

Environmental Assessment Report Concept Plan

Discovery Point, 1 Princes Highway Wollongong
Residential and Mixed Use Development (MP10_0003)

Submitted to
The Department of Planning
On Behalf of Discovery Point Pty Ltd

August 2010 ■ 09642

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This report has been prepared by: Clare Swan

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Date 13/08/10

This report has been reviewed by: Clare Brown

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Date 13/08/10

Statement of Validity

Prepared under Part 3A of the *Environmental Planning and Assessment Act 1979*
(as amended)

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In respect of	Study and Concept Plan Application

Concept Plan

Applicant name:	Discovery Point Pty Ltd
Applicant address	Discovery Point Office
Land to be developed	1 Princes Highway, Wolli Creek <ul style="list-style-type: none">▪ Lots 199, 200, 201, 202, 203 in DP1103650;▪ Lot 12 DP1062413; and▪ Lot 2 DP1048491 & Lot 13 1062413.
Proposed development	Residential, Mixed Use Development

Environmental Assessment	An Environmental Assessment (EA) is attached
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Certificate	<p>I certify that I have prepared the content of this Environmental Assessment and to the best of my knowledge:</p> <ul style="list-style-type: none">▪ It is in accordance with the Environmental Planning and Assessment Act and Regulation.▪ It is true in all material particulars and does not, by its presentation or omission of information, materially mislead.
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Signature



Name

Clare Swan

Date

13 August 2010

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Smart Civil

Appendices – Under Separate Cover

- Architectural Design Report (including Architectural Plans, Staging Plans, Landscape and Public Domain Plans)
Bates Smart
- Model (returnable)
Model CAD
- Flythrough Animation
BASE

Executive Summary

Purpose of this Report

This is an Environmental Assessment Report (EAR) for a Concept Plan application under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act). It relates to the development of Discovery Point, Wolli Creek for primarily residential uses, with a portion of non-residential uses and open space activities.

It addresses requirements of the Director-General of the Department of Planning (DoP) for the preparation of the EAR that were provided to the Proponent dated 23 March 2010.

The Site

The site subject to this Concept Plan is located in Wolli Creek, approximately 8 kilometres south-west of the Sydney CBD, 2 kilometres west of Sydney Airport, 3 kilometres north-east of Rockdale. The site is located on the northern edge of the Rockdale local government area (LGA) on the southern bank of the Cooks River.

The site has an area of approximately 6.065 hectares which includes Discovery Point Park and Wolli Creek Railway Station which is a rail junction between the Illawarra and the East Hills rail lines. The vacant undeveloped land within the site, to the north and south of Wolli Creek Railway Station, is primarily where the Concept Plan development works are proposed.

The site and surrounding area is currently undergoing urban renewal, moving towards a predominantly residential neighbourhood environment. These buildings within Discovery Point recently completed or under construction along the arched boundary of Discovery Point Park are not part of the Concept Plan. The State Heritage listed items of Tempe House and St Magdalen's Chapel are also excluded from the Concept Plan.

To the immediate north of the site is the Cooks River, to the immediate west are the Illawarra and East Hills rail lines, and to the immediate east is the Princes Highway. Adjoining the site to the immediate south is a mixed use development known as 'Proximity' which contains 21 storeys. Also adjoining the site to the south is 78-96 Arncliffe Street and 31-45 Princes Highway, Wolli Creek (known as the NAHAS site) which is a vacant disused industrial site currently subject to a Part 3A Concept Plan application for a mixed use development.

The site has significant regional road access, with direct access to the Princes Highway via Brodie Spark Drive, providing road access to the Sydney CBD and the southern suburbs of Sydney. The site has access from the Princes Highway, along the partially constructed Brodie Spark Drive and Magdalene Terrace.

Discovery Point is within close proximity to numerous local, district and regional parks and recreational facilities.

The Proponent and Land Ownership

The Proponent and land owner of the site is Discovery Point Pty Ltd, a co-venture between Australand Holdings Limited and Landcom.

Background and Voluntary Design Competition

This EAR seeks the approval of a Concept Plan for a mixed use residential, non-residential and open space development within Discovery Point, Wolli Creek, in the Rockdale LGA.

In 2000, the site was rezoned to permit mixed use development under Rockdale Local Environmental Plan 149 (LEP 149) and a site specific Development Control Plan known as DCP 45 – Railway Precinct was prepared. In 2006 the controls for the mixed use portion of the site were incorporated into the Rockdale LEP 2000 (Amendment No. 13).

In 2001, Council granted consent to Master Plan DA 500/01 for the development of the Discovery Point site comprising 9 development sites, new park and foreshore open space, restoration of heritage buildings and landscaping. The Master Plan Consent sets out the building envelope principles, circulation patterns, road hierarchy, utility services infrastructure, general parking configuration, and landscape concept over the nine development sites.

The development of higher density residential built form across the site has been envisaged for some time. The size of the site and access to infrastructure continues to provide significant housing opportunities with superior urban design, diversity and amenity, within a mixed use development that has excellent access to public transport and amenities.

In September 2009, the co-venture partners embarked on a Voluntary Design Competition, with the primary aim of achieving an improved planning and design outcome for the site that provides an orderly and economic return.

A Design Competition Review Report was prepared in December 2009 which recommended Bates Smart as the winning scheme. A revised scheme for the site was considered necessary given that design considerations and market conditions for residential and commercial development have changed significantly since the granting of the original Master Plan consent in 2001.

Commercial, Retail and Residential Drivers

The Proponents have advised that it has become apparent through their experience on the site over the past nine (9) years, since acquiring it from “Interciti”, that the Master Plan prepared by Interciti lacks an appreciation of the true social, economic and demographic drivers for development in the area. The Proponents recognised that the nature of retail and commercial development has changed significantly within the Sydney Region over the past decade, particularly in relation to the advent and increasing presence of commercial suburban business parks, which compete with the more traditional form of retail/commercial development in town centres and along main roads.

The Concept Plan includes a notable reduction in non-residential floor space approved in the Master Plan, mainly through the removal of a large commercial building which was envisaged to be above the station. There are no known examples of a large commercial office building being successfully developed in the centre of a new residential precinct as is proposed in the Master Plan consent. The concept for a large commercial office tower in the “Interciti” Master Plan is not commercially viable and will not be constructed. As a result, the Concept Plan reviews the non-residential component of development on the site.

Concept Plan Vision and Objectives

The Project Team’s vision is to create a vibrant residential neighbourhood with a permeable network of streets and plazas. The design concept extends the public domain with the introduction of a new neighbourhood park while improving connections to existing public open space. Traditional urban typologies of perimeter blocks and pedestrian laneways, activated by retail uses, create a legible urban form that will support a high quality residential lifestyle.

The Design Principles/Objectives for the Discovery Point Concept Plan are:

- The Concept Plan relates to the site’s context by:
 - responding to the existing development at Discovery Point, including the neighbouring 21 storey “Proximity” development;
 - integrating the rail station infrastructure without the use of over-track development. There is no longer a building proposed above the Wolli Creek station; and
 - locating future non-residential development to take advantage of commuter foot traffic.

- The development pattern/framework creates a legible pattern of streets and blocks through the enhancement of pedestrian permeability and improving visual and pedestrian connections to existing public open space;
- The development pattern allows for clear development staging and subdivision whilst maintaining a coherent overall form, between stages;
- The completion of Discovery Point Park, new Waterfront Park, Station Park, Station North Walk and Neighbourhood Park provides additional recreation space for residents, commuters and the broader community;
- The built form massing responds to the existing context, defines public spaces and creates a variety of building scales and heights, whilst maximising solar access to apartments and open space;
- The location of the two 21-storey towers limits overshadowing of surrounding residential buildings and open spaces with the first forming a gateway to the south east corner of the site, while the second marks the location of the railway station;
- To integrate sustainability initiatives into the concept design, including building orientation and massing designed to:
 - maximize solar access to apartments and open space;
 - allow natural light to corridors (identified through the indicative design scheme); and
 - provide a high proportion of apartments with cross ventilation (identified through the indicative design scheme).

Overview of Project

Concept Plan approval is sought for a mixed use development, including residential, non-residential and open space and street layout. The Concept Plan establishes objectives and design parameters for the development of the site. It includes the following elements:

- The layout of the development for 14 buildings, a new neighbourhood park, a new Waterfront Park, and other areas of open space and street layout;
- Land uses across the site, retaining all permissible uses from under the 10(a1) zone of the Rockdale LEP 2000;
- Building envelopes (maximum height in RLs), building separation and building depths;
- Street setouts;
- Provision of basement and above ground parking envelopes;
- A maximum gross floor area (GFA) across the site;
- A minimum gross floor area (GFA) for non-residential uses across the site;
- A residential unit mix across the site;
- Minimum residential apartment sizes;
- Car parking rates to be utilised in the subsequent Project Applications;
- Key built form separation distances; and
- An indicative Landscape Concept.

An indicative design scheme has been developed by Bates Smart Architects to demonstrate a potential development scenario for the Concept Plan envelopes and parameters. This indicative design scheme has been used to inform the Concept Plan proposal and assists in its assessment.

The indicative design scheme proposes the development of three distinct precincts as follows:

Southern 'Village Square Precinct: This precinct includes an anticipated retail hub around the new neighbourhood park providing a mix of cafes, restaurants and retail uses, including a supermarket. This precinct includes five residential buildings as well as a commercial building adjacent to the station.

Northern 'Waterfront' Precinct: This precinct is predominantly residential with a mix of housing typologies focused on the Cooks River and some small scale ground floor retail. This precinct will include a new Waterfront Park along the Cooks River foreshore.

Eastern 'Dress Circle' Precinct: This precinct is dominated by Discovery Point Park, the existing heritage-listed buildings and links with the existing or under construction Greenbank, Verge and Vine buildings. The proposal seeks to complete the arc-shaped street to complete the arc from Magdalene Terrace to Cooks River.

Environmental Assessment

Compliance with Acts, EPIs, Guidelines and Planning Strategies

The Concept Plan is generally consistent with the relevant Acts, EPIs, Guidelines and planning strategies applying to the site, including:

- *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth);
- *Threatened Species Conservation Act 1995*;
- *Environmental Planning and Assessment Act 1979*;
- *Heritage Act 1977*;
- *Water Management Act 2000*;
- *Fisheries Management Act 1974*;
- *National Parks and Wildlife Act 1974*;
- *Roads Act 1993*;
- *Airports Act 1996 and the Airports (Protection of Airspace) Regulations 1996*;
- Sydney Metropolitan Strategy (2005);
- Draft South Subregional Strategy;
- State Environmental Planning Policy (Major Development) 2005;
- State Environmental Planning Policy (Infrastructure) 2007;
- State Environmental Planning Policy No. 55 – Remediation of Land;
- Integrated Land Use and Transport Policy Package;
- Development Near Rail Corridors and Busy Roads – Interim Guideline; and
- Planning Guidelines for Walking and Cycling.

The Concept Plan is consistent with the principles of the State Environmental Planning Policy No. 65 – Design Quality of Residential Development and the design quality objectives and design principles of the Residential Flat Design Code. The indicative design scheme for the development reveals that the future detailed Project Applications for individual buildings are unlikely, in some instances, to fully achieve some of the “rules of thumb”. These known areas of non-compliance are addressed in this Concept Plan application.

Given this, it is proposed to demonstrate at the Concept Plan level that the development can rely on better design practice to ensure that the amenity of the proposed development is not compromised in any way and that an inability to achieve some of the rules of thumb is generally related to the context of the site and that the objectives of the 'Rules of Thumb' are still met.

In addition, the proposal varies controls within the Rockdale Local Environmental Plan 2000 and the Rockdale Development Control Plan No. 45 – Railway Precinct. Both the Rockdale LEP 2000 and DCP 45 reflect the parameters of the approved master plan that applies to the site. As the proposed Concept Plan varies the master plan, it also varies the controls within the LEP and DCP 45. Specifically, the Concept Plan varies the building height controls, maximum gross floor area, minimum non-residential component and land use control diagram. The Concept Plan is consistent with the following provisions of the LEP:

- Zoning;
- Maximum Retail Component;
- Underground Area Diagram; and
- Heritage.

The EAR demonstrates the suitability of the Concept Plan from an economic, social, environmental and urban design perspective and thereby provides the justification for replacing the existing Master Plan.

