective trade areas;
- Assessed the resultant levels of turnover against industry benchmarks to ascertain whether or not any centre is likely to experience social detriment, significant closures, urban light or any other adverse impacts; and
- Considered whether or not mitigating measures would be required to limit the potential for adverse impacts, such as staging.

# 5.2 REDIRECTION OF TURNOVER FROM EXISTING CENTRES

The \$50m of retail sales captured by the proposed centre would be redirected from competing centres. In order to quantify the scope of this turnover Hill PDA prepared a bespoke gravity model.

The gravity model is based on the premise that the level of redirected expenditure from a centre is directly proportional to the turnover of that centre and indirectly proportional to the distance from the Subject Site. The level of redirected expenditure is also dependent on the similarities of retail store types (the degree of competitiveness). Given the nature of proposed retail on the Subject Site, it will redirect more turnover from supermarkets and specialty stores than from department, fashion and bulky goods stores.



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The gravity model assumes that the 32,000sqm expansion of the Macquarie Centre, the expansion of Eastwood Shopping Centre and the permitted development at 297-307 Victoria Road has been implemented by 2016.

The results are presented in the following table.

Table 9 - Redirection of Expenditure from Existing Centres (\$m2009)

	1 2	3	4	5	6	7	8	9	10
Retail Centre	Time Travel from Subject Site in minutes*	Approx. Retail Floor Space (sqm)**	Turn- over in 2011 (\$m)	Turnover in 2016 without Proposal (\$m)	Turnover in 2016 with Proposal (\$m)	Immediate Shift in Turnover (\$m)	% Shift in Turnover in 2016	Shift in turnover from 2011 to 2016 (\$m)	% Shift in turn- over 2011 to 2016
Proposed Centre					50	50			
Macquarie Park	11.5	115,150	482.9	576.3	569.8	-6.5	-1.1%	86.9	18.0%
Top Ryde	5.5	60,000	325.7	370.3	359.5	-10.7	-2.9%	33.9	10.4%
Lane Cove	11.0	16,950	106.7	115.6	112.3	-3.2	-2.8%	5.6	5.2%
Gladesville***	4.0	15,050	94.0	106.8	100.2	-6.6	-6.2%	6.3	6.7%
Boronia Park	5.0	1,000	8.8	9.7	9.1	-0.6	-6.1%	0.4	4.2%
Putney	3.0	1,000	8.0	9.1	8.3	-0.8	-8.3%	0.3	4.3%
Pittwater Road	5.0	500	2.8	3.1	3.1	0.0	-0.9%	0.3	9.9%
Rhodes	8.0	26,000	171.0	208.0	203.5	-4.6	-2.2%	32.5	19.0%
Eastwood	12.0	47,250	243.5	275.5	271.3	-4.2	-1.5%	27.8	11.4%
West Ryde	9.0	26,000	178.7	197.3	192.0	-5.3	-2.7%	13.3	7.4%
Meadowbank	9.5	5,500	44.0	49.1	46.9	-2.1	-4.3%	2.9	6.7%
Other Localities						-5.0			
TOTAL		314,400	1,666.0	1,920.8	1,925.7	0.0	0.3%	259.7	15.6%

<sup>\*</sup> Drive-time (minutes) based on Googlemaps (average to and from)

The turnover of the proposed development would be redirected from a range of other centres in the locality but particularly the closest centres which provide full-line supermarket floorspace - Top Ryde and Gladesville. Columns 7 and 8 indicate immediate or point in time shifts in turnover which would result from the proposed development. The greatest impacts in 2016 are on Gladesville Village (\$6.6m or 6.2% immediate loss of trade), Top Ryde (\$10.7m or 2.9% loss of trade), Boronia Park (\$0.6m or 6.1% loss of trade) and Putney (0.8m or 8.3% loss of trade).

There are no universal measures of significance of economic impact. There are references in various consultancy reports and statements in the NSW Land & Environment Court which suggest that a loss of trade below 5% is considered insignificant. In broad terms impacts of below 10% are considered to be within the normal competitive range. The above impacts are all below 10% and are therefore considered to be insignificant to moderate and within normal competitive range.

To also note, the impacts in Columns 7 and 8 in the above table are immediate (or point in time) impacts which do not take into account growth in trade which these centres would experience between 2011 and 2016 as a result of planned expansions, population and real expenditure growth in their respective trade areas. Columns 9 and 10 show the redirection of trade which would eventuate from the proposed development within the context of growth in trade. It reveals that all centres will experience some growth in trade over the 2011 to 2016 period notwithstanding the adverse impacts from the proposed development.

Any new retail development will result in some impact on existing centres. The crucial consideration from an economic impact perspective is the extent to which the level of impact would jeopardise the role or function of that

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<sup>\*\*</sup> Excludes non-retail commercial uses and vacant spaces

<sup>\*\*\*</sup> Includes permitted development at 297-307 Victoria Road

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centre. Where adverse impacts exist that would lead to a loss of trade, consideration of the extent to which these impacts could be absorbed by the centre is pertinent. If centres still experience growth in trade even with the proposed development being implemented, their role will not change.

As noted in Section 3.4 and 4.7 Gladesville is trading well due to a lack of competition and in recognition of its strong performance there is deemed to be capacity for the provision of additional floorspace of up to 8,200sqm of retail floorspace in the centre. Gladesville also has a function in the provision of bulky goods retail and this also would not be impacted by the proposed development. We should note that, if the proposed development were implemented, the capacity for additional retail floorspace in Gladesville would reduce, but there is still likely to be some scope for additional floorspace expansion even with the proposed development.

As a result the economic impact of the proposed development would not jeopardise the role or function of Gladesville or any other existing centre. On this basis the impacts which would eventuate from it are a matter of competition only. As such there are no grounds for refusal on the basis of economic impact.

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# 6. RESIDENTIAL MARKET DEMAND

This Chapter examines the implications of the residential component of the proposed development which would be facilitated by the proposed rezoning. We should note that housing development is recognised by State government as contributing towards economic growth.

# 6.1 RESIDENTIAL TRENDS

Australia has one of the highest rates of home ownership in the world. This can be attributed to a rapidly increasing standard of living, high rates of population growth in the immediate post WWII period, and more recently, to ageing of the population.

The key drivers to Sydney's residential property market are:

- Interest rates underpinning affordability;
- High cost of ownership forcing more people to rent maintaining a strong demand for rental properties;
- Downsizing of empty nesters, and home owners under pressure of large mortgage repayments; and
- Strong population growth from international migration and natural increase.

Australia has been experiencing a period of exceptional population growth with current rates of growth exceeding that in the decades preceding this one. As at 31 December 2011, Australia's estimated resident population had increased by 302,600 people over the past year to 22.5 million, a 1.4% increase over the year<sup>61</sup>. This is down from the peak growth rate of 2.2% in December 2008. Contrast this with the annual growth rate in the two decades prior to 2006 which averaged 1.3% per year.

As household sizes trend downwards and lone person households increase rapidly compared to other household types, more dwellings are needed particularly to cater to the ageing population.

# 6.2 Housing Supply

Industry sources report that Sydney is experiencing its lowest rate of housing growth in 50 years<sup>62</sup> with the gap between housing demand and supply worsening. According to Deloitte Access Economics, NSW has slumped from contributing more than one third of new housing in Australia to less than a fifth in a single decade, with little indication that this trend will change in the short term. To exemplify this point, between 2007 and 2008 only 15,000 additional dwellings were built in the Sydney Statistical Division in comparison to 32,000 between 1999 and 2000<sup>63</sup>.

More recently public policy think-tank the McKell Institute has indicated that, since the beginning of the Metropolitan Plan for Sydney period (1 July 2006) to 30 March 2012, some 133,975 homes should have been delivered in Sydney to be on track to achieve the housing targets set in the Metropolitan Plan 64. This compares to



<sup>61</sup> Source: 3101.0 - Australian Demographic Statistics, Australian Bureau of Statistics, December 2011 (June 2012)

<sup>62</sup> Source: Rents to soar as housing crisis worsens, Daily Telegraph March 25, 2009

<sup>63</sup> Source: Metropolitan Strategy Review, Sydney Towards 2036, NSW Government

<sup>64</sup> Source: The McKell Quarterly Homes Monitor, September 2012

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delivery of only 80,466 new homes over the period, equating to a shortfall of 53,509 homes (circa 40% fewer than required).

Housing completions in NSW peaked in 1999-2000 and have since fallen by 47% 65. Over the same period, private completions across Australia increased by 26% implying that NSW is not keeping pace with other States in terms of housing developments. This adversely impacts upon the economic competitiveness of NSW.

With particular reference to the City of Ryde, the table below indicates the number of dwelling completions over the 2000 to 2010 period.

Table 10 - City of Ryde Dwelling Completions (2000 to 2010)

	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	Total (00-10)
City of Ryde	454	440	268	467	315	397	346	288	115	328	3,418

Source: Metropolitan Development Program 2010/11 Report Inner North, NSW Department of Planning and Infrastructure (August 2011)

The general trend has been for a decline in the number of dwelling completions over the 2000/01 to 2009/10 period, with the 2008/09 year representing the lowest number of completions over the period (115). The cumulative total of dwelling completions between 2000/01 and 2004/05 (1,944) was 32% greater than the cumulative total dwelling 2005/06 and 2009/10 (1,474) despite demand having increased over the period. We should note that these completions include only a small allowance for the ongoing redevelopment of Top Ryde.

The downturn in housing supply in the City of Ryde, the Sydney Metropolitan Area and NSW has a number of short and long term impacts on the economy:

- Impact on house prices and inflation A mismatch between housing supply and demand has led to sustained house price growth in NSW. Sydney has persistently had the highest house prices in the country, with the median house price in Sydney for the September 2012 quarter being \$580,000 compared to \$470,900 in Melbourne for the same period<sup>66</sup>. The latest data available from Housing NSW indicates that median sales prices for all dwellings in the City of Ryde (\$750,000) are well above average for the Sydney Greater Area (\$555,000) by some \$195,000 or 35%<sup>67</sup> in the December 2012 quarter. Median sales prices in the Gladesville postcode (2111) are higher still at \$845,000 for the December 2012 quarter<sup>68</sup>;
- Labour supply and population growth Restrained housing supply and higher house prices have been shown to reduce overseas migration and increase interstate out-migration. This in turn impacts upon population growth rates. Research has found that periods of relatively high house prices in NSW have been associated with a decline in the share of total Australian migration<sup>69</sup>. Lower population growth directly and indirectly impacts upon the economic growth of NSW<sup>70</sup>. Indeed the Metropolitan Plan for Sydney 2036 states that "housing is strongly linked to economic performance and the ability to provide employers with a strong labour force"<sup>71</sup>. The location of the Subject Site provides a unique opportunity for a ready supply of labour to service the adjacent Norwest Business Park; and

Planning Propsoal 2-14 Tennyson Road, Gladesville (Meconne Planning Proposal)



<sup>65</sup> Source: NSW Treasury

<sup>66</sup> Source: House Price Indexes: Eight Capital Cities, ABS (March 2013)

<sup>67</sup> Source: Rents and Sales Report Issue 103, Housing NSW (May 2013)

<sup>68</sup> Source: Rents and Sales Report Issue 103, Housing NSW (May 2013)

<sup>&</sup>lt;sup>69</sup> Source: NSW Treasury, See 2011-12 Budget Paper 6, page 2-6

<sup>70</sup> Source: NSW Treasury

<sup>&</sup>lt;sup>71</sup> Source: Page 119, Metropolitan Plan for Sydney to 2036, NSW Department of Planning and Infrastructure (2010)

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Impact on the construction industry – A reduction in housing supply has resulted in a direct impact on the construction industry. The decline in building investment has contributed to the under-performance of the NSW economy relative to other States<sup>72</sup>. For example, a 2010 study prepared by BIS Shrapnel and the NSW Urban Taskforce found that the construction of an additional 8,000 dwellings per annum would have directly increased gross state product by an estimated 0.5-0.6% per annum<sup>73</sup>.

In recognising that the housing shortage in Sydney is an acute problem the NSW Government has instituted concurrent measures to achieve the aims and objectives of the Metropolitan Plan. These include the establishment of the State Metropolitan Development Authority tasked with undertaking large scale urban renewal, implementation of a raft of planning policies including the Urban Renewal State Environmental Planning Policy, the Affordable Rental Housing State Environmental Planning Policy and Exempt and Complying Development Codes to expand opportunities to develop affordable, medium density housing.

With Sydney's population and demand for rental housing continuing to grow, it is unlikely that the current rental and affordability issues associated with a tight rental market will abate in the short to medium term. To address this issue, the Minister for Planning and Infrastructure established the NSW Affordable Housing taskforce in July 2011. The Taskforce aims to identify planning policies to deliver affordable housing to a range of community members in housing need whilst respecting the local character of an area.

# 6.3 IMPACT OF RESIDENTIAL DEVELOPMENT

In the context of the above, the residential component of the proposed development would have a number of economic impacts.

#### Contribution to Housing Supply and Housing Affordability

The proposed development would contribute some 404 dwellings (market and seniors living) towards achieving the housing targets set by the draft Inner North Subregional Strategy, the Metropolitan Plan for Sydney 2036 and the draft Metropolitan Strategy for Sydney to 2031. This is particularly important within the context of declining levels of dwelling completions over the 2000/01 to 2009/10 period.

By increasing the number of residential dwellings in the City of Ryde the rezoning may assist to ease house price inflation resulting from constrained supply. As noted previously, median house prices in the Gladesville suburb and in the City of Ryde are above average for the Sydney Greater Area. In increasing supply, it would broaden opportunities for households to access the residential market, particularly as small units are the most affordable dwellings.

The proposed development would assist the City of Ryde to achieve the housing targets set in the draft Inner North Subregional Strategy (2007), the Metropolitan Plan for Sydney 2036 (2010) and the draft Metropolitan Strategy for Sydney to 2031 (2013).

The provision of seniors and assisted living as part of the proposed development is particularly important given demographic characteristics which show an aging population across the City of Ryde and NSW. Seniors living is



<sup>72</sup> Source: NSW Treasury

<sup>73</sup> Source: BIS Shrapnel/Urban Taskforce, Going Nowhere: How the planning system and development levies are ruining NSW, 2010

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an expanding market driven by older residents increasingly seeking to downsize but still be within proximate access of retail goods and services, transport and entertainment facilities and thus maintain their independence. The proposed development would offer the opportunity for older residents to do this in the City of Ryde.