Urban Design and Built Form

The Concept Plan proposes a built form that considers the context of the site, including the existing development, the transitional nature of the local area and the close proximity to public transport via Wolli Creek Railway Station. The following design measures have been implemented to achieve an overall high quality built form environment:

- The proposed heights:
 - are compatible with existing buildings in and around the site;
 - reflect high density development which is suitable on the site given its accessibility to public transport;
 - the gateway, or landmark, buildings are compatible with the maximum number of storeys (21 storeys) within the existing Proximity building, provide urban markers within the development and enable the provision for additional public open space areas; and
 - provide building height variation, enable suitable building separation and good solar access.
- The building framework:
 - through the perimeter edge buildings, provide a consistent street edge defining the public domain and contributing to the pedestrian character of the Concept Plan;
 - through the building alignment of the Eastern 'Dress Circle' Precinct, continues the arc defining the heritage precinct and Discovery Point Park;
 - through the proposed future two-storey podiums shown in the indicative design scheme with retail or townhouse typologies, will break up the scale of development along the street, screen above ground car parking while improving the on-street character and functionality of the site; and
 - provides good separation and maximises solar access and views to and from future apartments.

Internal Residential Amenity

The built form of the proposed development promotes design excellence and will provide superior internal amenity and outlook, particularly in comparison to the approved master plan envelopes. The indicative design scheme accommodates the key objectives and better design practice guidelines of the building amenity provisions within the Residential Flat Design Code (RFDC), including direct sunlight, daylight access and cross ventilation.

The spatial layout of the Concept Plan building envelopes aims to maximise the direct sunlight reaching living rooms and balconies. Under the Residential Flat Design Code (RFDC) a minimum of 70% of apartments are to receive at least two hours of direct sunlight during mid-winter within denser urban areas. The indicative design scheme demonstrates that on average more than 70% of apartments across the development site receive the 2 hour measure. In some buildings more than 70% of units will achieve direct sunlight access for 2 hours in mid-winter, while other buildings will have less than 70% of apartments achieving this level. In instances where this “Rule of Thumb” of RFDC is not satisfied the buildings that have lesser compliance have other factors which significantly enhance residential amenity such as orientation, overlooking parks or views.

Under the RFDC, the “Rule of Thumb” for natural ventilation is a minimum of 60% of apartments to achieve cross ventilation. The indicative floor layouts indicate that on average more than 60% of apartments across the redevelopment site will achieve cross ventilation.

Solar Access and Overshadowing

The Concept Plan envelopes demonstrate the suitability of the built form of the development from an overshadowing perspective. Specifically, the building envelopes will limit overshadowing on:

- Open space and public spaces, with:
 - Discovery Point Park receiving consistent morning sun throughout the year,
 - the new neighbourhood park receiving direct sunlight from midday and in the afternoon for most of the year;
 - Waterfront Park, to the north of the site, receiving direct sunlight for a minimum of two hours in mid-winter and significantly more across the year.
- Adjoining development, particularly the existing residential buildings and the Plaza associated with the adjacent NAHAS proposal.

Landscaping and Streetscape

The Concept Plan provides for significant open space areas, including the retention and enhancement of Discovery Point Park, public access to western edge of the Cooks River foreshore, the creation of a new neighbourhood park within the Southern Precinct a new Waterfront Park, and Station Park and the enhancement of a number of pedestrian linkages and connections throughout the site including a new Station North Walk and a pedestrian street from Magdalene Terrace to Wollli Creek Railway Station.

The Concept Plan adopts a number of principles to create active streetscapes throughout the site, including:

- Provide future retail services on the ground floor within the southern precinct, along the pedestrian link between Magdalene Terrace and Wollli Creek Railway Station;
- Provide retail uses fronting the neighbourhood park will create a village atmosphere;

- The provision of residential frontages in the form of townhouses and terraces, with direct access to street level, will activate streetscapes as well as shield the appearance of the above ground parking behind the dwellings; and
- The ground floor of Building 7 within the Eastern Precinct should be activated with a cafe / restaurant.

Economic Issues

The indicative design scheme proposes a mix of some 4,385m² retail floor space and 5,576m² commercial floor space. The Concept Plan seeks approval for a minimum of 9,000m² non-residential GFA to be provided across the site. In comparison to the approved Master Plan, the proposed Concept Plan will result in a reduction of some 39,000m² non-residential floor space. The bulk of the commercial floor space was to be provided in a single large commercial building.

The quantum of non-residential floor space proposed within the Concept Plan is an appropriate response given the marketing and practical development influences of providing significant commercial floor space on the site, such as:

- Competition with other centres, such as Green Square and Hurstville, which offer similar or lower rents while also clustering commercial development;
- The Sydney office market is favouring office space in office 'park-like' locations such as Macquarie Park, Norwest Business Park, Homebush, Rhodes and Mascot;
- The area lacks marketability as it is perceived as a residential precinct rather than a suitable location for commercial premises. There are few (if any) examples of a single commercial building in a primarily residential precinct;
- Practical difficulties of constructing a large commercial building over the railway station (as proposed within the approved Master Plan);
- Difficulty of providing sufficient parking directly underneath the proposed building, affecting the commercial viability of the site; and
- The cost of upgrading the railway station as a result of the impacts of the commercial building.

The quantum of retail floor area anticipated under the Concept Plan as shown in the indicative design scheme reflects recent applications for the expansion or creation of new retail precincts within the consumer catchment that includes Discovery Point (and would compete with future retail development on the site). Specifically, the application for a new subregional retail centre on the NAHAS site (adjacent to the site), the recent approval by Rockdale Council of an increased retail GFA on the adjoining "Proximity" development site for the purpose of an Aldi store and the proposed expansion of Marrickville Metro. These developments will increase the retail floor space within the subregional retail catchment of Discovery Point and would reduce the demand for a significant retail precinct within the site. The Concept Plan seeks to provide a neighbourhood village precinct including small scale supermarket and specialty retailing surrounding the new neighbourhood park.

The provision of non-residential floor space on the site will ensure that Discovery Point will continue to contribute to the Rockdale LGA's employment capacity target and provide for the daily needs and services of the residents of Discovery Point and the commuters using Wolli Creek Railway Station.

Social Issues

The Concept Plan seeks approval for a housing mix as follows:

- Studio / one bedroom apartments: Maximum 50%;
- Two bedroom apartments: Minimum 40%; and
- Three+ bedroom apartments: Minimum 10%.

The housing mix proposed within the site is suitable given the demographic trends and the realities of the housing market in Wollie Creek, Rockdale LGA and the wider Sydney region. More specifically, the housing mix is suitable as it adds to the diversity in housing mix and sizes in comparison to development to date in the Rockdale LGA and Wollie Creek, while reflecting recent demographic and market trends in the area. The proposed dwelling sizes will also ensure more affordable housing options are provided on the site.

The Concept Plan proposes residential apartment sizes of:

- Minimum 40m² for studio apartments;
- Minimum 50m² for 1 bedroom apartments;
- Minimum 70m² for 2 bedroom apartments;
- Minimum 100m² for 3+ bedroom apartments.

The proposed minimum apartment sizes are consistent with or greater than the suggested standardised apartment sizes (that do not exclude affordable housing) specified in the RFDC “Rule of Thumb” for apartment layouts. Discovery Point Pty Limited has determined the minimum apartment sizes following almost a decade of experience in developing and selling apartments on the site. The proposed rates recognise local market conditions and housing affordability without impacting on the amenity of such apartments.

Access, Traffic and Transport

The site is currently highly accessible to public transport, with the Wollie Creek Railway Station located within the site providing access to the Illawarra, South Coast, Airport and East Hills rail lines.

Bicycle paths will be provided along Brodie Spark Drive and the riverfront to connect Madgalene Terrace to the Cooks River. The riverfront cycle paths then connect through Discovery Point Park to link back to the wider regional cycle network.

The Concept Plan provides for an alternating pattern of vehicular and pedestrian links to break up the development blocks and increase physical and visual connections across the site and maximise linkages to Discovery Point Park. New pedestrian links will be provided through the neighbourhood park to the station and to the Cooks River foreshore.

Parking rates have been chosen for the development to adequately service the development while at the same time managing the supply of parking to discourage excessive private car usage. Parking rates rather than an overall parking number have been set in recognition of the fact that the final parking numbers will be dependent on the final apartment mix which is subject to market demand and change as the Concept Plan is developed.

The Concept Plan proposes the following parking rates to be utilised across the development in subsequent project applications:

- Maximum 1 space per studio and one bedroom unit;
- Minimum 1 space and maximum of 2 spaces per two bedroom unit;
- 2 spaces per three+ bedroom units;
- Minimum 1 visitor space per 20 residential units;
- Minimum 1 space per 50m² of non-residential GFA (commercial);
- Minimum 1 space per 35m² of non-residential GFA (retail).

Other key issues

The key environmental assessment issues identified on the site relate to heritage (Aboriginal and European), view analysis, wind impact, flooding, noise and vibration, environmentally sustainable development, soil and water management, structural adequacy, geotechnical, hazard management and mitigation, aviation impact and construction and waste management. It is considered that any proposed impacts of the Concept Plan will be effectively mitigated by the draft Statement of Commitments, which supplements the findings of the Environmental Assessment.

Planning context

The site is within the area covered by the draft South Subregional Strategy which guides growth in the Rockdale LGA to 2031. The Concept Plan will contribute 1,200-1,500 dwellings to the Rockdale housing target of 7,000 additional dwellings by 2031 and over 500 new jobs to the Rockdale employment target of 13,000 new jobs (only 2,000 new jobs are to be accommodated outside of Sydney Airport and Cooks Cove). As a result, the Concept Plan is consistent with the role of Wolli Creek as identified in the subregional strategy and will contribute to both the housing and employment capacity targets to 2031. The proposed quantum of retail and commercial floor space is consistent with the role of Wolli Creek as a residential village.

The Draft South Subregional Strategy identifies an employment capacity target of 13,000 new jobs within the Rockdale LGA between 2001 and 2031. More specifically, the Strategy identifies specific employment capacity targets for Sydney Airport and Environs (4,000 new jobs) and Cooks Cove (7,000 new jobs) within the Rockdale LGA. Therefore, 2,000 new jobs are required to be accommodated across the remaining sites within the LGA.

The economic analysis prepared by Leyshon Consulting reveals that the 13,000 job target can be met as follows:

■ Sydney Airport (Rockdale LGA part):	4,000 jobs
■ Cooks Cove:	7,000 jobs
■ Discovery Point (existing and proposed Concept Plan):	532 jobs
■ NAHAS:	739 jobs
■ Multiplex Stage 2 'Proximity':	780 jobs
■ TOTAL	13,051 jobs

Employment growth in other localities would also yield some growth such as the 'LEP deferred' area within Wolli Creek and commercial centres within the Rockdale LGA such as Rockdale, Rockdale Plaza, Brighton, Bexley and the like.

Leyshon Consulting indicates that the reduced job growth within the site, in comparison to the approved Master Plan, will not impact on the ability for the Rockdale LGA to reach their employment capacity target of 13,000 new jobs, irrespective of the determination made on the NAHAS proposal.

In addition, Leyshon Consulting identifies that if recent employment growth trends in the Rockdale LGA are sustained over the period of 2006-2031, the Rockdale LGA will reach their 2031 target of 2,000 additional jobs (outside Sydney Airport and Cooks Cove), even without the major employment generating projects (including Discovery Point).

Consultation

Consultations were conducted by the proponent with a number of authorities in April and May 2010 after the issue of the DGRs. Those authorities consulted include:

- Rockdale City Council;
- State Transit Authority;
- Sydney Buses;
- Railcorp;
- NSW Taxis Council;
- Sydney Airport Corporation Ltd;
- Civil Aviation Safety Authority;
- Air Services Australia;
- Local Member for Rockdale, Frank Sartor;
- Metropolitan Local Aboriginal Lands Council (copy of heritage report referred for comment).

A community information session was held on 12 May and 7 June 2010 at St Magdalen's Chapel at Discovery Point. All owners and residents of Sites 1 and 2, owners of Site 4 who have purchased apartments "off the plan", and the local residents of Wolli Creek were invited to the information sessions. Invitations were also sent to Frank Sartor, Member for Rockdale, Council Officers and the Mayor of Rockdale City Council. In addition, the session was made publically known through an article mention in the local newspaper. The attendees (approximately 120 people at the first session and 70 at the second session) were a mix of Discovery Point residents (existing and future) and members from the wider community.