The provision of assisted living facilities would increase access to homes for the most vulnerable and at risk members of the community. This component would be an important contribution supporting access to the housing market for all community members.

### **Proximity to Work**

The proposed development would support the economic competitiveness of the City of Ryde by increasing opportunities for workers to live locally and hence increase job containment rates. In doing so it would assist in ensuring that labour supply and population growth is not constrained by a lack of housing to accommodate workers locally. The Subject Site is ideally suited to house more workers given its proximity to the industrial area to the north, Gladesville and Top Ryde centres and Rhodes Specialised Centre.

Enabling workers to live locally also has a number of other beneficial economic impacts by reducing the need for residents to commute. This would assist in reducing traffic congestion and the associated mental health stress 74. Reduced traffic congestion and the need to travel in turn reduces travel times, which provides an economic benefit in that the time which would otherwise be spent commuting can be put to alternative productive use. It also lowers travel costs for households, workers and businesses, and the associated externalities (cost, travel time, congestion, noise, pollution etc.).

Another key issue linked to housing affordability is retaining the supply of key or essential workers, whilst also ensuring these workers have access to accommodation options close to their place of employment (in line with strategic policies). The workers employed in service industries (such as sales assistants, cleaners, administrators) cannot command the salary expectations of some professions however they are equally required to access jobs and housing within the City of Ryde.

Analysis of 2006 Journey to Work data complied by the NSW Bureau of Transport Statistics (BTS)75 indicates that in 2006 the City of Ryde contained 46,638 working residents and provided 58,328 jobs. However, only 13,176 working residents both lived and worked in the City of Ryde, equating to less than a third (28%) of all working residents in the LGA.

The BTS data demonstrates the disparity between where local residents live and where they work. The proposal would offer an increased number of local workers in the City of Ryde the opportunity to live in the area, increasing the potential retention of working residents and reducing the requirements of commuters.

# Impact on Retail Sustainability

A small proportion of the retail expenditure generated will be captured by the new retail facilities on the Subject Site and some will be directed to nearby centres which will mitigate some of the redirected trade identified in the previous Chapter. A proportion will also be directed to retail facilities such as department and discount department





<sup>&</sup>lt;sup>74</sup> Source: Woodcock, J, Edwards P, Tonne C et al. Public health Benefits of Strategies to Reduce Greenhouse Gas Emissions: Urban Land Transport.

<sup>75</sup> Note: 2011 ABS Census based Journey to Work data has yet to be published

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stores and bulky goods retails from which no trade will be redirected. This represents a net positive impact on these businesses with which the proposed development would not compete.

# Impact on Jobs

The provision of residential dwellings on the Subject Site would support jobs during the construction process itself and on and off site post-development.

The Capital Investment Value of the development which would eventuate from the proposed rezoning is considered in Chapter 7 of this Study. This investment would support jobs directly and indirectly during the development process in construction related employment. The number of jobs supported during the construction process is quantified in Section 7.2 of this Study.

Households who would reside on-site once the development is completed would also support jobs in the local area. In addition to the additional retail expenditure which households would generate, which will support jobs and retail floorspace both on-site and in the local area, residents would support jobs in support services such as schools, hospitals, public transport and so on. This is in addition to the industry sectors in which residents themselves are employed.

The 3,300sqm GFA of assisted living floorspace would employ staff in-house and sustain further jobs on the Subject Site, over and above the retail and other commercial uses proposed.

### Utilisation of Infrastructure and Services

In creating additional demand on infrastructure and support services such as schools, medical services, parks, policing, refuse collection, sewerage and so on, the proposed rezoning and subsequent development would support jobs off site.

For the purposes of this Study, it has been assumed that any increase in demand on infrastructure and support services would be mitigated by contributions to State or local government and provisions within the proposed development itself. On this basis in terms of monetary value, the impact on the community would be nil.

Note that the Subject Site constitutes previously developed land, or urban infill, and as such it should be the preferred location for residential development in accordance with ecologically sustainable development (ESD) principles. This is because the provision of residential dwellings in this location would capitalise on the existing infrastructure and services (such as transport, electricity, water etc.) already in this location. It is therefore likely to present a lesser capital cost to the community than a development in a greenfield area. In doing so it would promote the efficient and effective reuse of urban land, and assist in achieving urban renewal.

#### Traffic and Transport

The proposed development may generate additional volumes of traffic in the immediate area compared to the "base case" (i.e. if the Subject Site were to continue in its existing use).

Again the Subject Site is preferable to fringe areas for housing because of proximity to centres, employment zones and urban services. Whilst there may be a cost in housing people on the subject site the alternative cost of housing people in the fringe parts of the metropolitan is considerably higher.

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The Subject Site offers a unique opportunity to provide increased residential densities in a middle ring suburb in proximity to employment zones and urban services providing all the benefits of urban consolidation.

# 6.4 SUMMARY AND CONCLUSION

The analysis undertaken in this Chapter has established that there is a need for the City of Ryde, the Sydney Metropolitan Area and NSW to increase residential development over the next 20 years to cope with population forecasts and demographic trends. However recent trends indicate that the pace of new residential supply is slowing, increasing the mismatch between residential demand and supply.

The effect of this mismatch has a number of adverse affects on the economy and the community, including contributing towards house price escalation, prejudicing the ability of the City of Ryde to attract new residents and workers, increasing commuting times and associated externalities and a lack of support for employment in the construction process and locally post development.

In this context, the proposed rezoning and subsequent development would have a number of positive impacts as follows:

- Support housing market affordability by increasing supply of the most affordable units. This is important
  given the median house prices in Gladesville and the broader City of Ryde are well above the Greater
  Sydney median;
- Contribute towards meeting the housing targets for the City of Ryde, the Inner North/ Central Subregion and the broader Sydney Metropolitan Area;
- Increase the supply of seniors and assisted living accommodation in the City of Ryde in a location which is close to shops, services and transportation. Seniors and assisted living will be increasingly demanded across the City of Ryde and the wider Sydney Metropolitan area as a result of an aging population;
- Provide homes close to jobs. This offers the potential for the City of Ryde to retain a greater proportion of residents and workers, reducing the need for residents to commute and increasing the economic competitiveness of the LGA;
- Underpin the local economy by creating additional retail expenditure available to be capture by centres, and supporting demand for jobs in support services and in the industries in which residents themselves are employed:
- Ensure that labour supply and population growth is not constrained by a lack of housing to accommodate local workers;
- Ensure that new residential development occurs in an existing urban location and thus capitalise on the availability of existing infrastructure, services and public transport; and
- Support the construction industry by providing employment during the construction process. This is examined in further detail in Chapter 7 of the Study.

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# 7. OTHER ECONOMIC IMPACTS

This Chapter examines other economic impacts which would eventuate from the proposed rezoning and subsequent development, over and above meeting those identified above. These include increasing employment locally, additional investment, value add to the local economy, construction multiplier impacts, shopper choice and convenience.

# 7.1 CONSTRUCTION MULTIPLIER EFFECTS

The construction industry is a significant component of the economy accounting for 7.3% of Gross Domestic Product (GDP) and employing almost one million workers across Australia<sup>76</sup>. The industry has strong linkages with other sectors, so its impacts on the economy go further than the direct contribution of construction. Multipliers refer to the level of additional economic activity generated by a source industry.

There are two types of multipliers:

- production induced: which is made up of:
  - first round effect: which is all outputs and employment required to produce the inputs for construction;
  - an industrial support effect: which is the induced extra output and employment from all industries to support the production of the first round effect; and
- consumption induced: which relates to the demand for additional goods and services due to increased spending by the wage and salary earners across all industries arising from employment.

The source of the multipliers adopted in this report is ABS Australian National Accounts: Input-Output Tables 2008-09 (ABS Pub: 5209.0). These tables identify first round effects, industrial support effects and consumption induced multiplier effects at rates of \$0.6463, \$0.6734 and \$0.9891 respectively to every dollar of construction.

As the proposal is at an early stage, no Capital Investment Value (CIV) has yet been calculated. For the purpose of this Study we have assumed that the following construction costs<sup>77</sup>:

- \$2,300/sqm for residential, retail, other commercial and non-commercial floorspace;
- \$40,000 per underground car parking space; and
- An additional 7.5% of total construction costs for site costs including reticulation of services, soft landscaping, road infrastructure and so on.

The development proposes includes 44,662sqm of GFA for residential uses, 6,700sqm GLA for retail and other commercial uses assumed to equate to around 7,900sqm GFA and 670 underground car parking spaces. On this basis the total CIV associated with the proposed development would equate to around \$160m. We have used this CIV to calculate potential development impacts as shown in the following table.



<sup>&</sup>lt;sup>76</sup> Source: IBIS World Construction Industry Report 2011

<sup>77</sup> Source: Based on Rawlinsons and Hill PDA's Industry experience

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Table 11 - Economic Multipliers

	Divert	Production I	nduced Effects	Consumention	Total
	Direct — Effects	First Round Effects	Industrial Support Effects	Consumption Induced Effects	
Output multipliers	1	0.6463	0.6734	0.9891	3.3088
Output (\$million)	\$160	\$103	\$108	\$158	\$529

<sup>\*</sup> Source: ABS Australian National Accounts: Input-Output Tables 1996-1997 (ABS Pub: 5209.0).

The \$160m of CIV would generate a further \$211m of activity in production induced effects and \$158m in consumption induced effects. Total economic activity generated by the construction of the proposed development would be approximately \$529m.

Note that the multiplier effects are national, and not necessarily local. The ABS states that:

"Care is needed in interpreting multiplier effects; their theoretical basis produces estimates which somewhat overstate the actual impacts in terms of output and employment. Nevertheless, the estimates illustrate the high flow-on effects of construction activity to the rest of the economy. Clearly, through its multipliers, construction activity has a high impact on the economy."

In particular the multiplier impacts can leave the impression that resources would not have been used elsewhere in the economy had the development not proceeding. In reality many of these resources would have been employed elsewhere. It should also be noted, as stated in the NSW Treasury guidelines, that:

"Direct or flow on jobs will not necessarily occur in the immediate vicinity of the project – they may be located in head office of the supplier or in a factory in another region or State that supplies the project" 78.

Nevertheless, economic multiplier impacts represent additional value add to the Australian economy resulting from the proposed development.

# 7.2 CONSTRUCTION EMPLOYMENT

It is estimated that the equivalent of 2.85 construction positions over 12 months is created for every one million dollars of construction work undertaken<sup>79</sup>. Based on the estimated CIV of \$160m approximately 456 job years<sup>80</sup> will be directly generated.

Table 12 - Employment Generation

	Direct	Production I	nduced Effects	Consumption	Total
	Direct — Effects	First Round Effects	Industrial Support Effects	Consumption Induced Effects	
Multipliers	1	0.64	0.70	1.34	3.68
Employment No. per \$million	2.85	1.83	1.98	3.81	10.48
Total job years created	456	293	317	610	1,677

Source: ABS Australian National Accounts: Input-Output Tables 2008-09 (ABS Pub: 5209.0).

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<sup>&</sup>lt;sup>78</sup> Source: Office of Financial Management Policy & Guidelines Paper: Policy & Guidelines: Guidelines for estimating employment supported by the actions, programs and policies of the NSW Government (TPP 09-7) NSW Treasury

<sup>79</sup> Source: ABS Australian National Accounts: Input-Output Tables 2008-09 (ABS Pub: 5209.0)

<sup>80</sup> Note: One job year equals one full-time job for one full year

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The ABS Australian National Accounts: Input-Output Tables 2008-09 identified employment multipliers for first round, industrial support and consumption induced effects of 0.64, 0.70 and 1.34 respectively for every job year in direct construction. Including production and consumption induced multiplier effects the proposed development will therefore have potential to generate 1,677 job years in total.

Note that the multiplier effects are national, and not necessarily local. The ABS notes that "Care is needed in interpreting multiplier effects; their theoretical basis produces estimates which somewhat overstate the actual impacts in terms of output and employment. Nevertheless, the estimates illustrate the high flow-on effects of construction activity to the rest of the economy. Clearly, through its multipliers, construction activity has a high impact on the economy."81

# 7.3 OTHER CONSTRUCTION IMPACTS

The construction process may lead to short-term negative impacts locally such as increased traffic related to site-works, noise during construction and so on, although only a minority of these impacts would be economic. We assume that the development process would take necessary steps to minimise the extent of any impacts on traffic by ensuring deliveries take place outside of peak periods. This is standard practice in the construction industry.

# 7.4 PERMANENT EMPLOYMENT

### **Retail Operations**

The proposed rezoning and subsequent development would support permanent employment post-construction through the operation of retail uses on the Subject Site. The table below applies worker ratios<sup>82</sup> to the assumed floorspace mix to calculate the number of permanent jobs which would be supported.

Table 13 - Employment Generation by Retail Store Type

Retail Store Type	Employment Rate*	GLA (sqm)	Workers
Full-Line Supermarket	1:21sqm	4,000	190
Mini-Major	1:30sqm	900	30
Cafe	1:30sqm	150	5
Specialty Food	1:13sqm	250	13
Non-Food Specialties	1:40sqm	250	6
Personal Services	1:25sqm	250	10
TOTAL GLA	-	5,800	254

<sup>\*</sup> Job per square metre of GLA. Sourced from the ABS Retail Census and Hill PDA

Based on Table 13 the proposed development would support an estimated 254 permanent jobs post-construction across the range of retail store types. These would be full and part-time jobs.

### Non-Retail Commercial Uses

The proposed development would include a further 600sqm of non-retail commercial uses and a 300sqm childcare centre. Applying an employment rate of 1:25sqm to this floorspace yields a further 36 full and part time jobs associated with these uses.



<sup>81</sup> Source: ABS Year Book 2002 - The Construction Industry's Linkages with the Economy

<sup>82</sup> Sourced from ABS Retail Census and Hill PDA

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# **Assisted Living**

For the purposes of this Study we have assumed that the assisted living floorspace would employ 54 full and part time works, which is the average number of employees per aged accommodation in Australia as sourced from the IBIS World Accommodation for the Aged in Australia (August 2011) industry report<sup>83</sup>. The number of jobs which will ultimately be sustained by this facility would depend upon the level of care that it is to provide.

### **Net Additional Jobs**

Total employment sustained by the proposed development upon completion is 344 jobs comprising 254 jobs associated with the retail centre, 36 jobs associated within non-retail commercial and childcare uses and 54 jobs associated with assisted living.