Implementation and Staging

The Concept Plan allows the logical and efficient sequencing of infrastructure with development stages, and for each building to appear complete with appropriate amenity at the conclusion of any individual stage.

The indicative staging plan proposes firstly to complete the Southern Precinct including the neighbourhood park and the retail areas; secondly to complete the 'Dress Circle' arc of Discovery Point Park and thirdly to complete the Northern 'Waterfront' Precinct. The timing of the delivery of Building 14 being the anticipated commercial office building, will be dependent on the nature of the commercial office market. It is noted however that the actual staging of the entire project may vary due to market forces and that some stages may occur concurrently. An updated Development Staging Plan will be submitted with each subsequent Project Application should market conditions change.

Conclusion

This Environmental Assessment demonstrates that the matters for which Concept Plan approval are sought are generally consistent with the relevant planning strategies and environmental planning instruments applying to the site. It also provides evidence that any potential environmental impacts generated by the development will be appropriately mitigated. The Concept Plan amends an existing Master Plan for the site to adapt to the role of Wolli Creek as a centre (as identified in the draft South Subregional Strategy), the changing retail and commercial market in the regional context of the site and to take into account State Environmental Planning Policy No. 65 – Design Quality of Residential Flat Development. We have no hesitation in recommending the Concept Plan for approval.

1.0 Introduction

This Concept Plan and Environmental Assessment Report (EAR) is submitted to the Minister for Planning, pursuant to Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

This report has been prepared by JBA Planning on behalf of Discovery Point Pty Limited, which is a co-venture between Australand Holdings Limited and Landcom. It is based on a Concept Plan and information prepared by Bates Smart Architects and supporting technical documents provided by the expert consultant team.

This EAR describes the site, its environs and the proposed development, and includes an assessment of the proposal in accordance with the requirements issued by the Director-General of the Department of Planning (DoP) dated 23 March 2010. The Director-General's requirements (DGRs) are included at **Appendix A** and a table outlining where each DGR is addressed is at Section 6.1. This EAR should be read in conjunction with the information contained in and appended to it. This report:

- Outlines the vision for the Discovery Point Concept Plan;
- Presents a Concept Plan to guide the future development of the site; and
- Provides an assessment of the environmental impacts of the proposed land uses and Concept Plan.

Volume 1 of the report is structured as follows:

Section 1: Introduction, overview of the project, background, project team and approvals process.

Section 2: Background to the Concept Plan.

Section 3: Site analysis, overview of existing site conditions, and summary of opportunities and constraints.

Section 4: Summary of the key issues arising from consultation with relevant agencies and other stakeholders.

Section 5: Description of the Concept Plan, including key elements for which concept approval is sought.

Section 6: Environmental assessment of the Concept Plan.

Section 7: Draft Statement of Commitments (pursuant to Part 3A of the EP&A Act).

Section 8: Conclusion

Volume 2 contains the Appendices which include the range of technical studies undertaken to inform the Concept Plan and its environmental assessment.

These studies address the Director-General's requirements for the environmental assessment. They provide a technical assessment of the environmental impact of the proposed development, and recommend mitigation measures to manage potential environmental impacts associated with the proposal.

1.1 Overview of the Proposal

The Discovery Point site is to be developed for a mix of residential and non-residential uses, including but not limited to, residential, commercial, retail and open space. It is possible that other uses permissible in the zone such as hotels, services apartments, student accommodation and affordable housing could also be developed on the site in the future if demand for such uses becomes evident. The Concept Plan establishes objectives and design parameters for the development of the site. It includes the following elements:

- The layout of the development for 14 buildings, a new neighbourhood park, a new Waterfront Park, a new Station Park, and other areas of open space and street layout;
- Land uses across the site (all residential and non-residential uses permissible under the 10(a1) zone of the Rockdale LEP 2000 and 6(c) zone of Rockdale Planning Scheme Ordinance (refer to **Appendix D**));
- Building envelopes (maximum height in RLs), building separation, building depths and solar provision to buildings;
- Street setouts;
- A maximum total gross floor area (GFA) across the site;
- A minimum gross floor area (GFA) for non-residential uses across the site;
- Proposed residential unit mix across the whole site;
- Minimum residential apartment sizes;
- Car parking rates to be utilised in the subsequent Project Applications;
- Key built form building separation distances; and
- Indicative Landscape Concept and public domain works;

The Concept Plan seeks approval for the following key components and development parameters:

- A maximum of 132,000m² total GFA for the mixed use development (excluding car parking GFA);
- A minimum of 9,000m² non-residential GFA;
- A maximum of 123,000m² residential GFA;
- A maximum of 14,000m² above ground car parking GFA (in addition to maximum GFA above);
- A residential unit mix across the site of:
 - Maximum 50% studios and one bedroom apartments;
 - Minimum 40% two bedroom apartments;
 - Minimum 10% three + bedroom apartments.
- Parking rates to be utilised across the development in subsequent project applications of:
 - Maximum 1 space per studio and one bedroom unit;
 - Minimum 1 space and maximum of 2 spaces per two bedroom unit;
 - 2 spaces per three + bedroom units;
 - Minimum 1 visitor space per 20 residential units;
 - Minimum 1 space per 50m² of non-residential GFA (commercial);
 - Minimum 1 space per 35m² of non-residential GFA (retail).

- New plazas, common open space, Station Park, Waterfront Park, new neighbourhood park and other landscaping;
- Minimum residential apartment size of :
 - Minimum 40m² for studio apartments;
 - Minimum 50m² for 1 bedroom apartments;
 - Minimum 70m² for 2 bedroom apartments;
 - Minimum 100m² for 3+ bedroom apartments.
- A network of streets, open space areas and through-site links generally as shown on the Indicative Design Scheme Site Plan, to facilitate reintegration of the site into the wider urban context including upgrade of the access to the Wolli Creek station; and
- Retention of all future stages as Project Applications (PAs) with the Minister for Planning, for all development with a capital investment value (CIV) greater than \$20million.

While the PEAR included the heritage items of Tempe House and St Magdalen's Chapel the initial Part 3A declaration did not. The current Concept Plan does not include any works or changes to use of these heritage items.

Unlike the approved Master Plan, the Concept Plan does not seek approval to build over the rail corridor. There is also no proposal to alter the existing Development Agreement with Railcorp. Where works are proposed within Railcorp land, owners consent will be sought during the assessment period.

1.2 Proponent

Australand and Landcom are co-venture partners in the Discovery Point development. The proponent is Discovery Point Pty Limited.

1.3 Capital Investment Value

The quantity surveyor's certificate prepared by Altus Page Kirkland estimates the capital investment value of the project to be \$418,749,396 (**Appendix B**).

1.4 Project Team

An expert project team has been formed to deliver the project and includes:

Table 1 – Project Team

Specialty	Consultant
Co-Venture Partners	Australand Holdings Limited and Landcom
Proponent	Discovery Point Pty Ltd
Project Manager	Australand Holdings Limited
Architecture and urban design	Bates Smart Architects
Landscape	Turf Design
Urban Planning	JBA Planning assisted by Krason Planning Pty Ltd
Economic and Social Planning	Leyshon Consulting
Surveyor	Lockley Land Title Solutions
Quantity surveyor	Altus Page Kirkland
Visual and View Analysis	BASE
Environmentally sustainable design	Cundall Design Consultants
Community consultation	Australand Holdings Limited
Stormwater, Erosion and Sediment Control	Paul Davis Rajalingham (PDR) Smart Structures
Traffic and transport	Traffic and Transport Planning Associates
European Heritage	Tanner and Associates and Casey and Lowe
Indigenous Heritage	Jo McDonald Cultural Heritage Management Pty Ltd
Wind	Heggies
Noise and Vibration	Heggies
Electrolysis Analysis	Cathodic Protection Services
Shadow studies	Bates Smart Architects
Drainage and Groundwater	Coffey Environments Pty Ltd
Structural	Robert Bird Group
Water and Flooding Engineers	Parsons Brinkerhoff and Coffey Environments Pty Ltd
Site Audit Assessments/ Contamination	Coffey Environments Pty Ltd
Aeronautical Assessment	Ambigji Group
Access	Morris Goding Accessibility Consulting
Services	MPI
Model	30+
Communication	Wise McBaron Communication

2.0 Background

2.1 Background to Existing Master Plan and Planning Instruments

The Discovery Point site was rezoned to permit mixed use development in 2000 under Rockdale Local Environmental Plan 149 (LEP 149). LEP 149 amended Rockdale Planning Scheme Ordinance (RPSO) as land in Wolli Creek was excluded from Rockdale LEP 2000 at that time. A site specific Development Control Plan known as DCP 45 – Railway Precinct was prepared at the same time as LEP 149. In 2006, Rockdale LEP 2000 (Amendment No. 13) – Wolli Creek was gazetted, which incorporated the provisions applicable to the part of the site zoned Mixed Use (10a1) into Rockdale LEP 2000. Discovery Point Park remains under RPSO.

2.2 Background to Existing Consents

The Discovery Point site is subject to a number of existing development consents granted by Rockdale Council. The key existing consents are shown in **Table 2** below.

Table 2 – Key Existing DA Consents

DA No.	Development	Date of Consent
500/01	Master Plan consent	11 April 2001
600/01	Sub-podium consent	27 June 2001
463/01	Heritage item and foreshore restoration	27 June 2001
40/04*	Site 1	22 September 2003
372/04*	Site 2	26 November 2003
262/05*	Site 3	December 2008 subject to a deferred commencement, satisfied in June 2009.
500/01	Section 96 Application to Master Plan consent	28 October 2005
148/2006*	Site 4	4 April 2007

* See **Figure 1** below for existing built sites.

The above consents have been subject to a number of section 96 modification applications.

Master Plan Consent

Council granted consent to the Master Plan DA 500/01 for the development of the Discovery Point site comprising 9 development sites, new park and foreshore open space, restoration of heritage buildings and landscape. The Master Plan Consent sets out the building envelope principles, circulation patterns, road hierarchy, utility services infrastructure, general parking configuration, and landscape concept over the nine development sites.

A copy of the current approved landscape Master Plan for the Discovery Point site is provided in under separate cover. This plan depicts the location of individual development sites as approved.

The consent predates section 83B of the EP&A Act and was therefore issued under section 91A of the Act as approval for a Master Plan. DA500/01 has been modified several times.

Sub-podium Consent

Council granted consent to the Sub-podium DA 600/01 for the construction of the basement car park levels and ground level across the entire nine development sites at Discovery Point. This application was not updated at the time the Master Plan revisions were approved in 2005 and therefore currently it would need to be updated via a Section 96 application each time a development application (DA) for an above ground building is lodged to make it consistent with the Master Plan amendments approved. This process has been followed for Site 3 and Site 4 development applications.

Heritage Item and Foreshore Restoration Consent

Council granted consent to DA 463/01 for the restoration of heritage items, Discovery Point Park, the foreshore open space and the Mount Olympus landscaped area in the Discovery Point precinct. Significant parts of the works associated with this consent have been completed. The remaining works relate to landscaping at the northern end of the site and along the foreshore towards the north of the site. These works are to be carried out as part of the future Project Applications in this area of the site.

Development Application 40/04 (Site 1)

Council granted consent to the Site 1 application for 135 residential apartments, ground floor commercial and flexible use tenancies and associated landscaping. The Site 1 building is known as “Greenbank” and was completed in late 2005.

Development Application 372/04 (Site 2)

Council granted consent to the Site 2 application for 80 residential apartments, commercial tenancies and a cafe. The Site 2 building is known as “Verge” and was completed in late 2006.

Development Application 148/06 (Site 4)

Council granted consent to the Site 4 application for 88 residential apartments. The Site 4 building is known as “Vine” and is currently under construction. It is anticipated that construction will be complete by June 2011.

Development Application 262/05 (Site 3)

Council granted consent to the Site 3 application in December 2008 subject to deferred commencement conditions, which were satisfied in June 2009. The approved development comprised two levels of retail and commercial tenancies and 224 residential apartments in two towers above the non-residential podium.