The Subject Site is in active use and provides in the order of 50 full and part time jobs <sup>84</sup>. As such not all of the new jobs would be net additional to the LGA. Taking into account existing employment the proposed development would still equate to an increase of 294 jobs compared to the current level. This is in addition to the supporting jobs in the wider area resulting from new residents residing onsite upon full development.

# 7.5 SHOPPER CONVENIENCE

The location of the Subject Site close to Victoria Road and at one of the major access/ egress routes to the MTA it would serve will ensure that it would be accessible to the surrounding resident population. By providing a range of retail stores serving the daily and some times weekly shopping needs of residents in an accessible location, the proposed development would support shopper convenience. In providing localised retail goods and services in a convenient location and reducing the need for residents to travel, it would support the principles of sustainable development.

# 7.6 ADDED PRICE COMPETITION

There is sufficient expenditure available within the locality to support the additional facilities and the impacts would not threaten the viability or viability of any existing or planned centres. Accordingly added price competition should be viewed positively in this instance. It would also increase choice in the retail sector for local residents.





<sup>83</sup> Source: Page 35 Employees Per Est. 2016-17, IBIS World Accommodation for the Aged in Australia (August 2011)

<sup>84</sup> Source: As advised by client in email dated 13/12/2012

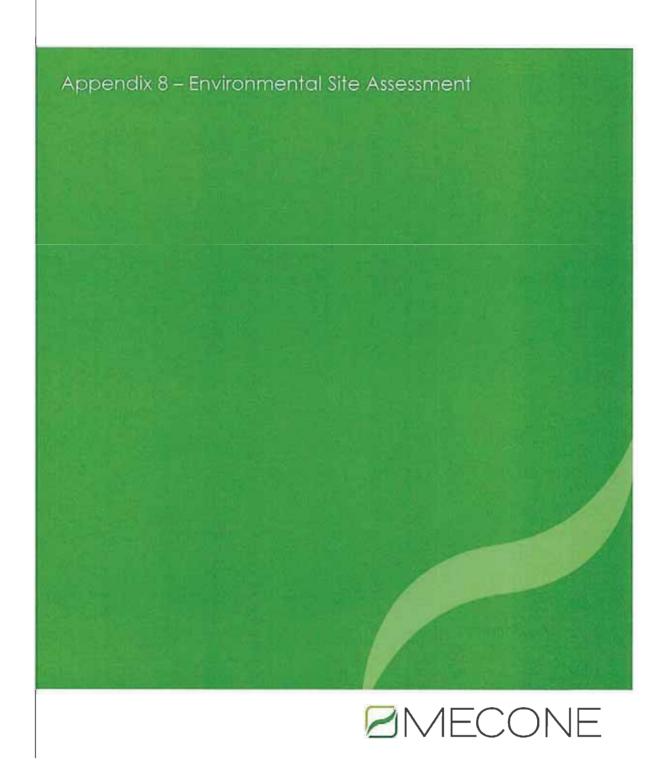
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**REPORT** 

TO

DARCSOL PTY LTD

ON

PRELIMINARY STAGE 1 ENVIRONMENTAL SITE

ASSESSMENT

FOR

PROPOSED MIXED-USE DEVELOPMENT

ΑT

2-12 TENNYSON ROAD, GLADESVILLE, NSW

OCTOBER 2012 REF: E26029KPrpt



Postal Address: PO Box 976, North Ryde BC NSW 1670
Tel: 02 9888 5000 
Fax: 9888 5004
EIS is a division of Jeffery and Katauskas Pty Ltd
ABN 17 003 550 801

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Report prepared by:

Brendan Page

Senior Environmental Scientist

Report reviewed by:

Adrian Kingswell

Principal

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# **EXECUTIVE SUMMARY**

Darcsol ('the client') commissioned Environmental Investigation Services (EIS), a division of Jeffery & Katauskas Pty Ltd (J&K), to undertake a preliminary Stage 1 Environmental Site Assessment (ESA) for the proposed mixed-use development at 2-12 Tennyson Road, Gladesville ('the site'). The site is identified as Lot 2 in DP549570 and at the time of this investigation was occupied by a tenanted warehouse and commercial building. The site location is shown on Figure 1 and the ESA was confined to the site boundaries as shown on Figure 2.

No development plans or concept drawings have been provided, however, the client has informed us that the proposed development may include a multi-storey, mixed-use commercial/residential building over a one level basement. It is understood that the basement area would be maximised by extending it to the site boundaries where possible.

The objectives of the ESA are to:

- Assess the potential for soil and groundwater contamination at the site;
- Make a preliminary assessment the soil contamination conditions at the site;
- Assess the potential for human health or environmental risks posed by the contaminants at the site;
- Provide a preliminary waste classification for the off-site disposal of soil/bedrock excavated for the development; and
- Prepare a report presenting the results of the ESA.

The scope of work undertaken for the ESA included:

- A site history assessment to identify historical land uses that may have resulted in potential site contamination;
- A site inspection to identify potential contamination sources;
- Preparation of a Conceptual Site Model (CSM) identifying the Potential Contaminants of Concern (PCC) and potential sensitive receptors;
- Design and implementation of a field sampling and laboratory analysis program;
- Interpretation of the analytical results based on the Site Assessment Criteria (SAC) adopted for the ESA; and
- Preparation of a report presenting the results of the ESA.

The site history assessment has indicated the following:

Source	Summary
Aerial Photos	The photographs indicated that the quarry had commenced operation prior to 1930. Various buildings were constructed and subsequently demolished in the north-west and south-west sections of the site. The existing (2012) buildings and associated hardstand areas were constructed sometime between 1970 and 1978. Significant changes to the site layout did not occur from this time.
	The surrounding land use was a mix of commercial-industrial and residential.
Land Title Records	The records suggested that a number ofindustrial activities may have been undertaken at the site. The various industrial activities may have resulted in contamination at the site through processes such as printing and machinery manufacturing. The installation and utilisation of USTs was not uncommon for the purpose of servicing generators and other on-site machinery.
Local Council Records	The records did not indicate any particular land use or development that may have resulted in significant site contamination.



Source	Summary
WorkCover Records	The records indicated that at least one UST is located in the south-west section of the site (as shown on Figure 2). The fate of the UST is unknown.
NSW EPA Records	There are no EPA notices for the site. The site is not listed on the CLM register.

The investigation included sampling from seven boreholes and the analysis of selected fill and natural samples for a range of potential contaminants including: heavy metals; total petroleum hydrocarbons (TPHs); monocyclic aromatic hydrocarbons (BTEX compounds); polycyclic aromatic hydrocarbons (PAHs); organochlorine and organophosphorus pesticides (OCP/OPPs); polychlorinated biphenyls (PCBs); and asbestos.

An elevated concentration of toluene, above the SAC, was encountered in one fill sample obtained from BH7 (0.1-0.3m) (see Figure 2). A trace of benzene (below the SAC) was also encountered in BH1 (0.6-0.8m). The remaining soil analysis results were below the SAC. The source of the contamination encountered in BH7 is unknown, however, it is possible that the toluene is associated with a localised spill.

An assessment of the groundwater conditions was outside the scope of the preliminary ESA. Although groundwater is not considered to be a significant resource in the immediate vicinity of the site, the presence of BTEX compounds in some of the samples and the potential presence of at least one UST at the site increases the risk for groundwater contamination.

Due to the presence of toluene above the SAC in one soil sample, and the potential for a UST to be present, EIS consider that the risk posed by contamination to the receptors identified in Section 5.3 is moderate. The presence of pavements across the majority of the site and the fact that the adjacent, down-gradient land use is not particularly sensitive (i.e. an outdoor car park and commercial/industrial development), reduces the potential risks posed by the contaminants.

Due to the preliminary nature of the investigation, the following data gaps remain:

- Sampling has not been undertaken within the existing building footprints. The overall sampling density represents approximately 30% of the minimum guideline density for the site:
- A targeted investigation in the vicinity of the suspected UST has not been undertaken;
- The horizontal extent of the toluene contamination in BH7 has not been established;
- The extent of the benzene encountered in BH1 has not been identified. There is a possibility that the borehole encountered the edge of a more significant issue; and
- A groundwater investigation has not been undertaken.

Based on the results of the preliminary ESA, additional investigation work and reporting would be required to address SEPP55. EIS recommend the following:

- An additional soil and groundwater investigation should be undertaken at the site. The
  investigation should be designed to meet the minimum sampling density and should also
  include: targeted investigations in the vicinity of the suspected UST, BH1 and BH7; and
  the installation of a minimum of four groundwater monitoring wells, with at least one of
  the wells located adjacent to and down gradient of the suspected UST;
- Samples should generally be analysed for the PCC. A reduced analysis schedule including TPHs, BTEX, PAHs and lead could be considered for the targeted investigations;
- Statistical analysis should be undertaken using the preliminary ESA and additional investigation data;
- Following completion of the additional investigation, a remedial action plan (RAP) should be prepared for the site. The RAP should be implemented during the proposed



- development works and a suitable site validation report should be prepared on completion of the remediation; and
- Prior to the demolition of any structures on site, a suitably qualified asbestos consultant should be engaged to undertake a hazardous building materials survey of the buildings. The demolition works should be undertaken appropriately based on the findings of the survey.

Based on the results of the preliminary Stage 1 ESA, EIS are of the opinion that the site could be made suitable for the proposed mixed-use development provided that the recommendations detailed in Section 10.6 of this report are suitably addressed.

The presence of a UST and relatively low levels of contamination above the SAC are not likely to be a significant constraint to development. However, additional investigation work and reporting would be required to address SEPP55.

The conclusions presented in this report have been made within the limitations of the scope of works undertaken for the investigation. The conclusions and recommendations should be read in conjunction with the limitations presented in the body of the report.



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# 1 INTRODUCTION

Darcsol Ltd Pty ('the client') commissioned Environmental Investigation Services (EIS), a division of Jeffery & Katauskas Pty Ltd (J&K), to undertake a preliminary Stage 1 Environmental Site Assessment (ESA) for the proposed mixed-use development at 2-12 Tennyson Road, Gladesville ('the site').

The site is identified as Lot 2 in DP549570 and at the time of this investigation was occupied by a tenanted warehouse and commercial building.

The site location is shown on Figure 1 and the ESA was confined to the site boundaries as shown on Figure 2.

The ESA was undertaken generally in accordance with an EIS proposal (Ref: EP6431K2) of 3 September 2012 and written acceptance from the client of 12 September 2012.

It is understood that this report will be utilised to support the lodgement of a development application to City of Ryde Council for the proposed development.

A geotechnical investigation was undertaken in conjunction with the ESA by JK Geotechnics (a division of J&K) and the results are presented in a separate report (Ref: 26029SPrpt).

#### 1.1 Proposed Development Details

No development plans or concept drawings have been provided, however, the client has informed us that the proposed development may include a multi-storey, mixed-use commercial/residential building over a one level basement. It is understood that the basement area would be maximised by extending it to the site boundaries where possible.

#### 1.2 Objectives

The objectives of the ESA are to:

- Assess the potential for soil and groundwater contamination at the site;
- Make a preliminary assessment the soil contamination conditions at the site;
- Assess the potential for human health or environmental risks posed by the contaminants at the site;
- Provide a preliminary waste classification for the off-site disposal of soil/bedrock excavated for the development; and
- Prepare a report presenting the results of the ESA.

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# 1.3 Scope of Work

The scope of work undertaken for the ESA included:

- A site history assessment to identify historical land uses that may have resulted in potential site contamination;
- A site inspection to identify potential contamination sources;
- Preparation of a Conceptual Site Model (CSM) identifying the Potential Contaminants of Concern (PCC) and potential sensitive receptors;
- Design and implementation of a field sampling and laboratory analysis program;
- Interpretation of the analytical results based on the Site Assessment Criteria (SAC) adopted for the ESA; and
- Preparation of a report presenting the results of the ESA.

The scope of work was generally undertaken with reference to the regulations/guidelines outlined in the table below. Individual guidelines applicable for this investigation are referenced within the text of the report (as applicable).

Table 1-1: Guidelines

#### Guidelines/Regulations/Documents

Contaminated Land Management Amendment Act (20081)

State Environmental Planning Policy No.55 - Remediation of Land (1998²)

NSW EPA Guidelines for Consultants Reporting on Contaminated Sites (19973)

Guidelines on the Duty to Report Contamination<sup>4</sup>

Guidelines for the NSW Site Auditor Scheme, 2nd Edition (2006<sup>5</sup>)

National Environmental Protection (Assessment of Site Contamination) Measure (1999)6).

NSW EPA Contaminated Sites Sampling Design Guidelines (19957)

NSW DECCW Waste Classification Guidelines - Part 1: Classifying Waste (20098)

NSW EPA Contaminated Sites: Guidelines for Assessing Service Station Sites (19949)

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<sup>&</sup>lt;sup>1</sup> Contaminated Land Management Amendment Act, NSW Government Legislation, 2008 (CLM Amendment Act 2008)

<sup>&</sup>lt;sup>2</sup> State Environmental Planning Policy No. 55 - Remediation of Land, NSW Government, 1998 (SEPP55)

<sup>&</sup>lt;sup>3</sup> Guidelines for Consultants Reporting on Contaminated Sites, NSW EPA, 1997 (Reporting Guidelines 1997)

<sup>&</sup>lt;sup>4</sup> Guidelines on the Duty to Report Contamination, NSW EPA, Draft 2011 (Duty to Report Contamination 2011)

<sup>&</sup>lt;sup>5</sup> Guidelines for the NSW Site Auditor Scheme, 2<sup>nd</sup> ed., NSW DEC, 2006 (Site Auditor Guidelines 2006)

<sup>&</sup>lt;sup>6</sup> National Environmental Protection (Assessment of Site Contamination) Measure, National Environment Protection Council (NEPC), 1999 (NEPM 1999)

<sup>&</sup>lt;sup>7</sup> Contaminated Sites Sampling Design Guidelines, NSW EPA, 1995 (EPA Sampling Design Guidelines 1995)

<sup>&</sup>lt;sup>8</sup> Waste Classification Guidelines, Part 1: Classifying Waste, NSW DECCW, 2009 (Waste Classification Guidelines 2009)

<sup>&</sup>lt;sup>9</sup> Guidelines for Assessing Service Station Sites, NSW EPA, 1994 (Service Station Guidelines 1994)

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### 2 DATA QUALITY OBJECTIVES

#### 2.1 DQOs for the Assessment

The DQO process includes a clear statement of the objectives of the study and a methodology for collecting enough data of sufficient quality to support the decisions of the study. The DQOs provide a systematic approach for undertaking the assessment and outlines the criteria against which the data can be assessed.

A methodology for establishing the DQOs is presented in the US EPA document *Data Quality Objectives Process for Hazardous Waste Site Investigations* (2000<sup>10</sup>). This methodology has been adopted by the NEPC in NEPM 1999, AS4482.1-2005<sup>11</sup> and the Site Auditor Guidelines 2006. The main steps involved in preparing the DQOs include:

- 1. State the problem;
- 2. Identify the decision;
- 3. Identify inputs into the decision;
- 4. Study boundaries;
- 5. Develop a decision rule;
- 6. Specify limits on decision errors; and
- 7. Optimise the design for obtaining data.

The first six steps provide qualitative and quantitative statements which are used in the final step to develop a data collection plan. The data is then assessed against adopted performance criteria.

#### 2.1.1 State the Problem

Historical and current land uses may have resulted in soil and groundwater contamination at the site. The presence of contamination may pose a risk to human health and the environment. An ESA is required to assess these risks and to consider the suitability of the site for the proposed land use (mixed commercial/residential).

# 2.1.2 Identify the Decision

The assessment aims to address the following decisions:

- Does the site history indicate previous land uses that may have resulted in contamination;
- Does the site inspection indicate the presence of potential on-site and/or nearby off-site contamination sources;

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<sup>&</sup>lt;sup>10</sup> Data Quality Objectives Process for Hazardous Waste Site Investigations, US EPA, 2000 (US EPA 2000)

<sup>&</sup>lt;sup>11</sup> Guide to the Investigation and Sampling of sites with Potentially Contaminated Soil, Standards Australia, 2005 (AS 2005)

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- Are the contaminant concentrations above the site assessment criteria (SAC);
- Has the contamination source and extent been identified;
- Has groundwater been impacted;
- Is there potential for off-site migration of contamination;
- Does the contamination pose a potential human health risk;
- Does the contamination pose an potential ecological or environmental risk;
- Are there any potential receptors which may be impacted by the contamination;
   and
- Can remediation measures be adopted to make the site suitable for the proposed development.

# 2.1.3 Inputs into the Decision

The following inputs will be used to address the decisions:

Table 2-1: Inputs into the Decision

Inputs	Details
Site Inspection & Physical	Undertake a site inspection to identify potential on-site and
Setting	nearby off-site contamination sources. Assess the physical setting
	including a review of regional geology, topography and hydrogeology.
Site History Assessment	Review of site history information and other information as outlined in <b>Section 4</b> .
Conceptual Site Model	Prepare a CSM identifying the PCC and potential receptors.
Soil Sampling and Laboratory Analysis	Undertake soil sampling from boreholes as outlined in Section 7.
,	Soil samples will be analysed for the PCC as outlined in <b>Section</b> 5.1.
Assessment of Analytical Data	The Data Quality Indicators (DQIs) that will be used to assess the analytical data are outlined in <b>Section 2.2</b> .
Assessment Criteria	Analytical results will be compared to the SAC outlined in Section 6.

The information obtained from the above inputs is considered sufficient to make a preliminary assessment of the contamination status of the site, and to address the decisions outlined above (see Section 2.1.2).

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# 2.1.4 Study Boundary

The assessment will be confined to the site boundaries as shown in Figure 2.

#### 2.1.5 Develop a Decision Rule

The analytical results will be compared with the SAC as outlined in **Section 6**. Statistical analysis will be undertaken on the analytical results (if required) as outlined in the EPA Sampling Design Guidelines 1995. The following criteria will be adopted for the assessment:

- The 95% Upper Confidence Limit (UCL) value of the arithmetic mean concentration of each contaminant should be less than the SAC;
- The standard deviation (SD) of the results must be less than 50% of the SAC;
- No single value exceeds 250% of the relevant SAC.

UCL calculations may not be required if all results are below the SAC. Further assessment or remediation will be required when the concentration of contaminants exceed the above criteria.

A review of the field and laboratory DQIs will be undertaken as outlined in Section 2.2.

# 2.1.6 Specify Limits on Decision Errors

Decision errors are false positive (i.e. stating the site is free of contamination when it is not) or false negative (i.e. stating that the site is contaminated when it is not). The more significant is the false positive with potential risks to human health and the environment. To account for this, the ESA has assumed that elevated concentrations of contaminants are present unless demonstrated otherwise.

#### 2.1.7 Optimise the Design for Obtaining Data

The Site Auditor Guidelines 2006 recommend evaluating the data set as a whole to determine any limitations within the data set. The overall data set will be optimised by reviewing the data as the project proceeded. When necessary, adjustments will be made to the sampling or analytical program.

# 2.2 DQIs for Analytical Data

The analytical data will be assessed against the following DQIs: precision, accuracy, representativeness, completeness and comparability. Definitions of the individual DQIs are presented in Appendix D. The table below outlines the steps that will be taken to address the DQIs.

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Table 2-2: DOIs

Indicator	Methods
Completeness	Data and documentation completeness will be achieved by:
	<ul> <li>Preparation of sampling and analysis plan;</li> </ul>
	<ul> <li>Preparation of chain of custody (COC) records;</li> </ul>
	<ul> <li>Review the laboratory sample receipt information;</li> </ul>
	Use of National Association of Testing Authorities (NATA) registered
	laboratories for all analysis;
	<ul> <li>Visual and PID screening of samples during the investigation; and</li> </ul>
	<ul> <li>Laboratory analysis to target PCC.</li> </ul>
Comparability	Data comparability will be achieved by:
	<ul> <li>Maintaining consistency in sampling techniques;</li> </ul>
	Use of appropriate preservation, storage and transport methods; and
	• Use of consistent analysis techniques and reporting standards by the
	laboratories.
Representativeness	Data representativeness will be achieved by:
	Reasonable distribution of sampling locations across accessible areas of
	the site; and
	<ul> <li>Representative coverage of analysis for PCC.</li> </ul>
Precision	Precision will be achieved by:
	<ul> <li>Calculating the relative percentage difference (RPD) of duplicate samples;</li> </ul>
	<ul> <li>The following acceptance criteria will be used to assess the RPD results:</li> </ul>
	> results > 10 times the practical quantitation limit (PQL), RPDs < 50% are acceptable;
	results between 5 and 10 times PQL, RPDs < 75% are acceptable;
	> results > 5 times PQL, RPDs < 100% are acceptable; and
	An explanation is provided if RPD results are outside the acceptance
	criteria. As a conservative measure, the higher value is adopted when
	the value exceeds the SAC.
Accuracy	Accuracy will be achieved by:
, 100d. do j	Use of trained and qualified field staff;
	Appropriate industry standard sampling equipment and decontamination
	procedures;
	<ul> <li>Sampling and screening equipment will be factory calibrated on a</li> </ul>
	regular basis. Calibration will be checked internally prior to use;
	Sampling and equipment decontamination;
	<ul> <li>Collection and analysis of field Quality Assurance (QA) and Quality</li> </ul>
	Control (QC) samples for PCC;
	The field QA/QC analysis is to include:
	> 10% of samples as intra-laboratory duplicates; and

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Methods Indicator

- > 1 trip blank sample.
- Acceptable concentrations in trip blanks. Non-compliance to be documented in the report;
- Appropriate sample preservation, handing, holding time and COC procedure;
- Review of the primary laboratory QA/QC data including: RPDs, surrogate recovery, repeat analysis, blanks, laboratory control samples (LCS) and matrix spikes;
- The following acceptance criteria will be used to assess the primary laboratory QA/QC results. Non-compliance to be documented:
  - > RPDs:
    - results that are < 5 times the PQL, any RPD is acceptable; and
    - results > 5 times the PQL, RPDs between 0-50% are acceptable;
  - > LCS recovery and matrix spikes:
    - 70-130% recovery acceptable for metals and inorganics;
    - 60-140% recovery acceptable for organics; and
    - 10-140% recovery acceptable for VOCs;
  - Surrogate spike recovery:
    - 60-140% recovery acceptable for general organics; and
    - 10-140% recovery acceptable for VOCs;
  - > Blanks: All less than PQL (ALTPQL); and
- Reporting to industry standards.

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### 3 SITE INFORMATION AND PHYSICAL SETTING

#### 3.1 Site Identification

Table 3-1: Site Identification Information

Site Owner:	Facixa Pty Ltd
Site Address:	2-12 Tennyson Road, Gladesville
Lot & Deposited Plan:	Lot 2 DP549570
Current Land Use:	Commercial / Light Industrial
Proposed Land Use:	Mixed Commercial / Residential
Local Government Authority:	Ryde City Council
Current Zoning:	IN2 Light Industrial
Site Area (ha):	1.5ha
RL (AHD in m) (approx.):	33
Geographical Location (MGA)	N: 6210984
(approx.):	E: 1438458
Site Location Plan:	Figure 1
Borehole Location Plan:	Figure 2

#### 3.2 Site Location and Setting

The site is located on the east side of Tennyson Road, approximately 140m to the south of the junction with Victoria Road (see Figures 1 and 2). Commercial/industrial-type properties bound the site to the north, south and east. Tennyson Road bounds the site to the west, with residential properties located further to the west of the road. The land use beyond the commercial/industrial-type properties to the south and east is also residential.

### 3.3 Topography

The site lies towards the crest of a south facing hillside that generally falls away from Victoria Road at approximately 5°. The site itself is formed at the base of a former quarry and is predominantly flat and level. Cut faces (from the former quarry) are located towards the north and east site boundaries and batter slopes are located at the south and west site boundaries.

#### 3.4 Site Inspection

A walkover inspection of the site and visual inspection of the immediate surrounds was undertaken on 19 September 2012. At the time of the inspection, the majority of the central portion of the site was occupied by a metal clad warehouse. A relatively small, semi-detached building was adjacent to the west section of the main warehouse structure and a small brick office building was attached to the south-western section of the warehouse.

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A two storey, brick rendered, commercial building was located to the west of the warehouse and a small metal clad shed was located to the north. Several shipping containers were also located to the north and east of the central warehouse.

A driveway entered the south-western corner of the site off Tennyson Road and sloped down towards the east. The two storey brick rendered building was to the north of the driveway and a landscaped area was located between this building and the Tennyson Road reserve. The landscaped area was formed on a batter slope that fell towards the east and was occupied by sandstone boulders, small shrubs and several mature trees.

The floor level for the brick rendered building was approximately 2m above the floor level of the main warehouse. A grassed batter slope and a small, retained car park were located between this building and the main warehouse.

The buildings appeared to be formed on concrete floor slabs. The concrete slab for the main warehouse appeared to be in relatively good condition based on a cursory inspection. The areas that surrounded the buildings were generally paved with asphaltic concrete (AC). The AC was in relatively poor condition in some areas and various sections had been resurfaced with newer AC or concrete.

The main warehouse tenancies included Gel Works Pty Ltd, Amerco Enterprises Pty Ltd, Springfree Trampoline (a trampoline distributor) and GH Packaging International Pty Ltd (a packaging company).

It is understood that Gel Works manufactures personal lubricants on-site, and stores the manufacturing components and product in the adjacent warehouse (this tenancy occupied the north section of the main warehouse and the semi-detached building to the west of the main warehouse). An inspection of the manufacturing area was not possible. Barrels labelled as containing ethanol, propylene glycol and paraphen (hydroxyl benzoate) were observed to the east of the Gel Works warehouse space.

A vent pipe and suspected former bowser plinth were observed adjacent to the brick building, at the south-west corner of the warehouse. These features were indicative of a UST. No dip or fill points were observed. The location of the suspected UST and associated facilities are shown on Figure 2. Photographs are also attached in Appendix E.

Near vertical cut faces were evident to the north and east of the warehouse which were associated with the former quarry. The cut faces were estimated to be up to approximately 15m in height and consisted of exposed shale bedrock. A smaller batter extended along the southern site boundary and fell towards the north, down to the

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level of the AC paved areas that surrounded the main warehouse. A small portion of the batter was retained in the vicinity of the south-east corner of the warehouse.

Various weeds, shrubs and mature trees were observed at the base of the cut faces in the north and east sections of the site, and on the batter slopes in the north-west, west and south sections of the site.

# 3.4.1 Underground Services

The 'Dial Before You Dig' (DBYD) plans were reviewed for the ESA. The plans indicate that local services such as power telecommunications and water enter the south-west section of the site off Tennyson Road. An electrical cable easement and small substation is also marked as being present in the south-west section of the site.

#### 3.4.2 Interview with Site Personnel

Due to the sensitive nature of the development proposal, detailed interviews with site personnel were not undertaken.

### 3.5 Regional Geology

The regional geological map of Sydney (1983<sup>12</sup>) indicates the site to be underlain by Ashfield Shale of the Wianamatta Group, which typically consists of black to dark grey shale and laminite.

#### 3.6 Acid Sulfate Soil (ASS) Risk Map

The site is not located in an acid sulfate soil risk area based on the risk maps prepared by the Department of Land and Water Conservation.

# 3.7 Hydrogeology

A search of the groundwater bore summary records available on the NSW Office of Water<sup>13</sup> website was undertaken for the ESA. The search was limited to registered bores located within approximately 1km of the site. A copy of the records and a plan showing the approximate location of the bores is attached in Appendix C. A brief summary of relevant information pertaining to the ESA is presented below:

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<sup>12 1:100,000</sup> Geological Map of Sydney (Series 9130), Department of Mineral Resources (1983)

<sup>13</sup> http://www.waterinfo.nsw.gov.au/gw/, visited on 17 September 2012

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Table 3-2: Summary of Groundwater Bores

Reference	Distance	Direction &	Final	Standing	Registered	Potential							
	from site (m) (approx.)	Gradient from site)	Depth (m)	Water Level (SWL) (m)	Purpose	Receptor							
							GW108366	223m	East &	Not	Not	Monitoring	No
									up/cross-	available	available		
	gradient												
GW109573	553m	South-east	8.10	4.47	Monitoring	No							
		& up/cross-											
		gradient											
GW109574	553m	South-east	9.00	4.28	Monitoring	No							
		& up/cross-											
		gradient											
GW109575	553m	South-east	7.50	3.23	Monitoring	No							
		& up/cross-											
		gradient											
GW109576	553m	South-east	8.10	3.51	Monitoring	No							
		& up/cross-											
		gradient											
GW108361	512m	South-east	6.00	Not	Monitoring	No							
		& cross-		available									
		gradient											
GW108362	512m	South-east	Not	Not	Monitoring	No							
		& cross-	available	available									
		gradient											
GW108363	512m	South-east	Not available	Not available	Monitoring	No							
		& cross-											
		gradient											
GW108364	512m	South-east	Not available a	Not	Monitoring	No							
		& cross-		available									
		gradient											
GW108365	512m	South-east		Not	Monitoring	No							
		& cross-		available									
		gradient	1 - 1 <u>A tabella</u>										
GW108367	512m	South-east	Not	Not	Monitoring	No							
		& cross-	available	available									
		gradient											

As a result of the former quarrying activities, the stratigraphy of the site is expected to consist of shale bedrock. Some filling may have occurred following cessation of the quarrying activities and prior to construction of the existing buildings. Based on these conditions and the results of the groundwater bore search, groundwater is not considered to be a significant resource for abstraction purposes in the immediate vicinity of the site.