Development of Site 3 in accordance with D262/05 will not proceed. This part of the Discovery Point site forms part of the Part 3A Concept Plan area.

The location of existing buildings built or under construction is shown in **Figure 1** below.



Figure 1 – Discovery Point site, including Concept Plan area and those buildings already constructed / currently under construction
Source: *Bates Smart*

2.3 Voluntary Design Competition

In September 2009, the co-venture partners for the site (Australand and Landcom) embarked on a process of a Voluntary Design Competition, with the primary aim of achieving an improved planning and design outcome for the site that provides an orderly and economic return for the co-venture partners.

Discovery Point Pty Ltd identified the need to review the existing Master Plan in response to a range of criteria, including:

- The need to review the urban design quality of the Discovery Point Master Plan, within the context of the residential flat design quality as defined by SEPP 65 and the accompanying Residential Flat Design Code (RFDC);
- The poor commercial viability of the retail and office markets and whether the existing mix of land uses met market conditions and demand now and in the future;
- Major technical concerns regarding the interaction of basement parking with acid sulphate soils and existing groundwater conditions.

A revised scheme for the site was considered necessary for Discovery Point given that desirable design form and market conditions had changed significantly since the granting of the original Master Plan consent in 2001. The design competition sought to invigorate the design for the site, better taking into account SEPP 65 principles, which came into effect after the 2001 consent was issued.

Three competitors were invited to submit a Master Plan proposal for the undeveloped portions of the site. The design competition was endorsed on 22 September 2009. The Competition Brief was provided to three architectural firms being Bates Smart, Cox Richardson and Allen Jack + Cottier and a fixed design competition fee was paid to each architect.

A copy of the Design Competition Brief was forwarded to Council officers for their information.

Submissions were received and reviewed by representatives from the Discovery Point Management Committee in November 2009. A Design Competition Review Report was prepared in December 2009 which recommended Bates Smart as the winning scheme. The competition jury comprising representatives from the Discovery Point Management Committee appointed the Bates Smart Scheme as the winning design on 23 December 2009.

The preferred Bates Smart Scheme and the other two competition entries were presented to Council's Strategic and Statutory planners on 16 December 2009 for their information (**Appendix C**).

A formal presentation of the Bates Smart Design Competition Scheme was provided to Council officers on 3 February 2010 for their information.

The winning design forms the basis of a Concept Plan application to the Department of Planning under Part 3A of the EP&A Act.

2.4 Environmental Assessment and Approvals Process

The State Environmental Planning Policy (Major Development) 2005 (Major Development SEPP) identifies development to which Part 3A of the EP&A Act applies, and for which the Minister is the approval authority.

Clause 6 of the SEPP states that development, which in the opinion of the Minister is development of a kind referred to in Schedule 1 (Classes of Development), Schedule 2 (Specified Sites) or Schedule 3 (State significant development) of the SEPP, is declared to be a project to which Part 3A applies.

On 24 December 2009, Australand and Landcom requested that the Minister, under section 75B of the EP&A Act, and clause 6 of the Major Projects SEPP:

- declare the remaining Discovery Point stages to be a Major Project subject to Part 3A of the EP&A Act;
- authorise the preparation and lodgement of a Concept Plan for the site; and
- authorise the preparation and lodgement of Project Applications for Stage 1 and 2 of the development.

On 29 January 2010, the Minister declared the project to be a Project under Part 3A of the EP&A Act and authorised the submission of a Concept Plan under Section 75M of the Act.

A separate Preliminary Environmental Assessment Report (PEAR) was submitted in February 2010 requesting that the Director-General issue the environmental assessment requirements for the Concept Plan and Stage 1 and Stage 2 Project Applications.

On 23 March 2010, in accordance with Section 75F of the EP&A Act, the Director-General of the Department of Planning issued the requirements for the preparation of an Environmental Assessment to accompany a Concept Plan, Stage 1 and Stage 2 Project Applications for the project. A combined set of Director-General Requirements has been issued for the Concept Plan (MP10_003) and Stage 1 and Stage 2 Project Applications (MP10_0030 and MP10_0031). Separate Project Applications for Stage 1 and Stage 2 are anticipated to be submitted within the next 12 months. A copy of the Director-General's Environmental Assessment requirements and authorisation to lodge a Concept Plan is included in **Appendix A**.

This report constitutes the Environmental Assessment Report (EAR) for the Concept Plan application for the site. Based on recent amendments to the *Environmental Planning and Assessment Regulation 2000*, existing Part 4 consents continue in force despite any Part 3A declaration across the site.

As all development on the site has been declared a Major Project, the proponent also seeks that future stages of the development, with a Capital Investment Value (CIV) greater than \$20 million, remain with the Minister for Planning as Approval Authority as related development under Section 75R and 75B(3) of the Act.

It is imperative that this major urban renewal can be executed in a staged and coordinated manner with a single consent authority with respect to each stage (> \$20 million) to:

- Provide continuity and certainty of the planning approvals process;
- Provide the holistic assessment of and orderly development of the site, by recognising the integrated nature of site issues and constraints. For example, the common basement parking levels and required preparatory work for each stage would benefit from a single consent authority;
- Meet public expectations regarding the timely provision of new open space, retail facilities and infrastructure;
- Meet Government expectations regarding the timely provision of housing to assist in sub-regional housing targets.

It is noted that the \$20 million threshold is similar that which currently applies for other major urban residential redevelopment sites in Sydney at the beginning stages of their development, including the Carlton United Brewery site and the Royal Rehabilitation Centre Sydney site (\$5 million threshold). Although these two sites are identified as State Significant Sites by the State Environmental Planning Policy (Major Development) 2005, the Minister for Planning should similarly be the Consent Authority for the Discovery Point site due to the overall CIV (over \$400million), the significant nature of the Concept Plan and its ability to contribute in a timely manner towards Metropolitan Strategy's targets for additional dwellings within strategic locations in a high quality environment.

3.0 Site Analysis

3.1 Site Location and Context

Regional Context

The Discovery Point site (the site) is located in Wolli Creek, approximately 8 kilometres south-west of the Sydney CBD, 2 kilometres west of Sydney Airport, 3 kilometres north-east of Rockdale and 10 kilometres north-east of Hurstville (a regional context aerial map is provided at **Figure 2**). The site is located on the northern edge of the local government area (LGA) of Rockdale with the Marrickville LGA on the other side of the Cooks River.

The site has significant regional road access, with direct access onto the Princes Highway, providing road access to the Sydney CBD and the southern suburbs of Sydney. The site is located approximately 1 kilometre from an entrance onto the M5 Motorway which provides access to the Sydney Orbital Network, linking to the Eastern Distributor, M2 Motorway, M4 Motorway and M7 Motorway.

The suburb of Wolli Creek is surrounded by a number of employment lands precincts including land within Marrickville and Sydenham and in relation to the Sydney Airport in the Botany Bay and Sydney LGAs. Discovery Point is within close proximity to numerous local, district and regional parks and recreational facilities including:

- Barton Park to the south-east;
- Kendrick Park to the north-east;
- Kogarah Golf Course, Cahill Park, Tempe Recreation Reserve, and the Cooks River Motor Boat Club to the east; and
- Mackey Park, Gough Whitlam Park, Waterworth Park, Steel Park and other parks and reserves along the Cooks River and Wolli Creek to the north-west and west.

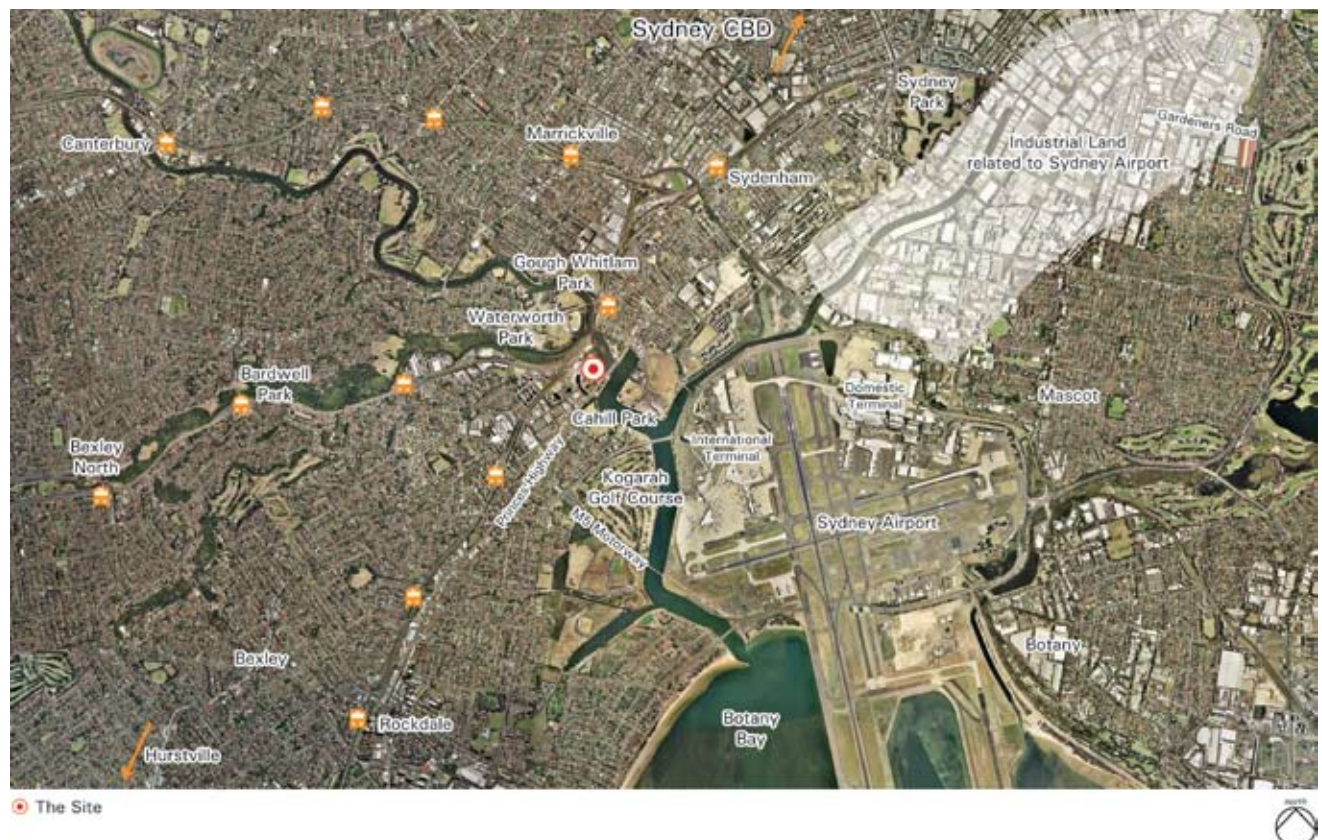


Figure 2 – Regional Context

Local Context

The site is located at the northern end of Wollie Creek, near the confluence of Wollie Creek and the Cooks River. It has an area of 7.8 hectares and contains the Wollie Creek railway station which is a rail junction between the Illawarra rail line and the East Hills rail line connecting to the airport. The area of the site to which the Part 3A application relates is approximately 6.065 hectares.

The site is bound to the north by the Cooks River, to the east by the Princes Highway, to the south by Magdalene Terrace and Brodie Spark Drive, and to the west by the Illawarra rail line. A location plan is shown in **Figure 3** and an aerial photo of Discovery Point is shown in **Figure 2**.

The Wollie Creek area is a developing suburb providing residential housing supply in close proximity to the Wollie Creek station on the site. Wollie Creek is adjoined by Arncliffe to the south, Tempe to the north, Cooks Cove and Mascot to the east, and Turrella to the west.

The site and surrounding area is undergoing urban renewal / gentrification, moving towards a predominantly residential neighbourhood environment. Some buildings within Discovery Point are completed or underway, particularly those buildings along the arched boundary of Discovery Point Park. The area immediately surrounding the Wollie Creek railway station is still vacant and the subject of this Concept Plan.