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### 3.8 Surface Water Flows

Surface water bodies were not identified in the immediate vicinity of the site. The closest surface water body is Glades Bay (part of the Parramatta River) located approximately 1km to the south-east of the site (see Figure 1).

During rain events, stormwater would be expected to flow off the hardstand areas and building roofs, enter the on-site drainage system and flow into the regional stormwater infrastructure along Tennyson Road. Some infiltration may occur at the base of the cut faces and on the batter slopes which are unpaved.

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# 4 SITE HISTORY ASSESSMENT

# 4.1 Aerial Photographs

Historical aerial photographs of the site and immediate surrounds were reviewed for the site history assessment. The majority of the photographs were obtained from the NSW Department of Lands. A summary of the relevant information is presented in the following table. For the purpose of the aerial photos review, the site north has been maintained as detailed on the attached Figures 1 and 2.

Table 4-1: Summary of Historical Aerial Photos

Year	Details				
1930	The majority of the site was occupied by a significant excavation that was consistent with a quarry. The site areas adjacent to Tennyson Road and a narrow strip beyond the quarry excavation to the north and east appeared to be grassed.  A number of relatively large buildings were located to the south and south-east of				
	the site that were most likely associated with the quarry/brickworks. The remainder of the surrounds generally appeared vacant and grassed, or occupied by residential-type buildings. A larger quarry was located further to the north, beyond Victoria Road.				
194314	The site generally appeared to be similar to the 1930 photograph except that surface water was visible in the southern section of the quarry excavation.				
	There was an increase in residential-type properties in the areas that surrounded the site.				
1951	Two relatively small buildings were located in the north-west section of the site. The quarry appeared to have been extended towards the west. A building (of unknown use) and associated driveway were located in the south-west section of the site, adjacent to Tennyson Road.				
	The buildings that were most likely associated with the brickworks (to the southeast of the site) had been demolished and a new, relatively large commercial/industrial-type building (of unknown use) had been constructed in this area.				
1961	The site generally appeared to be similar to the 1951 photograph except that vegetation was visible in the north section of the site (most likely towards the base of the quarry).				
	A large commercial/industrial-type building/warehouse (of unknown use) was				

<sup>&</sup>lt;sup>14</sup> https://six.maps.nsw.gov.au/wps/portal/SIXViewer, visited on 11 October 2012

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Year	Details
	located to the north of the site (with frontage onto Tennyson and Victoria Roads). A smaller building was located to the east of the larger building.
1970	The two smaller buildings in the north-west section of the site (within the quarry) had been demolished and a larger building was located in this area. Several smaller objects (possibly cars and hoarded materials) were visible to the east and south-east of the building. The driveway entrance in the south-west section of the site had been reconfigured and was directed towards the new building.
	An additional building was located to the north-east of the site. The area to the south of the site had been developed for commercial/industrial land use and was occupied by a hardstand area and warehouse-type building. A car park was located to the east of the site.
	There was a general increase in residential-type land use in the surrounding areas to the south, east and west.
1978	The buildings in the north-west and south-west sections of the site had been demolished and the site had been redeveloped. The site configuration appeared similar to the existing (2012) layout with a large warehouse in the central area and a smaller building to the west, adjacent to Tennyson Road.
	The immediate surrounds generally appeared to be similar to the 1970 photograph.
1986	The site and the immediate surrounds generally appeared to be similar to the 1978 photograph.
1994	The site generally appeared to be similar to the 1986 photograph.
	The large commercial/industrial-type building/warehouse located to the north of the site had been demolished/reconfigured. This area was occupied by a slightly smaller, commercial/industrial-type building (of unknown use) with a hardstand area to the south of the building (i.e. adjacent to the north site boundary). Additional commercial/industrial-type buildings were located to the east and south-east.
2005	The site and the immediate surrounds generally appeared to be similar to the 1994 photograph.

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# 4.2 Land Title Search

Land title records were reviewed for the site history assessment. The record search was performed by Advance Legal Searchers. Copies of the title records are presented in Appendix C. A summary of the relevant information is presented in the following table:

Table 4-2: Summary of Land Title Information

Date	Proprietor		
	(Lot 2 DP 549570)		
1993 – to date	Ficixa Pty Limited		
1998 - 1993	Home Yardage Pty Limited		
(1988 - to date)	(various commercial leases see Folio Identifier 2/549570)		
	(Lot 2 DP 54570 - CTVol 11700 Fol 43)		
1984 - 1988	Home Yardage Pty Limited		
1984 - 1988	(lease to Sydney County Council of part)		
1971 -1984	Australian Consolidated Press Limited		
1971 - 1971	Rota Gota Pty Limited		
(1971 – 1973)	(lease to Sydney County Council of substation Premises No 2628)		
	(Lot B DP 391095 - Area 5 Acres 3 Roods 17½ Perches _ CTVol 6977 Fo 139)		
1971 - 1971	Rota Gota Pty Limited		
(1968 – 1971)	(lease to Sydney County Council of substation Premises No 2628)		
1958 - 1967	The British United Shoe Machinery Company of Australia Proprietary Limited.		
	(Part Portion 130 Parish Hunters Hill - Area 10 Acreas 3 Roods 9 Perches - CTVol 5967 Fol 156)		
1949 - 1958	The British United Shoe Machinery Company of Australia Proprietary Limited.		
	(Part Portion 130 Parish Hunters Hill and other Lands – Area 10 Acres 3 Roods 12 Perches – CTVol 5867 Fol 157)		
1948 - 1949	The British United Shoe Machinery Company of Australia Proprietary Limited.		
	(Part Portion 130 Parish Hunters Hill abs other lands – Are 13 Acres 3 Roods 23% Perches – CTVol 4609 Fol 119)		
1947 - 1948	The British United Shoe Machinery Company of Australia Proprietary Limited.		
1937 - 1947	Brickworks Limited		
	(formerly Brickworks Pty Limited)		
1934 - 1937	Moorview Brick Co Limited		
	(Part Portion 130 Parish Hunters Hill and other lands - Area 14 Acres (Roods 32 Perches - CTVol 3160 Fol 152)		

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Date	Proprietor
1921 - 1937	Moorview Brick Co Limited
1921 - 1921	John Symonds, engineer & contractor
	(Part Portion 130 Parish Hunters Hill and other lands - Area 13 Acres 3
	Roods 14 ¾ Perches - CTVol Fol 76)
1916 - 1921	John Symonds, engineer & contractor
	(Part Portion 130 Parish Hunter Hill - Area 15 Acres 2 Roods 27 ¼ Perches -
	CTVol 1648 Fol 164)
1905- 1916	Walket Thomas Way, pastry cook

The title records indicated the following:

- The Moorview Brick Co Ltd purchased the site in 1921 and it is likely that the quarrying operations commenced around this time. The property was transferred to various companies associated with the brickworks until 1947;
- The British United Shoe Machinery Company of Australia Pty Ltd purchased the site in 1947 and maintained ownership until 1967. The specific activities undertaken at the site during this period are unknown, however, it is possible that land was utilised for industrial activities associated with machinery production (and/or possibly shoe production);
- Site ownership was transferred several times from around 1971 until 1993. The
  registered proprietors included Rota Gota Pty Ltd, Australian Consolidated Press
  Ltd (possibly a magazine printer/distributor) and Home Yardage Pty Ltd (a fabric
  and upholstery producer/distributor); and
- The existing proprietor purchased the site in 1993 and has leased the site to various companies. None of the leases were of particular interest as they are relatively consistent with the existing (2012) tenants as detailed in Section 3.

The various industrial activities may have resulted in contamination at the site through processes such as printing and machinery manufacturing. The installation and utilisation of USTs was not uncommon for the purpose of servicing generators and other on-site machinery.

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## 4.3 Council Records

# 4.3.1 Development Applications (DA), Building Approvals (BA)

Council DA and BA records were reviewed for the site history assessment. A summary of the relevant information is provided in the following table:

Table 4-3: Summary of Council Records

Record	Application Details	
Number		
BA1981/204	Office building A additions (not determined)	
BA1981/263	Warehouse A1 Alterations (approved 10/4/1981)	
BA1983/920	Office Building A Additions (approved 1/9/1983)	
BA1993/41	Toys (approved 31/3/1993)	
LDA2008/132	Division of warehouse into smaller tenancies (approved 23/12/2008)	
CDP2011/7	Fit out to an existing office (approved 11/01/2011)	

The council records did not indicate any particular land use or development that may have resulted in significant site contamination.

# 4.3.2 Section 149 Planning Certificate

The s149 (2 and 5) planning certificates were reviewed for the site history assessment. Copies of the certificates are attached in Appendix C. A summary of the relevant information is presented below:

- The land does not include nor comprise critical habitat (under the Ryde LEP);
- The land is not located within a heritage conservation area and does not include any heritage items (under the Ryde LEP);
- The site is not located within an acid sulfate soil risk area;
- The site is not deemed to be: significantly contaminated; subject to a
  management order; subject of an approved voluntary management proposal; or
  subject to an on-going management order under the provisions of CLM Act 1997;
  and
- The site is not subject to a Site Audit Statement (SAS).

#### 4.4 WorkCover Records

WorkCover records were reviewed for the site history assessment. A copy of the records is attached in Appendix C. A summary of the relevant information is provided in the following table:

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Table 4-4: Summary of WorkCover Records

Record Number	License Details		
35/015697	Renewal application for a license for a 12,000L UST that contained petrol		
(dated 1992)	(applicant: Home Yardage). The approximate location of the UST is shown on Figure 2.		
35/0156973	Application relating to a license for a 2,000 gallon UST that contained 'mineral spirit' (applicant: Golden Press). The records indicate that the UST may be the same as noted above as the location does not differ.		

# 4.5 NSW EPA Records

The NSW EPA records available online were reviewed for the site history assessment. Copies of the records are attached in Appendix C. A summary of the relevant information is provided in the following table:

Table 4-5: Summary of NSW EPA Online Records

Source	Details		
CLM Act 1997 <sup>15</sup>	There were no notices for the site under Section 58 of the Act.		
NSW EPA List of Contaminated	The site was not listed in the NSW EPA register.		
Sites <sup>16</sup> There were two Caltex Service station sites listed on the regist suburb of Gladesville. These properties were located on Victoria Reeast of the site and were not considered to be potential contamination sources.			
POEO Register <sup>17</sup>	Register <sup>17</sup> No notices for the site in the POEO register.		

## 4.6 Integrity of Site History Information

The site history information has generally been obtained from government organisations including: NSW Land Titles Office, local council archives, Department of Lands, NSW WorkCover records and NSW EPA records. The veracity of the information from these sources is considered to be high, however, given the age of the development, the gap of up to 13 years between aerial photographs and the lack of detailed information available on activities prior to the 1930s and during the previous industrial site use, a certain degree of information loss can be expected.

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<sup>&</sup>lt;sup>15</sup> http://www.environment.nsw.gov.au/prclmapp/searchregister.aspx, visited on 11 October 2012

<sup>&</sup>lt;sup>16</sup> http://www.environment.nsw.gov.au/clm/publiclist.htm, visited on 11 October 2012

<sup>&</sup>lt;sup>17</sup> http://www.environment.nsw.gov.au/prpoeoapp/, visited on 11 October 2012

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Non verifiable anecdotal information has not been reported. Therefore, there is considered to be a high level of integrity associated with information reviewed for the assessment.

# 4.7 Summary of Site History

The site history assessment has indicated the following:

Table 4-6: Site History Summary

Source	Summary
Aerial Photos	The photographs indicated that the quarry had commenced operation prior to 1930. Various buildings were constructed and subsequently demolished in the north-west and south-west sections of the site. The existing (2012) buildings and associated hardstand areas were constructed sometime between 1970 and 1978. Significant changes to the site layout did not occur from this time.
	The surrounding land use was a mix of commercial-industrial and residential.
Land Title Records	The records suggested that a number of industrial activities may have been undertaken at the site. The various industrial activities may have resulted in contamination at the site through processes such as printing and machinery manufacturing. The installation and utilisation of USTs was not uncommon for the purpose of servicing generators and other on-site machinery.
Local Council Records	The records did not indicate any particular land use or development that may have resulted in significant site contamination.
WorkCover Records	The records indicated that at least one UST is located in the south-west section of the site (as shown on Figure 2). The fate of the UST is unknown.
NSW EPA Records	There are no EPA notices for the site. The site is not listed on the CLM register.

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# 5 CONCEPTUAL SITE MODEL (CSM)

# 5.1 Contamination Sources and Potential Contaminants of Concern (PCC)

The potential contamination sources and PCC identified at the site are outlined in the following table:

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Source	Land Use / Site Feature	PCC
Fill material	On-site: Fill material historically imported to achieve	Soil: HM, TPH,
	existing site levels can contain elevated concentrations	BTEX/VOCs, PAHs
	of contaminants. Elevated contaminants have the	OCPs, OPPs, PCBs
	potential to impact the groundwater by leaching.	and asbestos
	Off-site: The site is located in an area of Sydney which has been historically backfilled for reclamation purposes.	Groundwater: the PCC would be
	The groundwater in the vicinity of the site may be impacted by contaminants encountered in the fill	expected to be associated with the
	surrounding the site.	more mobile
		contaminants such as HM, TPH, BTEX and PAHs
Industrial	On-site: The site was formerly (and part of the site is	Soil: HM, TPH,
activities	currently) used for industrial purposes. The specific industrial processes have not been confirmed, however, contamination could have occurred during this period	BTEX/VOCs, PAHs and asbestos
	associated with manufacturing processes, and storage and spillage of chemicals.	Groundwater: the PCC would be
	Off-site: The area immediately up-gradient of the site	expected to be associated with the
	has historically be used for unknown commercial/industrial purposes. There is a potential for	more mobile contaminants such
	on-site migration of contaminated groundwater from the adjoining property.	as HM, TPH, BTEX and PAHs
Chemical	On-site: Various chemicals may have been used on-site	Soil: HM, TPH,
storage	during past industrial activities. Currently, Gel Works manufactures and stores personal lubricants which	BTEX/VOCs and PAHs
	utilise various substances such as ethanol, propylene	
	glycol and paraphen (hydroxyl benzoate).	Groundwater: the
	Off sites Company with site industrial and sites in the	PCC would be
	Off-site: Same as "off-site industrial activities" detailed above.	expected to be associated with the
		more mobile
		more mobile

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Source	Land Use / Site Feature	PCC
		as TPH, BTEX/VOCs and PAHs
USTs	On-site: A suspected UST was identified in the southwest section of the site as shown in Figure 2.	Soil and groundwater: Lead, TPH, BTEX/VOCs
	Off-site: The presence of USTs in up-gradient, off-site areas cannot be ruled out.	and PAHs
Substation	On-site: A substation is understood to be located in the south-west section of the site. The exact location of this feature has not been established.	Soil: PCBs
Demolition of former buildings	On-site: A number of buildings were constructed and subsequently demolished at the site. The buildings were predominantly located in the north-west section of the quarry area and the south west section of the site (in the vicinity of the existing brick rendered building, adjacent to Tennyson Road).	Soil: Asbestos

#### Note:

HM - Heavy metals including arsenic, cadmium, chromium, copper, lead, mercury, nickel & zinc

TPH - Total petroleum hydrocarbons including light, mid and heavy fractions

BTEX - Monocyclic aromatic hydrocarbons

VOCs - Volatile organic compounds includes BTEX compounds

PAHs - Polycyclic aromatic hydrocarbons

OCPs - Organochlorine pesticides

OPPs - Organophosphorus pesticides

PCBs - Polychlorinated Biphenyls

## 5.2 Contamination Fate and Transport

The fate and transport of the PCC identified above is outlined in the following table:

Table 5-2: Fate and Transport of PCC

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PCC	Fate and Transport
Non-volatile contaminants	With the exception of asbestos, non-volatile contaminants are
including metals, heavy	predominantly confined to the soil and groundwater medium. The
fraction PAHs, OCPs,	mobility of these contaminants varies depending on: the nature and
OPPs, PCBs and asbestos	type of contaminant present; soil type/porosity; surface water
	infiltration; groundwater levels; and the rate of groundwater
	movement.
	At this site, surface water infiltration is very limited which would reduce the migration potential for certain contaminants. The
	presence of paved surfaces in the surrounding areas can also limit

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PCC

#### Fate and Transport

the migration potential for non-volatile contaminants.

Non-volatile contaminants associated with ash and slag waste (such as heavy fraction PAHs and some heavy metals) are bound within a relatively insoluble matrix. Slag and ash is usually formed as a byproduct of combustion at high temperatures which 'locks in' the contaminants within the matrix.

The potential for migration of asbestos fibres would increase following disturbance of asbestos contaminated soils. This is likely to occur during demolition and excavation works.

A number of studies have found that soils effectively filter out asbestos fibres and retain them near the surface. The studies concluded that there is no significant migration of asbestos fibres, either through soil or groundwater. The transport of airborne asbestos is associated with disturbance of the material and therefore would be expected during demolition and excavation works.

Volatile contaminants including TPH, VOCs/BTEX and light fraction PAHs

Volatile contaminants are usually more mobile when compared to the non-volatile compounds. The potential for migration of volatile contaminants such as light fraction PAHs, TPHs and BTEX/VOCs can be relatively high in sandy soil with a high water table or in areas where water can move freely along the soil/fill/bedrock interface. Surface water infiltration can also accelerate the migration potential of these contaminants.

Volatile contaminants break down rapidly as a result of microbial activity and availability of nutrients including nitrogen, oxygen etc. The mobile contaminants would be expected to move down to the rock surface or groundwater table and migrate down gradient from the source. The mobility would depend on a range of factors including: soil type/porosity; confining layers within the aquifer; and solubility in groundwater.

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# 5.3 Potential Receptors and Exposure Pathways

The potential receptors and exposure pathways identified for the PCC at the site are presented in the following table:

Table 5-3: Potential Receptors and Exposure Pathways

Receptors	Exposure Pathway
On-site human receptors include: - Site occupants; - Site visitors; - Contractors and workers; and - Future site occupants.	<ul> <li>Exposure by direct dermal contact, ingestion and inhalation (soil and groundwater contamination)</li> <li>Inhalation of airborne asbestos fibres mobilised during demolition works and/or excavation activities associated with the proposed development works</li> </ul>
On-site environmental receptors include: - The groundwater system.	<ul> <li>Contamination can enter the groundwater system via the migration of mobile contaminants from the surface soils and/or from UST.</li> </ul>
Off-site human receptors include:  Off-site occupants;  Off-site visitors; and  Contractors and workers in the adjoining area.	<ul> <li>Exposure by direct dermal contact, ingestion and inhalation (i.e. dust and fugitive emissions from volatile contaminants, primarily during the proposed demolition/construction activities</li> <li>Inhalation of airborne asbestos fibres mobilised during demolition works and/or excavation activities associated with the proposed development works</li> <li>Migration of potentially contaminated groundwater</li> </ul>
No nearby off-site environmental receptors were identified	Although Glades Bay is down-gradient, the bay is not considered to be a potential receptor due to the distance from the site.

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## 6 SITE ASSESSMENT CRITERIA (SAC)

#### 6.1 Soil

The assessment criteria for soil contamination are derived from NEPM 1999 and the Site Auditor Guidelines 2006.

#### 6.1.1 Health Investigation Levels (HILs)

The NEPM 1999 includes Health Based Investigation Levels (HILs) for a range of contaminants based on the risk of exposure, duration of exposure, toxicity and land use (availability). The HILs are divided into four categories outlined in the following table:

Table 6-1: HILs Categories

Category/Column	Land Use
Column A	'Standard' residential with garden/ accessible soil (home-grown produce contributing less than 10% of vegetable and fruit intake; no poultry); includes children's day-care centres, kindergartens, preschools and primary schools.
Column D	Residential with minimal opportunities for soil access: includes dwellings with fully and permanently paved yard space such as high-rise apartments and flats.
Column E	Parks, recreational open space and playing fields: includes secondary schools.
Column F	Commercial/Industrial: includes premises such as shops and offices as well as factories and industrial sites.

Where the proposed land use includes more than one land use category (e.g. a mixed-use development including residential/retail/commercial land uses) the exposure setting of the most 'sensitive' land use should be adopted for the site.

#### 6.1.2 Petroleum Hydrocarbons in Soil

Threshold concentrations for petroleum hydrocarbon including total TPH and BTEX compounds have been adopted from the Service Station Guidelines 1994 referenced in the Site Auditor Guidelines 2006. Heavy fraction petroleum hydrocarbon aliphatic/aromatic component threshold concentrations have been adopted from NEPM 1999 (as applicable).

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Soil samples are initially analysed for total recoverable hydrocarbons (TRH) without a preliminary silica gel clean-up of the sample. Consequently the TRH result may include other compounds such as phthalates, humic acids, fatty acids and sterols (if present).

Silica gel clean-up should remove these other compounds and result in a more accurate result for petroleum hydrocarbons. If undertaken these results have been referred to as TPH<sub>sgel</sub> within this report.

# 6.1.3 Provisional Phyto-toxicity Investigation Levels (PPILs)

PPILs are included in the assessment where the proposed land use includes landscaped areas or garden accessible soils. Contaminants above the PPIL threshold may cause phytotoxicity in some plant species. The PPILs are listed in the Site Auditor Guidelines 2006 and are identical to the Ecological Investigation Levels (EILs) specified in NEPM 1999. The PPILs have not been included for this assessment.

#### 6.1.4 Asbestos in Soil

The NEPM 1999 do not provide numeric guidelines for the assessment of asbestos in soil. The draft NEPM<sup>18</sup> guidelines have essentially adopted the Western Australian Asbestos Guidelines 2009<sup>19</sup> which prescribe a site investigative model and asbestos clean-up goals. These guidelines however, have not yet been adopted in NSW and as such are generally only used on a site specific basis.

The general criterion currently used for the assessment of asbestos in soil is the presence/absence of asbestos in soil in accordance with AS4964-2004<sup>20</sup>. If asbestos is found to be present, the status of the asbestos material (friable or bonded/non-friable) is further considered due to the implications associated with site remediation and/or management.

The WorkCover publication *Working with Asbestos Guide* (2008<sup>21</sup>) recommend that the status of the asbestos material in soil should be assessed by an occupational hygienist. More recently, the 2011 WHS Regulation<sup>22</sup> and associated Safe Work Australia code of

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<sup>&</sup>lt;sup>18</sup> Draft National Environmental Protection (Assessment of Site Contamination) Measure, as varied, National Environment Protection Council (NEPC), 2011 (Draft NEPM 2011)

<sup>&</sup>lt;sup>19</sup> Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia, WA Department of health, Perth, Australia, May 2009 (Western Australian Asbestos Guidelines 2009)

<sup>&</sup>lt;sup>20</sup> Australian Standard 4964, Method for the Qualitative Identification of Asbestos in Bulk Samples, Australian Standards, 2004

<sup>&</sup>lt;sup>21</sup> Working with Asbestos Guide, NSW WorkCover, 2008 (WorkCover Working with Asbestos Guide 2008)

<sup>&</sup>lt;sup>22</sup> Work Health and Safety Regulation, NSW Government 2011

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practice, *How to Safely Remove Asbestos*<sup>23</sup> (endorsed by WorkCover NSW) states that the assessment of asbestos contaminated soil is to be undertaken by a licenced asbestos assessor or competent person. WorkCover NSW has not currently issued any licences for asbestos assessors. Correspondence with WorkCover indicates that the licence program is currently being implemented in accordance with the Safe Work Australia Guide for Applicants for Asbestos Assessor Licence<sup>24</sup>. The ACT Planning and Land Authority currently issues licences for asbestos assessor Class A and Class B.

At present, the assessment of asbestos contamination in soil is undertaken in accordance with the NEPM guidelines, the adoption of the draft NEPM is considered only on a site specific basis. Assessment of the contaminant levels and status of asbestos contaminated soil is undertaken by a combination of: site assessment by experienced environmental consultants and ACT accredited asbestos assessors; and soil screening by NATA endorsed laboratories using AS4964-2004.

#### 6.1.5 Soil Assessment Criteria

No specific criteria have been included for VOCs, as only a preliminary screening was undertaken for this ESA as detailed in **Section 8.1.1**.

The soil assessment criteria adopted for the ESA is presented in the following table:

Table 6-2: Soil SAC

Column D <sup>1</sup> (mg/kg)	
400	
80	
48%	
4000	
1200	
60	
2400	
28000	
65 ª	
1000 a	
1 a	
1.4ª	
3.1 ª	
14 <sup>a</sup>	

<sup>&</sup>lt;sup>23</sup> National Code of Practice How to Safely Remove Asbestos, Safe Work Australia 2011

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<sup>&</sup>lt;sup>24</sup>Guide for Applicants for Asbestos Removal and Asbestos Assessor Licences and Notifications, Safe Work Australia 2012

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Column D <sup>1</sup> (mg/kg)
80
4
40
200
800
40
O.1 <sup>b</sup>
40
NDLR °

#### Note:

- 1 HILs outlined in NEPM 1999
- 2 PPILs outlined in the Site Auditor Guidelines 2006
- a Service Station Guidelines 1994
- b- Due to the absence of locally endorsed guideline criteria, the laboratory PQL has been adopted
- c Not Detected at Limit of Reporting (NDLR)

Na - Not Applicable

# 6.1.6 Waste Classification Criteria for Off-Site Disposal

Any material excavated for the proposed development will require a waste classification for off-site disposal in accordance with the Waste Classification Guidelines 2009.

Soils are classed into the following categories based on the chemical contaminant criteria outlined in the guidelines (refer to Table A):

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Table 6-3: Waste Categories

Category	Description	
General Solid Waste (non- putrescible) (GSW)	<ul> <li>If SCC ≤ CT1 then TCLP not need to classify the soil as GSW</li> <li>If TCLP ≤ TCLP1 and SCC ≤ SCC1 then treat as GSW</li> </ul>	
Restricted Solid Waste (non- putrescible) (RSW)	<ul> <li>If SCC ≤ CT2 then TCLP not need to classify the soil as RSW</li> <li>If TCLP ≤ TCLP2 and SCC ≤ SCC2 then treat as RSW</li> </ul>	
Hazardous Waste (HW)	<ul> <li>If SCC &gt; CT2 then TCLP not need to classify the soil as HW</li> <li>If TCLP &gt; TCLP2 and/or SCC &gt; SCC2 then treat as HW</li> </ul>	
Excavated Natural Material (ENM)	The criteria to classify material as ENM are outlined in The Excavated Natural Material Exemption (2008 <sup>25</sup> ).	
Virgin Excavated Natural Material (VENM)	Natural material (such as clay, gravel, sand, soil or rock fines) that meet the following:  • that has been excavated or quarried from areas that are not contaminated with manufactured chemicals, or with process residues, as a result of industrial, commercial mining or agricultural activities;  • that does not contain sulfidic ores or other waste; and • includes excavated natural material that meets such criteria for virgin excavated natural material as may be approved from time to time by a notice published in the NSW Government Gazette.	

# Note:

SCC - Specific Contaminant Concentration

CT - Contaminant Threshold

TCLP - Toxicity Characteristics Leaching Procedure

## 6.1.7 General Approvals of Immobilisation (GAI)

Significant amounts of waste ash and gravely slag were available in the late nineteenth and early twentieth century as a result of the use of coal for industrial and domestic heating purposes. Widespread use of ash waste (either as ash or mixed with other soil and waste materials) as fill material was common in the suburbs of Sydney at this time.