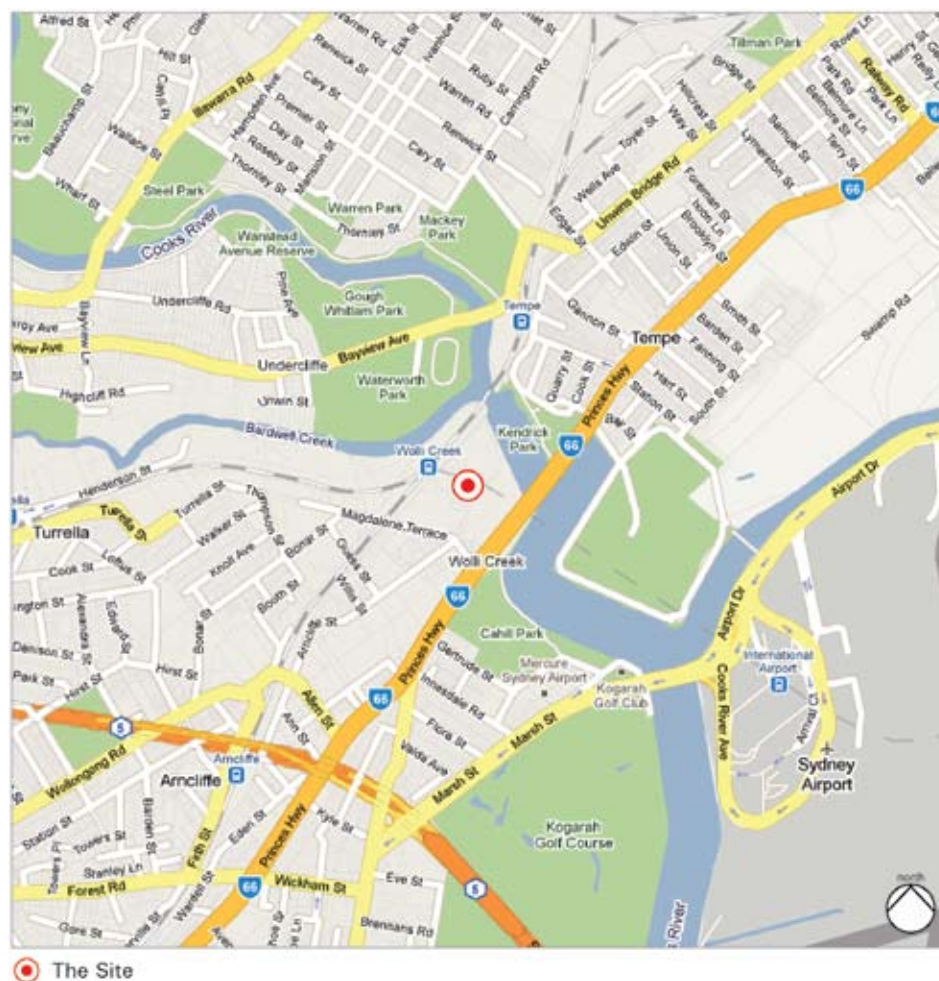


Figure 3 – Locality Plan

3.2 Existing Development

The site contains a number of existing built structures as shown in **Figure 4**, including:

- the Wollsi Creek Railway station and associated infrastructure in the central western part of the site. The railway station is served by a temporary access road from Magdalene Terrace;
- to the north of the station, an existing substation and switch room with associated high voltage cables below ground;
- the restored heritage listed buildings of Tempe House and St Magdalene's Chapel on the south eastern part of the site, restored in accordance with DA consent 463/01;
- the predominantly completed Discovery Point Park;
- the regenerated Mount Olympus communal open space area for residents;
- two mixed use buildings known as 'Greenbank' and 'Verge' (which form the first two stages of the Discovery Point Precinct) and are known as Sites 1 and 2;
- construction has commenced on a residential flat building referred to as Site 4 ('Vine') under the existing site Master Plan; and
- partial construction of Brodie Sparks Drive and Public Domain works.



Figure 4 – Birds Eye View of the Discovery Point site, looking north-east with key features labelled

3.3 Legal Description and Land to which Part 3A applies

Discovery Point comprises the following strata title schemes and Torrens title lots:

- Site 1 – SP79520 and SP75774;
- Site 2 – SP77902 and SP79529;
- Site 3, 4 and 9 - Lots 199, 200, 201, 202, 203, 206 in DP1103650;
- Site 5, 6, 7 & 8 - Lot 12 DP1062413; and
- Lot 2 DP1048491 & Lot 13 DP1062413 (Discovery Point Park).

It should be noted that the above site references relate to the existing master plan. Refer to **Appendix E** for a Survey Plan.

As shown above, part of the site has already been developed in accordance with an existing Master Plan consent granted by Rockdale Council and subsequent development approvals issued under Part 4 of the *Environmental Planning and Assessment Act 1979* (the EP&A Act).

The Concept Plan application relates specifically to the following lots:

- Lots 199, 200, 201, 202, 203 in DP1103650;
- Lot 12 DP1062413; and
- Lot 2 DP1048491 & Lot 13 DP1062413 (Discovery Point Park and foreshore).

Existing development on the site comprising Sites 1, 2 and 4, the restoration works to the heritage buildings, and Mt Olympus are excluded from the Part 3A Concept Plan application. These areas of the site will remain under the operation of Part 4 of the Act and existing applicable consents. No works to the heritage buildings are proposed as part of the Concept Plan.

All remaining land within the site including the partly constructed Discovery Point Park has been declared a project to which Part 3A of the Act applies. It should be noted that the existing heritage buildings have been excluded from the Concept Plan application. **Figure 5** shows the land subject to Part 3A application and the land excluded which will remain under Part 4 of the Act.

Where works are proposed within Railcorp land, owners consent will be sought during the assessment period.



Figure 5 – Land subject to the Part 3A Concept Plan for Discovery Point
Source: *Bates Smart*

3.4 Built Form Context and Surrounding Development

The land uses and development surrounding Discovery Point include the following as shown in **Figures 6 to 12**:

To the north

To the north of the site is Cooks River, Kendrick Park and residential areas on the opposite side of the River. The site has expansive views to the north taking in the Sydney CBD, North Sydney and Chatswood. Fatima Island is a small island within Cooks River. The view corridor from Tempe House to this island has been identified as significant in previous heritage assessments and within Rockdale Council planning instruments.



Figure 6 – View to the north of the site with Sydney CBD and North Sydney in the background, the Cooks River and the rail bridge in the foreground



Figure 7 – View to the north-east with Sydney CBD and Bondi Junction in the background, the Cooks River Bridge and Discover Point Park in the foreground

To the south

Adjoining the site to the south is a mixed use development known as “Proximity”, (refer to **Figures 8, 9 and 10**) which was developed by Multiplex. The Proximity development comprises around 290 apartments with a maximum building height of 21 storeys. Stage 1 of the development has been completed and includes ground level retail fronting Magdalene Terrace and Arncliffe Street. Stage 2 of the development has been approved including approximately 14,000m² of commercial floorspace.

Also adjoining Discovery Point to the south at 78-96 Arncliffe Street and 31-45 Princes Highway, Wolli Creek (refer to **Figure 8**) is a vacant disused industrial site which is currently subject to a Part 3A Concept Plan application for a mixed use development. The preliminary assessment submitted to the Department of Planning for this mixed use development known as the ‘NAHAS Construction site’ indicates that the proposed development includes approximately 25,000m² of retail space and 45,000m² of gross floor area for residential and serviced apartments. The report states that the residential component will include three towers ranging in height from 8 to 22 storeys.

In addition to the Concept Plan application, the proponent has recently lodged a Project Application for Stage 1 of the development. The Stage 1 Project Application proposal includes a temporary (15 years) supermarket, specialty retail and associated above ground car parking.



Figure 8 – View of adjoining Multiplex tower development ‘Proximity’ from Brodie Spark Drive with “NAHAS Construction” site in the foreground

Source: *Preliminary Environmental Assessment (Australand, February 2010)*



Figure 9 – Part of 'Proximity' development along Magdalene Terrace
Source: *Preliminary Environmental Assessment (Australand, February 2010)*

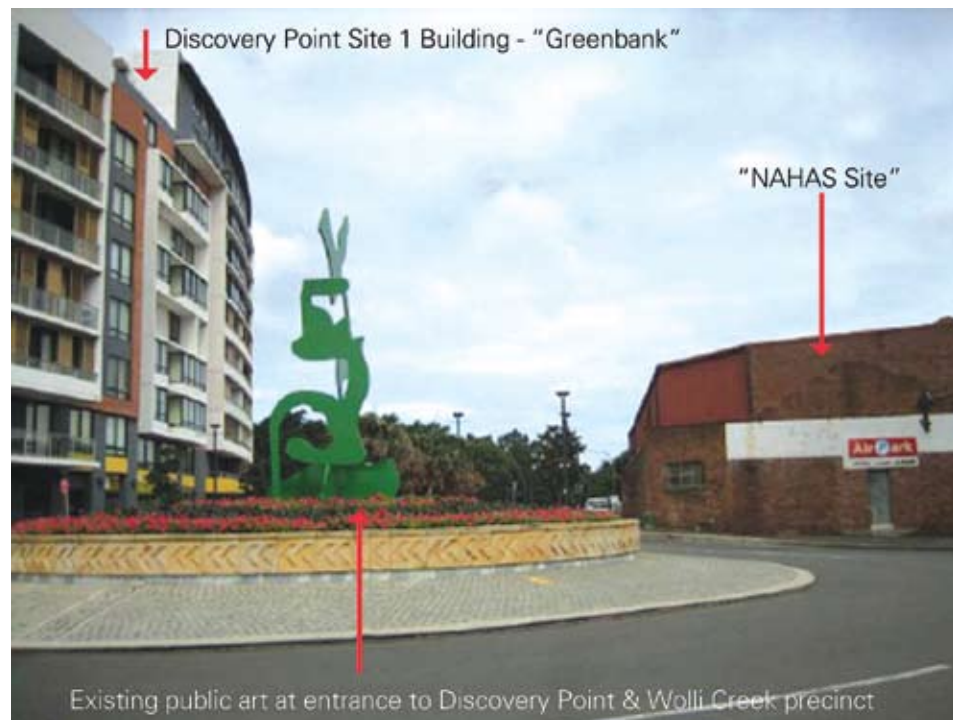


Figure 10 – Adjacent 'NAHAS Constructions' subject to a Part 3A application, looking east
Source: *Preliminary Environmental Assessment (Australand, February 2010)*

To the east

Across the Princes Highway to the east is the Cooks River, Cahill Park, Tempe Recreation Reserve (refer to **Figure 11**) and Cooks Cove development site. Further to the east lies the Sydney International Airport.



Figure 11 – View to the east with Discovery Point Park in the foreground
Source: *Preliminary Environmental Assessment (Australand, February 2010)*

To the west

To the west is the Illawarra Railway line, with higher density mixed use development located further to the west in the suburb of Turrella (**Figure 12**).



Figure 12 – High density residential development located to west of Discovery Point site
Source: *Preliminary Environmental Assessment (Australand, February 2010)*

3.5 Landform, Soils and Topography

The Discovery Point site comprises relatively low lying land on the foreshore of Cooks River, and also includes a small elevated sandstone hill known as Mount Olympus on its southeast corner. As identified within **Figure 5**, the site subject to the Concept Plan does not include Mount Olympus.

As shown in **Figure 4**, the site is vegetated in parts, including both remnant and introduced species on the foreshore and on Mount Olympus, and has been cleared in parts for redevelopment.

The riverfront of the site has been modified over its 150 year occupation and is now reclaimed and filled land. The northern section of the site, along the riverfront, has been modified and reclaimed with the original river bending around under the railway line, west of its current position. As a result, the soil is typically alluvial sand covering sandstone bedrock and shell layers are common within the soil profile. The soils and bedrock get progressively deeper towards the northern and western parts of the precinct to a depth of over 30m.

Potential acid sulphate soils have been found at various locations and depths across the site.

The landform of the site has been highly disturbed during the construction of the Princes Highway, various buildings, including the initial development of the site and the Wolli Creek Railway Station. High levels of disturbance and relatively deep fill layer characterise the western portion of the site, along Magdalene Terrace, which was once State Rail Authority land and contained a number of buildings.

Contamination

The site has been subject to a number of environmental investigations, remediation and validations due to previously contaminating land uses associated with former ownership/occupations including tram depot and maintenance, projection of asphalt products, other small industry uses, and the historical reclamation of low lying land.