To account for the presence of ash and slag, the NSW EPA has published the following:

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<sup>&</sup>lt;sup>25</sup> Protection of the Environment Operations (Waste) Regulation 2005 – General Exemption Under Part 6, Clase 51 and 51A, The excavated natural material exemption, 2008 (ENM exemption 2008)

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Table 6-4: GAIs

Approval	Waste Stream	Contaminants	Waste Assessment Requirements
Number			
1999/05 <sup>26</sup>	Ash, Ash-contaminated natural excavated materials or coal-contaminated natural excavated material	B(a)P and PAHs	The SCC limits for PAHs and B(a)P outlined in the Waste Classification Guidelines 2009 do not apply for the assessment of this waste stream. The material can be classified according to the leachable concentration (TCLP) value of B(a)P alone. Disposal restrictions apply for material classified under this GAI.
2009/07 <sup>27</sup>	Metallurgical furnace slag or metallurgical furnace slag contaminated natural excavated materials	Beryllium, Chromium (VI), lead, nickel, PAHs and B(a)P	The SCC limits for these contaminants outlined in the Waste Classification Guidelines 2009 do not apply for the assessment of this waste stream. The material can be classified according to their leachable concentrations (TCLP) values alone.

#### Note:

SCC - Specific Contaminant Concentration

TCLP - Toxicity Characteristics Leaching Procedure

B(a)P - Benzo(a)pyrene

PAHs - Polycyclic Aromatic Hydrocarbons

<sup>26</sup> http://www.environment.nsw.gov.au/resources/waste/GenImmobApp 1999-05 Ash ACNEM or CCNEM.pdf (GAI 1999/05)

<sup>&</sup>lt;sup>27</sup> http://www.environment.nsw.gov.au/resources/waste/2009-07 Metallurgical furnace slag.pdf (GAI 2009/07)

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## 7 INVESTIGATION PROCEDURE

## 7.1 Soil Sampling Rationale

The NSW EPA Sampling Design Guidelines 1995 recommend specific sampling densities for contamination assessments based on a systematic sampling pattern. Based on the size of the investigation area, the guidelines provide a minimum number of sampling points required for the investigation. The guidelines recommend sampling from a minimum of 25 evenly spaced sampling points for a site of this size (approximately 15,000m²).

Samples were obtained from seven locations for this investigation as shown on the attached Figure 2. This density is approximately 30% of the minimum sampling density.

The sampling locations were distributed relatively evenly across the site in the areas outside the building footprints. Due to the preliminary nature of the investigation, none of the potential contamination point sources (i.e. the suspected UST) were targeted

The following areas were excluded from the assessment:

Table 7-1: Exclusion Areas

Area	Description		
Buildings	Sampling was not undertaken beneath the existing buildings at the site as		
	access was not possible during the field investigation.		

# 7.1.1 Soil Sampling Methods

Soil sampling was undertaken using the following methods:

Table 7-2: Soil sampling methods

Sample Locations	Date	Method	
BH1 to BH7		Sampling locations were set out using a tape measure.  Locations were marked using spray paint. The sampling locations were cleared for underground services prior to drilling.	
		The sample locations were drilled using a truck/track mounted hydraulically operated drill rig equipped with spiral flight augers. Soil samples were obtained from a Standard Penetration Test (SPT) sampler or directly from the auger when conditions did not allow use of the SPT sampler.	

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Soil samples were collected from the fill and natural profiles encountered during the investigation. Additional fill samples were obtained when relatively deep fill (>0.5m) was encountered. Samples were also obtained when there was a distinct change in lithology or based on the observations made during the investigation. All samples were recorded on the borehole logs attached in Appendix A.

During sampling, soil at selected depths was split into initial and duplicate samples for field QA/QC analysis.

Samples were placed in glass jars with plastic caps and teflon seals with minimal headspace. Samples for asbestos analysis were placed in zip-lock plastic bags. Sampling personnel used disposable nitrile gloves during sampling activities. The samples were labelled with the job number, sampling location, sampling depth and date.

## 7.1.2 VOC Screening

A portable Photoionisation Detector (PID) was used to screen the samples for the presence of VOCs and to assist with selection of samples for BTEX analysis.

The sensitivity of the PID is dependent on the organic compound and varies for different mixtures of hydrocarbons. Some compounds give relatively high readings and some can be undetectable even though present in identical concentrations. The portable PID is best used semi-quantitatively to compare samples contaminated by the same hydrocarbon source.

The PID is calibrated before use by measurement of an isobutylene standard gas. All the PID measurements are quoted as parts per million (ppm) isobutylene equivalents.

PID screening for VOCs was undertaken on soil samples using the soil sample headspace method. VOC data was obtained from partly filled zip-lock plastic bags following equilibration of the headspace gases. The PID headspace data is presented on the COC documents. PID calibration records are retained on file by EIS

# 7.1.3 Decontamination and Sample Preservation

Details of the decontamination procedure adopted during sampling are presented in Appendix D. Where applicable, the sampling equipment was decontaminated using a scrubbing brush and potable water and Decon 90 solution (phosphate free detergent) followed by rinsing with potable water.

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Soil samples were preserved by immediate storage in an insulated sample container with ice in accordance with AS4482.1-2005 and AS4482.2-1999<sup>28</sup> as summarised in the following table:

Table 7-3: Soil sample preservation and storage

Analyte	Preservation	Storage
Heavy metals	Unpreserved glass jar with Teflon lined lid	Store at <4°, analysis within 28 days (mercury and Cr[VI]) and 180 days (other metals).
VOCs (TPH/BTEX)	As above	Store at <4°, analysis within 14 days
PAHs, OCP, OPP & PCBs	As above	Store at <4°, analysis within 14 days
Asbestos	Sealed plastic bag	None

On completion of the fieldwork, the samples were delivered in the insulated sample container to a NATA registered laboratory for analysis under standard COC procedures. Field sampling protocols adopted for this assessment are summarised in Appendix D.

# 7.2 Laboratory Analysis

The soil and groundwater samples were analysed by the following laboratories:

Table 7-4: Laboratory Details

0	Labanakana	D
Samples	Laboratory	Report Reference
All primary soil and	Envirolab Services Pty Ltd, NATA	79191, 79191-B,
groundwater samples, intra-	Accreditation Number - 2901	79306 and 79306-B
laboratory duplicates, trip	(ISO/IEC 17025 compliance)	
blanks, trip spikes and field		
rinsate samples		

Samples were analysed by the laboratory using the analytical methods detailed in Schedule B(3) of NEPM (1999<sup>29</sup>). Reference should be made to the laboratory reports attached in Appendix B for further details.

<sup>&</sup>lt;sup>28</sup> Guide to the Sampling and Investigation of Potentially Contaminated Soil Part2: Volatile Substances, Standards Australia, 1999 (AS 1999)

<sup>&</sup>lt;sup>29</sup> Guideline on Laboratory Analysis of Potentially Contaminated Soils, Schedule B(3), NEPM, 1999 (Schedule B(3))

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# 7.3 Soil Analytical Schedule

The soil analytical schedule is outlined in the following table:

Table 7-5: Laboratory Analytical Schedule

PCC	No. of Fill Soil	No. of Natural
	Samples	Samples (shale/soil)
Heavy Metals	10	1
TPH/BTEX	10	1
PAHs	10	1
OCPs/OPPs	10	1
PCBs	10	1
Asbestos	10	0

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## 8 INVESTIGATION RESULTS

#### 8.1 Subsurface Conditions

A summary of the subsurface soil conditions encountered during the investigation is presented in the table below. Reference should be made to the borehole logs attached in Appendix A for further details.

Table 8-1: Summary of subsurface conditions

Profile	Depth Range (mBGL <sup>1</sup> )	Description
Pavement	Surface to 0.1m	Pavement was encountered at the surface in all boreholes except BH3. The pavement consisted of concrete or AC and was of variable thickness.
Fill	Beneath the pavement to 0.9m	Fill material was encountered in all seven boreholes and extended to depths ranging from 0.3m in BH1 and BH5, to 3.5m in BH7. The fill was variable and included sandy gravel, gravelly clay and clayey gravel with crushed shale inclusions.
Bedrock	Beneath the fill to the termination depth of each borehole	Sandstone, shale and interbedded shale and sandstone bedrock was encountered beneath the fill material in all boreholes. The bedrock was typically dark grey and light grey.

#### Note:

# 8.1.1 VOC Screening

PID soil sample headspace readings are presented in Table B. The results ranged from Oppm to 7.2ppm equivalent isobutylene. These results indicate that relatively small quantities of PID detectable VOCs were present in the samples. Samples with elevated PID readings were analysed for TPH and BTEX.

# 8.2 Soil Laboratory Results

The soil laboratory results are presented in Table B and Table C attached to the report. The laboratory reports are presented in Appendix B. A summary of the results assessed against the SAC is presented below.

<sup>1 -</sup> Metres below ground level

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Table 8-2: Summary of soil laboratory results

Analyte	Number of	Results Compared to SAC and Waste Classification Guidelines
	Samples	
	Analysed	
Heavy Metals	Ten fill and one natural shale	All results were below the SAC.
	sample	Elevated concentrations of nickel were encountered above the PPILs in two fill samples.
		<u>WC:</u> The nickel concentrations in three fill samples exceeded the CT1 criterion outlined in the Waste Classification Guidelines 2009. The remaining results were below the CT1 criteria and all results were below the SCC1 criteria.
		TCLP leachates were prepared from the three fill samples with the elevated nickel concentrations and were analysed for nickel. The TCLP results were less than the TCLP1 criterion.
na	Ten fill and one natural shale sample	An elevated toluene concentration (3mg/kg) was encountered in the fill sample BH7 (0.1-0.3m) which was above the SAC of 1.4mg/kg. The remaining TPH and BTEX results were below the SAC.
		A quantifiable concentration of benzene was encountered in the natural shale sample obtained from BH1 (0.6-0.8m). However, the concentration was less than the SAC.
		$\underline{\text{WC:}}$ All results were less than the relevant CT1 and SCC1 criteria.
		<u>Stats:</u> Due to the limited data set, reliable statistical analysis could not be undertaken.
PAHs	Ten fill and one	All results were below the SAC.
	natural shale sample	<u>WC:</u> All results were less than the relevant CT1 and SCC1 criteria.
OCPs & OPPs	Ten fill and one natural shale sample	All results were below the laboratory PQLs and were less than the SAC.
		$\underline{\text{WC:}}$ All results were less than the relevant CT1 and SCC1 criteria.
PCBs	Ten fill and one natural shale	All results were below the SAC.

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Analyte	Number of Samples Analysed	Results Compared to SAC and Waste Classification Guidelines
	sample	WC: All results were less than the SCC1 criterion.
Asbestos	Ten fill samples	No asbestos was detected in the samples. All results were below the laboratory reporting limit.

HILs - Health Investigation Levels

PPILs - Provision Phyto-toxicity Investigation Levels

PQLs - Practical Quantitation Limits

SAC - Site Assessment Criteria

Stats - Statistical Analysis

WC - Waste Classification Guidelines 2009

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#### 9 QA/QC ASSESSMENT

The QA/QC assessment includes a review of the DQIs established for the investigation (see Section 2.2). A summary of the field QA/QC samples are outlined below:

Table 9-1: Field QA/QC Samples

Field (	DA/QC	Frequency	Sample Details
Intra-	\	10% of Primary	Soil Samples:
laborat duplica	•	Samples	Dup 1 is a soil duplicate of sample BH1 (0.1-0.3m).
Trip (TB)	blanks	One sample	TB is a sand blank carried during sampling and sample transport (19 and 20 September 2012).

An assessment of the DQIs is summarised in the following table.

Table 9-2: Assessment of DQIs

#### Completeness

Data and documentation completeness was achieved through the following measures:

- · A sampling and analysis plan was prepared for the investigation;
- Chain of custody (COC) records were prepared for each batch of samples sent to the labs (see Appendix B);
- Laboratory sample receipt information was reviewed for each batch (see Appendix B);
- NATA registered laboratories were used for all analysis;
- Visual observations and PID screening of samples was undertaken during the investigation as noted on the boreholes logs and COC documents (see Appendix A and B); and
- Samples were analysed for the PCC identified in Section 5.1, except for VOCs which were screened using a PID.

#### Comparability

Data comparability was achieved through the following measures:

- Similar sampling techniques were used during the investigation;
- Appropriate preservation, storage and transport methods were adopted for all samples; and
- Consistent analysis techniques and reporting standards were adopted by the laboratories.

## Representativeness

Data representativeness was achieved through the following measures:

- The sampling plan was optimised to obtain adequate coverage of sample locations in accessible areas of the site; and
- The assessment included a representative coverage of analysis for PCC.

#### Precision

Intra-laboratory RPD Results:

The intra-laboratory soil RPD results are summarised in Table D. The results indicated that field

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precision was acceptable.

#### Accuracy

Accuracy was achieved through the following measures:

- · Trained and qualified field staff were used for the investigation;
- Appropriate industry standard sampling equipment and decontamination procedures were adopted for the investigation as outlined in Appendix D;
- Sampling and screening equipment are routinely factory calibrated. An in-house calibration check was undertaken prior to using onsite. The calibration records are retained on file by EIS;
- Appropriate sample preservation, handling, holding time and COC procedures were adopted for the investigation;
- · The report was prepared generally in accordance with the Reporting Guidelines 1997; and
- · Review of trip blank results are summarised below:

#### Trip Blank Results:

The trip blank results summarised in Table E were all less than the PQLs.

#### Laboratory Duplicate RPD Results:

Laboratory duplicate RPD results for the soil analysis were within the acceptance criteria adopted by the laboratory.

#### Matrix Spike Recovery:

Matrix spike recovery concentrations were within the acceptable limits of 60-140% for organics and 70-130% for inorganics.

## Surrogate Spike Recovery:

Surrogate spike recovery concentrations were within the acceptable limits of 60-140% for organics and 10-140% for VOCs.

## LCS recovery:

LCS recovery concentrations were within the acceptable limits of 60-140% for organics and 70-130% for inorganics.

The DQIs adopted for this investigation (see Section 2.1) have been addressed.

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## 10 DISCUSSION

#### 10.1 Soil

An elevated concentration of toluene, above the SAC, was encountered in one fill sample obtained from BH7 (0.1-0.3m) (see Figure 2). A deeper fill soil sample obtained from BH7 (0.5-0.7m) did not encounter quantifiable concentrations of toluene. This suggests that the toluene contamination is likely to be limited to the upper fill profile(s) and that vertical migration into the deeper soils/bedrock is unlikely to have occurred at this location.

The remaining soil analysis results were below the SAC. Benzene was encountered in a shale sample obtained from BH1 (0.6-0.8m), however, the benzene concentration was below the SAC.

The source of the contamination encountered in BH7 is unknown. BH7 is not located in the immediate vicinity of the suspected UST and therefore it is unlikely that the contamination is associated with the former use of this facility. It is possible that the toluene is associated with a localised spill.

The presence of the suspected UST and a relatively mobile contaminant such as toluene increases the risk of contamination migrating off-site. TPHs and BTEX compounds have the potential to migrate through bedrock and/or through soils along the fill/bedrock interface.

## 10.1.1 Asbestos in Soil

Asbestos was not detected in the soil samples analysed for the investigation. The presence of deeper fill soils in some areas and the paved surfaces across the site limited the assessment of potential asbestos contamination at the site.

#### 10.1.2 PPILs

Two fill samples encountered elevated concentrations of nickel above the PPILs. The PPIL criteria are principally concerned with phytotoxicity (i.e. adverse effects on plant growth in established and proposed areas of landscaping) and are described in NEPM 1999 as "somewhat arbitrary", as the effect of these compounds on plant growth will depend on the soil and plant type. These elevations would require further consideration only if the proposed development is to include landscaping.

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#### 10.2 Waste Classification

#### 10.2.1 Preliminary Classification of Fill Soil for Off-Site Disposal

Based on the results of the preliminary ESA, the fill material is classified as 'General Solid Waste (non-putrescible)' according to the Waste Classification Guidelines 2009. Due to the presence of toluene in BH7 and the potential for at least one UST to be present at the site, this classification should be confirmed following further testing.

## 10.2.2 Classification of Natural Soil and Bedrock for Off-Site Disposal

Due to the presence of benzene in the shale sample obtained from BH1, the natural shale and sandstone bedrock at the site cannot be classified as Virgin Excavated Natural Material (VENM) at this stage. Further testing of this material would be required to confirm the classification of this material for off-site disposal.

## 10.3 Groundwater

An assessment of the groundwater conditions was outside the scope of the preliminary ESA. Although groundwater is not considered to be a significant resource in the immediate vicinity of the site, the presence of BTEX compounds in some of the samples and the existence of at least one UST at the site increases the risk for groundwater contamination. An assessment of the groundwater contamination conditions is considered necessary to better assess these risks.

BTEX compounds are relatively mobile within the groundwater system. If present, the potential for off-site migration of contaminated groundwater is relatively high (particularly as BH7 and the suspected UST are located towards the down gradient site boundary).

## 10.3.1 Dewatering During Development

In the event groundwater is intercepted during excavation works, dewatering will be required. Council and other relevant approvals will be required prior to disposal of groundwater into the stormwater system.

#### 10.4 Assessment of Risk

Due to the presence of toluene above the SAC in one soil sample, and the potential for at least one UST to be present at the site, EIS consider that the risk posed by contamination to the receptors identified in **Section 5.3** is moderate.

The presence of pavements across the majority of the site and the fact that the adjacent, down-gradient land use is not particularly sensitive (i.e. an outdoor car park

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and commercial/industrial development), reduces the potential risks posed by the contaminants.

## 10.5 Data Gaps

Due to the preliminary nature of the investigation, the following data gaps remain:

- Sampling has not been undertaken within the existing building footprints. The
  overall sampling density represents approximately 30% of the minimum guideline
  density for the site;
- A targeted investigation in the vicinity of the suspected UST has not been undertaken;
- The horizontal extent of the toluene contamination in BH7 has not been established;
- The extent of the benzene encountered in BH1 has not been identified. There is a
  possibility that the borehole encountered the edge of a more significant issue; and
- A groundwater investigation has not been undertaken.

#### 10.6 Recommendations

Based on the results of the preliminary ESA, additional investigation work and reporting would be required to address SEPP55. EIS recommend the following:

- An additional soil and groundwater investigation should be undertaken at the site.
  The investigation should be designed to meet the minimum sampling density and
  should also include: targeted investigations in the vicinity of the suspected UST,
  BH1 and BH7; and the installation of a minimum of four groundwater monitoring
  wells, with at least one of the wells located adjacent to and down gradient of the
  suspected UST;
- Samples should generally be analysed for the PCC. A reduced analysis schedule including TPHs, BTEX, PAHs and lead could be considered for the targeted investigations;
- Statistical analysis should be undertaken using the preliminary ESA and additional investigation data;
- Following completion of the additional investigation, a remedial action plan (RAP) should be prepared for the site. The RAP should be implemented during the proposed development works and a suitable site validation report should be prepared on completion of the remediation; and
- Prior to the demolition of any structures on site, a suitably qualified asbestos consultant should be engaged to undertake a hazardous building materials survey of the buildings. The demolition works should be undertaken appropriately based on the findings of the survey.

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## 11 CONCLUSION

Based on the results of the preliminary Stage 1 ESA, EIS are of the opinion that the site could be made suitable for the proposed mixed-use development provided that the recommendations detailed in **Section 10.6** of this report are suitably addressed.

The presence of a UST and relatively low levels of contamination above the SAC are not likely to be a significant constraint to development. However, additional investigation work and reporting would be required to address SEPP55.

# 11.1 Regulatory Requirement

The regulatory requirements applicable for the site are outlined in the following table:

Table 11-1: Regulatory Requirement

Guideline	Applicability
Duty to Report	The requirement to report to the NSW EPA under Section 60 and Duty to
Contamination	Report Contamination 2008 guidelines (under the CLM Amendment Act 2008)
2008 <sup>30</sup>	should be assessed once the results of the additional investigation works have
	been reviewed and a remedial strategy has been selected.
	Please note that in the event the recommendations for additional work and
	remediation are not implemented, there may be justification to report to the
	EPA. EIS can be contacted for further advice regarding notification.
POEO Act 1997	Section 143 of the POEO Act 1997 states that if waste is transported to a place that cannot lawfully be used as a waste facility for that waste, then the transporter and owner of the waste are each guilty of an offence. The transporter and owner of the waste have a duty to ensure that the waste is disposed of in an appropriate manner.
UPSS Regulation 2008	Under the regulation and the AS4976-2008 <sup>31</sup> , all storage systems must be removed from the site in compliance with Section 5 of the standards. In-situ abandonment should only be considered in special circumstances, e.g. where removal will cause serious risks to adjoining tanks, underground structures and adjoining buildings. Approval from the applicable authorities (i.e.
	WorkCover, Council, NSW EPA) may be required under these circumstances.

<sup>&</sup>lt;sup>30</sup> Guidelines on the Duty to Report Contamination, NSW Government Legislation, 2008 (Duty to Report Contamination 2008)

<sup>&</sup>lt;sup>31</sup> The Removal and Disposal of Underground Petroleum Storage Tanks, Standards Australia, 2008 (AS4976-2008)

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Guideline	Applicability
Work Health and Safety Code of Practice 2011 <sup>32</sup>	Sites contaminated with asbestos become a 'workplace' when work is carried out there and require a register and asbestos management plan.

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 $<sup>^{32}</sup>$  Code of Practice - How to Manage and Control Asbestos in the Workplace, WHS Regulation 2011

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## 12 LIMITATIONS

The sampling locations for the investigation have enabled an assessment to be made of the risk of the existence of significant, large quantities of contamination. The conclusions based on this investigation are that, while some contamination of the site is apparent, problems may also be encountered with smaller scale features between sampling points.

EIS adopts no responsibility whatsoever for any problems such as additional USTs, buried items or contaminated material that may be encountered between sampling locations at the site. Development activities at the site should be planned on this basis, and any unexpected problems that may be encountered between sampling locations should be immediately inspected by experienced environmental personnel. This should ensure that such problems are dealt with in an appropriate manner, with minimal disruption to the project timetable and budget.

The conclusions developed in this report are based on site conditions which existed at the time of the investigation and the scope of work outlined in the report. They are based on investigation of conditions at specific locations, chosen to be as representative as possible under the given circumstances, and visual observations of the site and immediate surrounds, together with the interpretation of available historical information and documents reviewed as described in this report.

The investigation and preparation of this report have been undertaken in accordance with accepted practice for environmental consultants, with reference to applicable environmental regulatory authority and industry standards, guidelines and the assessment criteria outlined previously in this report.

Where information has been provided by third parties, EIS has not undertaken any verification process, except where specifically stated in the report.

EIS has not undertaken any assessment of off-site areas that may be potential contamination sources or may have been impacted by site contamination, except where specifically stated in the report.

Subsurface soil and rock conditions encountered between investigation locations may be found to be different from those expected. Groundwater conditions may also vary, especially after climatic changes.

Previous use of this site may have involved excavation for the foundations of buildings, services, and similar facilities. In addition, unrecorded excavation and burial of material may have occurred on the site. Backfilling of excavations could have been undertaken

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with potentially contaminated material that may be discovered in discrete, isolated locations across the site during construction work.

EIS accept no responsibility for potentially asbestos containing materials that may exist at the site. These materials may be associated with demolition of pre-1990 constructed buildings or fill material at the site.

EIS have not and will not make any determination regarding finances associated with the site.

Changes in the proposed or current site use may result in remediation or further investigation being required at the site.

During construction at the site, soil, fill and any unsuspected materials that are encountered should be monitored by qualified environmental and geotechnical engineers to confirm assumptions made on the basis of the limited investigation data, and possible changes in site level and other conditions since the investigation. Soil materials considered to be suitable from a geotechnical point of view may be unsatisfactory from a soil contamination viewpoint, and vice versa.

This report has been prepared for the particular project described and no responsibility is accepted for the use of any part of this report in any other context or for any other purpose. Copyright in this report is the property of EIS. EIS has used a degree of care, skill and diligence normally exercised by consulting engineers in similar circumstances and locality. No other warranty expressed or implied is made or intended. Subject to payment of all fees due for the investigation, the client alone shall have a licence to use this report.

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## IMPORTANT INFORMATION ABOUT THIS REPORT

These notes have been prepared by EIS to assist with the assessment and interpretation of this report.

#### The Report is Based on a Unique Set of Project Specific Factors:

This report has been prepared in response to specific project requirements as stated in the EIS proposal document which may have been limited by instructions from the client. This report should be reviewed, and if necessary, revised if any of the following occur:

- the proposed land use is altered;
- the defined subject site is increased or sub-divided;
- the proposed development details including size, configuration, location, orientation of the structures are modified;
- the proposed development levels are altered, eg addition of basement levels; or
- ownership of the site changes.

EIS/J&K will not accept any responsibility whatsoever for situations where one or more of the above factors have changed since completion of the assessment. If the subject site is sold, ownership of the assessment report should be transferred by EIS to the new site owners who will be informed of the conditions and limitations under which the assessment was undertaken. No person should apply an assessment for any purpose other than that originally intended without first conferring with the consultant.

#### Changes in Subsurface Conditions

Subsurface conditions are influenced by natural geological and hydrogeological process and human activities. Groundwater conditions are likely to vary over time with changes in climatic conditions and human activities within the catchment (eg. water extraction for irrigation or industrial uses, subsurface waste water disposal, construction related dewatering). Soil and groundwater contaminant concentrations may also vary over time through contaminant migration, natural attenuation of organic contaminants, ongoing contaminating activities and placement or removal of fill material. The conclusions of an assessment report may have been affected by the above factors if a significant period of time has elapsed prior to commencement of the proposed development.

## This Report is Based on Professional Interpretations of Factual Data

Site assessments identify actual subsurface conditions at the actual sampling locations at the time of the investigation. Data obtained from the sampling and subsequent laboratory analyses, available site history information and published regional information is interpreted by geologists, engineers or environmental scientists and opinions are drawn about the overall subsurface conditions, the nature and extent of contamination, the likely impact on the proposed development and appropriate remediation measures.

Actual conditions may differ from those inferred, because no professional, no matter how qualified, and no subsurface exploration program, no matter how comprehensive, can reveal what is hidden by earth, rock and time. The actual interface between materials may be far more gradual or abrupt than an assessment indicates. Actual conditions in areas not sampled may differ from predictions. Nothing can be done to prevent the unanticipated, but steps can be taken to help minimise the impact. For this reason, site owners should retain the services of their consultants throughout the development stage of the project, to identify variances, conduct additional tests which may be needed, and to recommend solutions to problems encountered on site.

#### **Assessment Limitations**

Although information provided by a site assessment can reduce exposure to the risk of the presence of contamination, no environmental site assessment can eliminate the risk. Even a

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rigorous professional assessment may not detect all contamination on a site. Contaminants may be present in areas that were not surveyed or sampled, or may migrate to areas which showed no signs of contamination when sampled. Contaminant analysis cannot possibly cover every type of contaminant which may occur; only the most likely contaminants are screened.

#### Misinterpretation of Site Assessments by Design Professionals

Costly problems can occur when other design professionals develop plans based on misinterpretation of an assessment report. To minimise problems associated with misinterpretations, the environmental consultant should be retained to work with appropriate professionals to explain relevant findings and to review the adequacy of plans and specifications relevant to contamination issues.

#### Logs Should not be Separated from the Assessment Report

Borehole and test pit logs are prepared by environmental scientists, engineers or geologists based upon interpretation of field conditions and laboratory evaluation of field samples. Logs are normally provided in our reports and these should not be re-drawn for inclusion in site remediation or other design drawings, as subtle but significant drafting errors or omissions may occur in the transfer process. Photographic reproduction can eliminate this problems, however contractors can still misinterpret the logs during bid preparation if separated from the text of the assessment. If this occurs, delays, disputes and unanticipated costs may result. In all cases it is necessary to refer to the test of the report to obtain a proper understanding of the assessment. Please note that logs with the 'Environmental Log' header are not suitable for geotechnical purposes as they have not been peer reviewed by a Senior Geotechnical Engineer.

To reduce the likelihood of borehole and test pit log misinterpretation, the complete assessment should be available to persons or organisations involved in the project, such as contractors, for their use. Denial of such access and disclaiming responsibility for the accuracy of subsurface information does not insulate an owner from the attendant liability. It is critical that the site owner provides all available site information to persons and organisations such as contractors.

#### Read Responsibility Clauses Closely

Because an environmental site assessment is based extensively on judgement and opinion, it is necessarily less exact than other disciplines. This situation has resulted in wholly unwarranted claims being lodged against consultants. To help prevent this problem, model clauses have been developed for use in written transmittals. These are definitive clauses designed to indicate consultant responsibility. Their use helps all parties involved recognise individual responsibilities and formulate appropriate action. Some of these definitive clauses are likely to appear in the environmental site assessment, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to any questions.

**ATTACHMENT 1** 



**REPORT FIGURES**