Three previous site audits have been completed on-site, as follows:

- Jewell 2002 which covered former State Rail Authority land in the western portion of the site;
- Eisman 2005 which covered the parcel of land occupied by the Greenbank and Verge Buildings. This audit is outside of the boundaries of the Part 3A Concept Plan authorisation;
- Eisman 2006 which covered the remainder of the site including the open space areas in the north eastern portion.

Figure 13 indicates the land subject to the Jewell 2002 and Eisman 2006 site audits.



Figure 13 – Land subject to the Jewell 2002 and Eisman 2006 site audits.

Note: Figure 13 is indicative only.

These previous site audit statements determined that the land was suitable for high density residential, commercial office/retail, associated pavements, roadways and open space use. The Jewell review, whilst noting the presence of residual contamination, did not require a management plan for future management of the residual contamination. The Eisman review was accompanied by a Site Management Plan for residual contamination (MPL Group 2006).

3.6 Flooding and Groundwater

Groundwater

The groundwater levels on the site are shallow, with levels typically less than 2 metres below existing ground surface. Groundwater level monitoring identifies levels in mid 2003 from RL + 1.5m AHD south of the Wolli Creek Railway Station and RL + 1.15m AHD north of the railway station.

The interbedded alluvial sands within the soil profile provide pathways for lateral groundwater movement.

Flooding

The site is located along the southern bank of the Cooks River. The flood modelling results of the existing scenarios indicate that the site is currently partially inundated for flood events greater than the 100 year flood ARI flood event. The area of the site affected by the flood inundation is limited to the northern portion of the site, along the riverbank, as indicated within Drawing 2114734A_GIS_F002_A within Parsons Brinckerhoff's Flood Assessment for the site (**Appendix F**).

3.7 Views

The site has views over Botany Bay and the estuarine river system which flows into it. Directly to the north, the site has views onto Waterworth Park and Creek located on a peninsula defined by Wolli Creek and Cooks River. To the northeast, the site has available to it views to Sydney CBD in the distance. To the east, the airport is also visible. Directly south, the site has views of the Kogarah Golf Course and the Cooks River in the distance. **Figures 14, 15 and 16** identify the views available to the north and west of the site.



Figure 14 – Views available to the north from Discovery Point



Figure 15 – Views available to the north-west of the site



Figure 16 – Views available to the west of the site

3.8 Transport and Pedestrian Access

The traffic and transport report prepared by Transport and Traffic Planning Associates identifies the existing transport and pedestrian conditions (refer to **(Appendix G)**).

Road Network

The site has one existing vehicular connection to the surrounding road network via the partly constructed Brodie Spark Drive which connects to the Princes Highway to the south-east of the site. Princes Highway is the major arterial route within the region, connecting the Sydney CBD to the southern suburbs. The Princes Highway provides access to the M5 East Motorway which passes beneath Arncliffe with an off-local ramp to the Princes Highway (south of the site). In addition, the existing road network servicing the area comprises:

- the State Road and arterial route of Forest Road, Wickham Street and Marsh Street;
- the Regional Road and sub-arterial routes of West Botany Street;
- the Regional Road and collector route of Wollongong Road, Arncliffe Street and Brodie Spark Drive between Forest Road and Princes Highway;
- the minor collector road route linking through Turrella and connecting to Wollongong Road via Brodie Spark Drive and Arncliffe Street.

Road System

The principal vehicular routes servicing the area surrounding the site currently carry the following number of vehicles on average / day:

- Princes Highway (south of Allen Street): 39,901 vehicles / day;
- Forest Road (west of Princes Highway): 20,186 vehicles / day;
- Wollongong Road (east of Woll Creek Road): 7,535 vehicles / day.

The operational performance of the surrounding intersections is satisfactory.

Pedestrian Access

Existing pedestrian access to the site is limited. Temporary access to Woll Creek Railway Station is provided by a cul-de-sac off Magdalene Terrace, adjacent to the Illawarra Railway Line.

Pedestrian access into Discovery Point Park from the Princes Highway is available adjacent to the Cooks River Bridge, through gates near the base of Mount Olympus, and from the currently constructed buildings along the heritage arc and Brodie Spark Drive. Otherwise, there is limited existing pedestrian access through the site or to the foreshore for the public and residents of Discovery Point while the site is under construction.

Public Transport

The site is well serviced by public transport. Temporary access to Woll Creek Railway Station is currently provided through the site providing access to the East Hills, Illawarra and New Southern rail lines. In addition, the State Transit Route 348 bus service runs along Princes Highway, Brodie Spark Drive, Guess Avenue and Arncliffe Street connecting Woll Creek Railway Station to Bondi Junction Railway Station. The State Transit Route 422 bus service runs along the Princes Highway, connecting the Sydney CBD with Kogarah.

3.9 Indigenous and European Heritage

European Heritage

Tempe House and St Magdalen's Chapel are identified on the State Heritage Register (SHR) as a 'complex' heritage group due to their historical significance in relation to their Neo-Classical Georgian architecture, the association with previous occupants and the largely unaltered landscape setting of the two buildings. The State Heritage Register lists the Tempe House Estate, including the two buildings as well as the garden and grounds, including Discovery Point Park, as significant for retention. In addition, the Tempe House Precinct is subject to:

- a Permanent Conservation Order under the *Heritage Act 1977*;
- a Heritage Agreement between the State Government and Interciti Arncliffe Developments Pty Ltd and its successor in title (i.e. Discovery Point Pty Ltd);
- an endorsed Conservation Management Plan (2001) prepared by Tanner Architects.

The landscape setting of Tempe House and St Magdalen's Chapel is of significance, including the views to and from Tempe House, particularly the retention of views from Tempe House to the Cooks River and Fatima Island. **Figure 17** identifies the extent of the Tempe House precinct, as listed within the SHR.

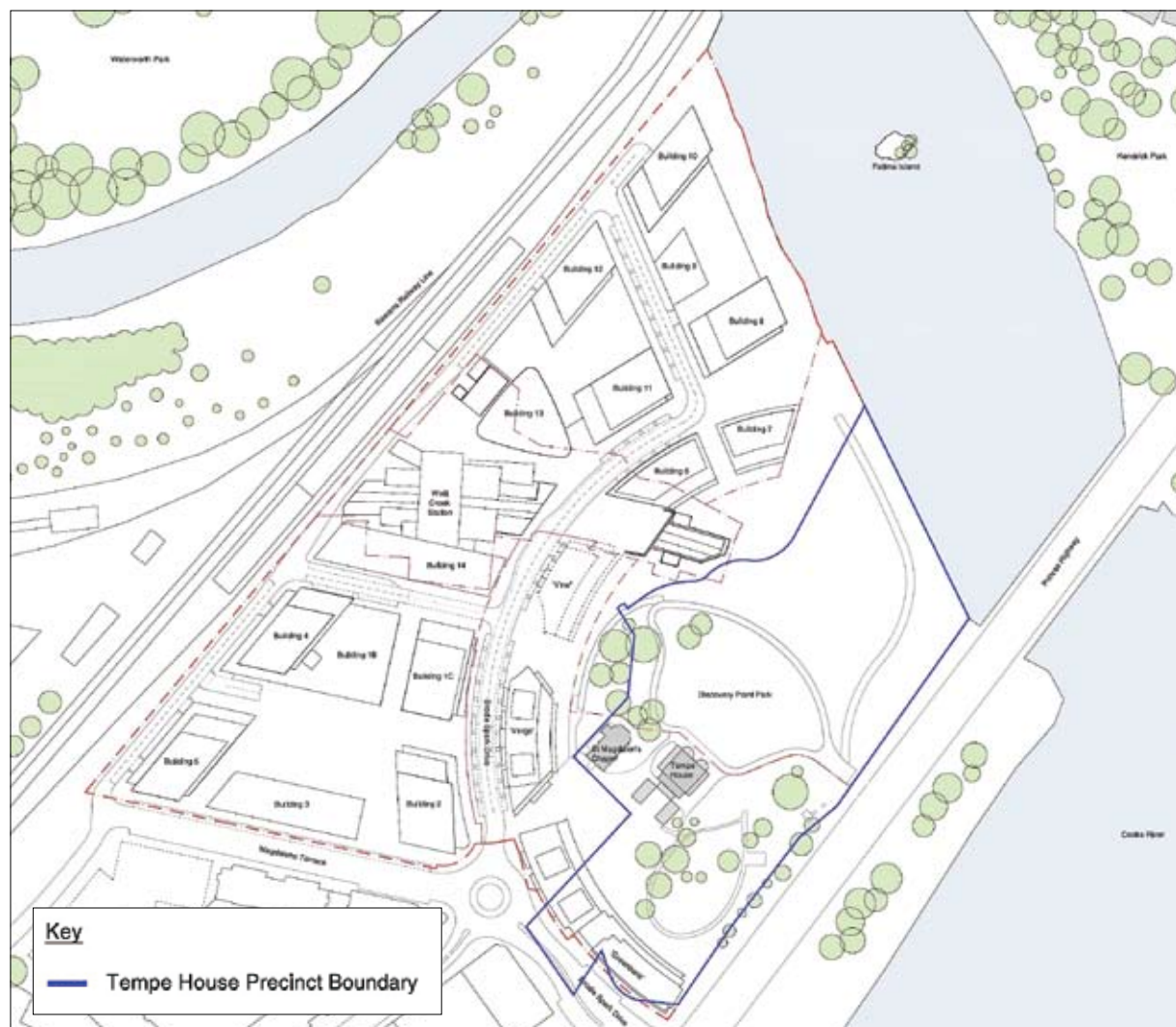


Figure 17 – State Heritage Register Boundary
Source: Bates Smart and Tanner and Associates (May 2010)

Indigenous Heritage

The site falls within the boundaries of the Metropolitan Local Aboriginal Land Council (MLALC). Several studies of Aboriginal heritage have been conducted within the site¹. A number of areas of the site have been investigated for Aboriginal heritage by subsurface excavations. These studies reveal that although the site is highly disturbed, some remnant intact archaeological deposit has been found to exist and there is further potential for deposits to exist.

3.10 Acoustic Environment

The site is currently affected by a range of external noise sources, including traffic noise along the Princes Highway, rail noise along the overland Illawarra Railway Line into Wollie Creek Railway Station and aircraft noise from Sydney Airport.

3.11 Existing Wind Environment

The relevant winds affecting the site are typical in the Sydney “regional context”, including two primary wind seasons being:

- most common summer winds from the northeast with the strongest summer gusts from the south and south east; and
- winds during early spring / winter mainly from the west and south, with winds from the west also providing the strongest winds during winter and all year round.

The vacant undeveloped portions of the site are currently most affected by the regional wind patterns. Close to the ground, the Sydney regional wind patterns described above are affected by the local terrain and topography. The “local” wind environment is as follows:

- Lower levels of the site are currently moderately shielded from winds by low rise development surrounding the site from the south clockwise to north-east; and
- The site is exposed to winds from east to south-east due to the low lying over water terrain in close proximity.

3.12 Obstacle Limitation Surface

The site is located approximately 2.7km north-west of the Sydney International Airport Aerodrome Reference Point and approximately 1.5km west of the nearest runway end. As a result, the site is subject to the Obstacle Limitation Surface, and specifically the Inner Horizontal Surface, which extends 4km from each runway threshold at a height of 51m AHD. Consideration of the PANS OPS surfaces (for radar) is also required for the proposed Concept Plan envelopes.

3.13 Services and Infrastructure

The site is currently connected to:

- Electricity - from an Energy Australia 11kV (Ring Main) which runs down Arncliffe Street and across Brodie Spark Drive to Substation S101720 (adjacent to the constructed Greenbank building);
- Telecommunications – Telstra services are identified on site by the Cooks River and up Brodie Spark Drive;

¹ Jo McDonald Cultural Heritage Management (2000, 2005a, 2006)

- Potable Water – made available from the existing in-ground 300mm DICL-authority water main in Brodie Spark Drive;
- Sewer – at the existing Sewer Manhole at the intersection of Brodie Spark Drive and Magdalene Terrace. Additional sewer services currently exist to the east of the Verge and Vine (currently under construction) buildings; and
- Natural gas – at the existing 210kPa 100mm PE authority gas main in Brodie Spark Drive.

All services require upgrading/augmentation to accommodate the proposed development, and a Servicing Strategy to achieve this is included in the Concept Plan.

3.14 Summary of Site Opportunities and Constraints

The site has been identified for some time for higher density residential and limited mixed uses. The key environmental factors identified within this site analysis were addressed in the original rezoning of the land in 2000. The proposed reconfiguration of uses within this Concept Plan from the approved Master Plan does not preclude the development of the site for the proposed mix of uses. The following is a summary of site opportunities and constraints identified.

Opportunities

- The site is currently zoned for a mix of uses and the land is generally vacant or capable of readily being formed for development to proceed;
- The development provides a large site of sufficient size that is currently underutilised and will contribute to the provision of housing to achieve strategic targets for additional dwellings;
- The site is ideally located within walking distance of Wolli Creek Railway Station and bus stops along the Princes Highway and the operational performance of surrounding intersections is satisfactory;
- The size of the site allows for a residential development yield that would support limited scale retail uses onsite that would not adversely affect the function of surrounding centres nor adjoining retail Part 3A applications (i.e. the NAHAS site);
- The site can be used to provide public access and pedestrian links to the Cooks River;
- The size of the site allows for the provision of new parks and open space areas and access to significant existing areas of open space off-site and on-site (Discovery Point Park) are available. This means there is an established network of open space available for incoming residents;
- Development can proceed in a timely and non-fragmented manner as ownership of the site is within the ownership of the Discovery Point co-venture partnership;
- The site does not contain any significant vegetation, any threatened flora or fauna species or endangered ecological communities;
- Previous site audit statements on the site demonstrate that development for the purpose of high density residential, commercial office/retail, associated pavements, roadways and open space use are suitable uses from a contamination perspective;
- All major services including water, sewer, electricity, telecommunications and gas are available on, or can be provided to, the site.

Constraints

- The site is located within proximity to a number of noise sources, in particular the Wollie Creek and Illawarra train lines and airport noise from Sydney Airport;
- Exposure to winds due to low lying terrain in close proximity to the Cooks River is likely to require mitigation measures;
- The need to consider the amenity of adjacent residential development in terms of privacy, overshadowing and visual impact;
- The integration of the built form with the existing built form on the site and in the locality;
- Preservation of views into the site from the river and public domain and through the site from private and publically accessible areas;
- The presence of acid sulphate soils and groundwater, and the impact this has on the provision of basement parking;
- The need to consider the built form response to the heritage context and setting of Tempe House and St Magdalen's Chapel and views corridors from this complex of heritage items towards Cooks River. Built form will need to consider the established heritage arc around this curtilage and Discovery Point Park;
- The potential for further aboriginal archaeological deposits will need to be considered in respect to construction activities;
- The presence of the Wollie Creek Railway Station, substation and cables within the site is a physical barrier to development and will influence the development pattern, particularly due to the constraints of building over the station;
- The nature of the current commercial office market which has revealed little interest in a large commercial building above the railway station or on the Discovery Point site;
- The site is flood affected, with 1 in 100 year flood levels at RL2.2 AHD, which requires a free board to be considered for the proposed development.

4.0 Consultation

In accordance with Part 3A of the EP&A Act, consultation is required to occur at the following stages:

- the Director-General of the Department of Planning is required to consult with relevant public authorities in preparing the environmental assessment requirements (DGRs) for the Concept Plan; and
- the Director-General is required to advertise and exhibit the Environmental Assessment and appended reports and documentation.

Comments and issues raised by these authorities and groups are included in the DGRs at **Appendix A** and have been considered by the Department in preparing the DGRs. When the Director-General advertises and exhibits the Environmental Assessment and appended reports and documentation, agencies will have a further opportunity to comment.

Following Concept Plan approval, further consultation with relevant agencies and the community will take place at the future Project Application stages. The Project Applications and supporting documentation will also be exhibited in order that any agencies and community members may make submissions at that time.

The requirement of the DGRs to undertake an appropriate and justified level of consultation has been met given the extent of:

- prior consultation regarding the Concept Plan;
- future consultation in relation to this Concept Plan;
- future consultation in relation to Project Applications;
- the targeted consultation provided in Section 4.1 below.

Given the extent of prior consultation regarding the Concept Plan, future consultations in relation to this application and future project applications, and the targeted consultation provided in the Section below, it is considered that the requirements of the DGRs are satisfied in this respect.

4.1 Council and Agency Consultation

Consultations were conducted by the proponent with a number of authorities in April and May 2010 after the issue of the DGRs. Those authorities consulted include:

- Rockdale City Council;
- State Transit Authority;
- Sydney Buses;
- Railcorp;
- NSW Taxis Council;
- Sydney Airport Corporation Ltd;
- Civil Aviation Safety Authority;
- Air Services Australia;
- Local Member for Rockdale, Frank Sartor;
- Metropolitan Local Aboriginal Lands Council (copy of heritage report referred for comment).

Refer to **Appendix H** which summarises the key issues from the consultation.

4.2 Community Consultation

A community information session was held on 12 May and 7 June 2010 at St Magdalen's Chapel at Discovery Point. All owners and residents of Sites 1 and 2, owners of Site 4 who have purchased apartments "off the plan", and the local residents of Wolli Creek were invited to the information session. Invitations were also sent to Frank Sartor, Member for Rockdale, Council Officers and the Mayor of Rockdale City Council. In addition, the session was made publically known through an article mention in the local newspaper. The attendees (approximately 120 people at the first session and 70 at the second session) were a mix of Discovery Point residents (existing and future) and members from the wider community.

A schedule of consultation, prepared by Australand, is also included at **Appendix H**.

5.0 Concept Plan

5.1 Introduction

The Concept Plan establishes the vision and planning and development framework which will be the basis for the consent authority to assess future development proposals within the site. It articulates what the co-venture partners are seeking to achieve for future development and sets the broad parameters for the development of the site.

The Concept Plan seeks to deliver a development outcome for the site that provides for an improved planning and design outcome for the site that better responds to State Environmental Planning Policy No 65 – Design Quality of Residential Flat Development (SEPP 65) and the associated Residential Flat Design Code (RFDC) requirements as well as market conditions for the site, which have changed significantly since the granting of the original Master Plan consent in 2001.

This section of the document establishes the key development objectives and outcomes that underpin the development of Discovery Point and recommends strategies to achieve these outcomes. These strategies result in actions which are detailed in the Statement of Commitments.

A summary comparing the proposed Concept Plan and currently approved Master Plan, is included at **Appendix I**. **Appendix I** also identifies the basis / principles upon which the proposed modifications are being sought, and the key benefits they will deliver.

The Concept Plan vision for the site has been prepared by Bates Smart and is supported by technical studies which are appended to this report.

5.2 Consideration of Options

The site has been subject to extensive site analysis and analysis of appropriate urban design and built form since before 2001, with the rezoning of the site for a mix of uses and the granting of Master Plan consent for the site by Rockdale Council (D500/01).

As outlined at Section 2.3, in September 2009, the co-venture partners embarked on a Voluntary Design Competition, with the primary aim of achieving an improved planning and design outcome for the site that provides an orderly and economic return for the co-venture partners.

A revised scheme for the site was considered necessary given that desirable urban form and market conditions for residential and commercial development have changed significantly since the granting of the original Master Plan consent in 2001. The design competition sought to invigorate the design for the site, taking into account SEPP 65 principles, which preceded the 2001 consent.

Furthermore, the proponents have advised that it has become apparent through their experience on the site over the past nine (9) years, since acquiring it from “Interciti”, that the Master Plan prepared by Interciti lacks an appreciation of the true social, economic and demographic drivers for development in the area. The proponents recognised that the nature of retail and commercial development has changed significantly within the Sydney Region over the past decade, particularly in relation to the advent and increasing presence of commercial suburban business parks, which compete with the more traditional form of retail/commercial development in town centres and along main roads.

There are no known examples of a large commercial office building being successfully developed in the centre of a new residential precinct as is proposed in the existing Master Plan consent. The concept for a large commercial office tower in the “Interciti” Master Plan is not commercially viable and will not be constructed. In late 2007, Australand undertook a marketing programme in relation to the proposed office space at Wollri Creek. Despite contact with a wide range of organisations this did not yield any positive leads in terms of organisations that may have an interest in Wollri Creek.

Three competitors were invited to submit a Master Plan proposal for the undeveloped portions of the site. The design competition was endorsed by the Discovery Point Management Committee on 22 September 2009. The Competition Brief was provided to three prominent architectural firms being Bates Smart, Cox Richardson and Allen Jack + Cottier and a fixed design competition fee was paid to each architect.

Submissions were received and reviewed in November 2009. A Design Competition Review Report was prepared in December 2009 which recommended Bates Smart as the winning scheme. The competition jury comprising Australand and Landcom representatives from the Discovery Point Management Committee appointed Bates Smart as the winning design on 23 December 2009.

The Bates Smart Scheme forms the basis of the Concept Plan application to the Department of Planning under Part 3A of the EP&A Act. The Allen Jack + Cottier and Cox Richardson Schemes are shown in **Figure 18** and **Figure 19** below and reproduced in full in **Appendix C**. The rationale for selection of the Bates Smart Scheme is provided below.



Figure 18 – Allen Jack and Cottier Design Competition Entry



Figure 19 – Cox Richardson Design Competition Entry

Rationale for the Winning Scheme – Bates Smart

The Bates Smart Scheme was chosen for a number of reasons. Specifically, the Scheme provides:

- the best urban planning and public domain outcome, specifically with the innovative new neighbourhood park proposed and retail precinct on the southern part of the site;
- the ability for the most varied building envelopes allowing flexibility in building forms and future detailed building designs across the site;
- discrete buildings with no shared podiums which assists in flexibility for staging and future design/designers;
- better pedestrian and road linkages across the site with a through site link effectively connecting the station with the retail precinct as well as more pocket parks / plazas;
- opportunity to develop sustainability initiatives in the Concept and Project Application stages;
- flexibility for staging, resulting in the orderly and efficient capital expenditure on shared works between stages;
- residential and non-residential floor areas in appropriate locations from an urban design perspective;
- a design that met key requirements of the design competition brief, including no buildings above the existing railway station and only one level of basement parking, with remaining parking above ground;
- buildings that are located and orientated to enhance amenity, with views, good solar access, and provision for private and public open space;
- a strategic design placement of the two towers that have an upper limit of 21 storey (entry and station), which creates a logical signature gateway and tower presence around the station;
- the design of buildings around the park in an 'arc', consistent with the approach in the existing Master Plan which was deemed suitable from a heritage perspective;
- minor reduction in the length of the Master Plan roads (improves pedestrian permeability and public domain), coupled with additional through site links;

- stepping/setback of the upper levels in the taller buildings which reduces perceived bulk and is consistent with existing buildings that have been built on the site; and
- provides a superior built form outcome that also ensures an optimum, economic return for the co-venture partners.

5.3 Indicative Concept Description

Illustrative design material, showing indicative design concepts has been prepared by Bates Smart. This material is included as part of the *Bates Smart Design Report*, but does not form part of the Concept Plan approval. It is provided for information purposes only to assist the consent authority in its assessment of the Concept Plan.

The indicative design plans show how appropriate apartment development could occur within the proposed building envelopes and has been used as the basis for a preliminary assessment to demonstrate the suitability of the proposed Concept Plan with SEPP 65 design principles in the Planning Assessment at **Section 6**.

Concept Plans for approval of building envelopes and the *Bates Smart Design Report* are included within separate cover.

5.4 Concept Approval

The site is to be developed for a mix of uses, including residential, commercial, retail and open space. The Concept Plan establishes objectives and design parameters for the development of the site. It includes the following elements:

- The layout of the development for 14 buildings, a new neighbourhood park, a new Waterfront Park, a new Station Park, and other areas of open space and street layout;
- Land uses across the site (all residential and non-residential uses permissible under the 10(a1) zone of the Rockdale LEP 2000 and 6(c) zone of Rockdale Planning Scheme Ordinance (refer to **Appendix D**));
- Building envelopes (maximum height in RLs), building separation, building depths and solar provision to buildings;
- Street setouts;
- A maximum total gross floor area (GFA) across the site;
- A minimum gross floor area (GFA) for non-residential uses across the site;
- Proposed residential unit mix across the whole site;
- Minimum residential apartment sizes;
- Car parking rates to be utilised in the subsequent Project Applications;
- Key built form building separation distances; and
- Indicative Landscape Concept and public domain works.

The Concept Plan seeks approval for the following key components and development parameters:

- A maximum of 132,000m² total GFA for the mixed use development (excluding car parking GFA);
- A minimum of 9,000m² non-residential GFA;
- A maximum of 123,000m² residential GFA;

- A maximum of 14,000m² above ground car parking GFA (in addition to maximum GFA above);
- A residential unit mix across the site of:
 - Maximum 50% studios and one bedroom apartments;
 - Minimum 40% two bedroom apartments;
 - Minimum 10% three+ bedroom apartments.
- Parking rates to be utilised across the development in subsequent project applications of:
 - Maximum 1 space per studio and one bedroom unit;
 - Minimum 1 space and maximum of 2 spaces per two bedroom unit;
 - 2 spaces per three+ bedroom units;
 - Minimum 1 visitor space per 20 residential units;
 - Minimum 1 space per 50m² of non-residential GFA (commercial);
 - Minimum 1 space per 35m² of non-residential GFA (retail).
- New plazas, common open space, Station Park, Waterfront Park, new neighbourhood park and other landscaping;
- Minimum residential apartment size of:
 - Minimum 40m² for studio apartments;
 - Minimum 50m² for 1 bedroom apartments;
 - Minimum 70m² for 2 bedroom apartments;
 - Minimum 100m² for 3+ bedroom apartments.
- A network of streets, open space areas and through-site links generally as shown on the Indicative Design Scheme Site Plan, to facilitate reintegration of the site into the wider urban context including upgrade of the access to the Wolli Creek station; and
- Retention of all future stages as Project Applications (PAs) with the Minister for Planning, for all development with a capital investment value (CIV) greater than \$20million.

While the PEAR included the heritage items of Tempe House and St Magdalen's Chapel the initial Part 3A declaration did not. The current Concept Plan does not include any works or changes to use of these heritage items.

Unlike the approved Master Plan, the Concept Plan does not seek approval to build over the rail corridor. There is also no proposal to alter the existing Development Agreement with Railcorp. Where works are proposed within Railcorp land, owners consent will be sought during the assessment period.

5.5 Concept Plan Objectives

In accordance with the opportunities and constraints identified in the Site Analysis (Section 3), the project team has identified the following objectives for the project. The following objectives are drawn from the *Bates Smart Design Report* provided under separate cover.

Vision

The Project Team's vision is to create a vibrant residential neighbourhood with a permeable network of streets and courtyards. The design concept extends the public domain with the introduction of a new neighbourhood park while improving connections to existing public open space. Traditional urban typologies of perimeter blocks and pedestrian laneways, activated by retail uses, create a legible urban form that will support a high quality residential lifestyle.

Design Principles/Objectives

The Design Principles/Objectives for the Discovery Point Concept Plan are:

- The Concept Plan relates to the site's context by:
 - responding to the existing development at Discovery Point, including the neighbouring 21 storey "Proximity" development;
 - integrating the station infrastructure without the use of over-track development; and
 - locating retail and commercial development to take advantage of commuter foot traffic.
- The development pattern/framework creates a legible pattern of streets and blocks through the enhancement of the pedestrian permeability and improving connections to existing public open space;
- The development pattern allows for clear development staging and subdivision whilst maintaining a coherent overall form, between stages;
- The extension of Discovery Point Park to the north along Cooks River and the new neighbourhood park within the southern portion of the site provides additional recreation space for residents, commuters and the broader community;
- The built form massing responds to the existing context, defines public spaces and creates a variety of building scales and heights, whilst maximising solar access to apartments and open space;
- The location of the two 21-storey towers limits overshadowing of surrounding residential buildings and open spaces with the first forming a gateway to the south east corner of the site, while the second marks the location of the railway station;
- Sustainability initiatives are integrated into the concept design, including building orientation and massing designed to:
 - maximize solar access to apartments and open space;
 - apartment building typologies that allow natural light to corridors; and
 - a high proportion of apartments with cross ventilation.

5.6 Development Precincts

There are three distinct precincts proposed within the Concept Plan, the Southern 'Village Square' Precinct, Northern 'Waterfront' Precinct and Eastern 'Dress Circle' Precinct (see identified within **Figure 20**). Each Precinct has unique characteristics. Details of each Precinct are as follows:

- Southern Precinct, to be known as the Village Square precinct, is the future retail hub providing residential buildings and a mix of cafes, restaurants and retail uses including a supermarket as well as a future commercial building adjacent to the station;
- Northern Precinct, to be known as the Waterfront precinct, will be predominantly residential with a mix of housing typologies focused on the Cooks River; and
- Eastern Precinct, to be known as the Dress Circle precinct, will be dominated by Discovery Point Park, the existing heritage-listed buildings and the residential building already built. The proposal seeks to complete the arc-shaped street to complete the arc from Magdalene Terrace to Cooks River.

Figure 21 indicates the building envelopes within each of the three development precincts. Unlike the approved Master Plan, the Concept Plan does not seek approval to build over the rail corridor. Refer to Drawing DA1-001 for Concept Plan Approval (provided under separate cover) and Site Survey at **Appendix E**.

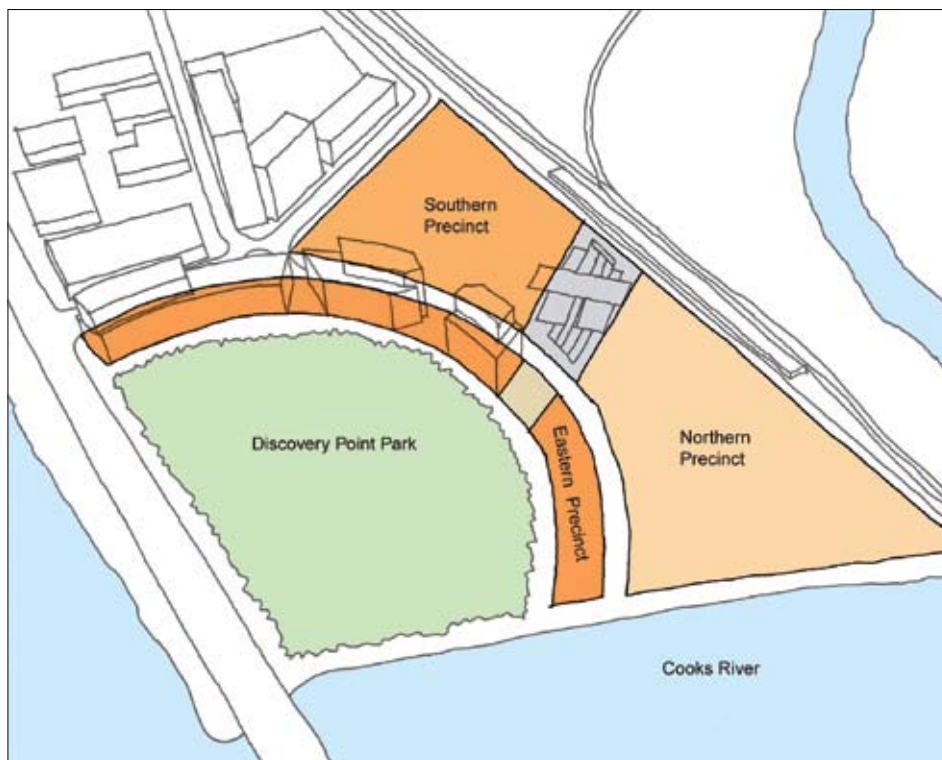


Figure 20 – Concept Plan Development Precincts
Source: *Bates Smart*



Figure 21 – Concept Plan Development Precincts with building envelopes
Source: *Bates Smart*

Development Blocks

The proposed development precincts and street pattern results in six discrete development parcels, each with good vehicular and pedestrian access and of appropriate depth and width for residential development. The development blocks are further divided into developable land parcels in line with the proposed staging program (**Figure 22**).



Figure 22 – Concept Plan Development Blocks
Source: *Bates Smart*

5.7 Building Envelopes

5.7.1 Planning Definitions

For the purpose of submitting a Part 3A Concept Plan application, the existing RGFA requirement under Rockdale Local Environmental Plan 2000 has been converted to an equivalent gross floor area in accordance with the Standard LEP Instrument definition. The EAR refers to historical GFA for the site in terms of RGFA (Rockdale GFA) and the proposed GFA for the site in terms of SIGFA (Standard Instrument GFA). A summary of Gross Floor Area calculations and conversions are provided under separate cover. The conversions are required due to different definitions of GFA and therefore methods of calculation between instruments.

In simple terms, the calculations undertaken by Lockley Land Title Solutions (refer to **Appendix I**) indicate that SIGFA generally equates to around 93.3% of RGFA. The conversion of RGFA to SIGFA has been undertaken to determine the overall GFA that could have been approved under the Master Plan, and that remaining for the undeveloped portions of the site. For the purpose of the EAR, all GFA figures quoted for approval are SIGFA.

Table 3 compares the proposed and permitted GFA under the definitions within the Rockdale LEP 2000 and the Standard Instrument, under the conversion rate calculated in **Appendix I**.

Table 3 – Proposed and permitted GFA according to Rockdale LEP 2000 and Standard Instrument definitions

	Rockdale LEP 2000 GFA definition	Standard Instrument GFA definition
Total Permitted GFA	167,504m ²	156,280m ²
Currently Developed GFA	29,279m ²	27,316m ²
Remaining / Balance GFA	138,225m ²	128,964m ²
Proposed Concept Plan	-	132,000m ²

5.7.2 Proposed Floor Space and Building Footprints

The proposed building envelopes are illustrated in the Concept Plans for approval and are provided under separate cover. The proposed GFA for the Concept Plan, calculated in accordance with the Standard Instrument is at **Table 3**.

Maximum building footprints are illustrated in the Concept Plan drawings.

Concept Plan approval is only sought for the overall maximum quantum of GFA across the site and minimum quantum of non-residential GFA. We do not seek to lock down GFA by building to ensure some flexibility between stages and this differs to the current LEP approach.

The area for the above ground car parking component is in addition to the proposed 132,000m² (SIGFA) and has not been included as GFA as per Preliminary Environmental Assessment submitted in February 2010. The proposed area occupied by above ground car parking is 14,000m².

A comparison of the currently approved and proposed modified building heights (RL AHD) for the site is shown on the diagram at **Appendix I**.

5.7.3 Building Heights

Table 4 sets out the maximum building heights for each new building. As shown on the Concept Plans provided under separate cover, building heights are measured by the maximum RL.

The overall maximum height of development on the site ranges from RL 20.75m AHD to RL 79.65m AHD.

To assist in the assessment of the Concept Plan building envelopes, the number of storeys contained within the indicative design scheme (not for approval) is provided in column 3 of **Table 4** below.

Table 4 – Proposed maximum building heights

Building (Column 1)	Maximum RL (Column 2)	Indicative No. of Storeys (Column 3)
1b	RL20.75	2 storeys
1c	RL55.3	13 storeys
2	RL79.65	21 storeys
3	RL40.0	8 storeys
4	RL55.3	13 storeys
5	RL62.4	15 storeys
6	RL50.5	12 storeys
7	RL50.5	12 storeys
8	RL62.4	15 storeys
9	RL40.0	8 storeys
10	RL62.4	15 storeys

Building (Column 1)	Maximum RL (Column 2)	Indicative No. of Storeys (Column 3)
11	RL55.3	13 storeys
12	RL55.3	13 storeys
13	RL79.65	21 storeys
14	RL42.7	5 storeys
Overall max	RL79.65	21 storeys

5.8 Mix of Uses

The Concept Plan is seeking approval for a mix of residential, non-residential and open space uses on the site. The indicative design scheme shows that non-residential uses, along with residential development, are proposed within the southern precinct, while the northern and eastern precincts are proposed as solely residential precincts (with the exception of ground floor cafes/restaurants along the Cooks River).

In addition, the Concept Plan is seeking approval for the creation of a new neighbourhood park in the southern precinct, the completion of Discovery Point Park, a new Waterfront Park and a new Station Park.

The non-residential component of the Concept Plan comprises a minimum of 9,000m² SIGFA. The indicative design scheme shows the non-residential uses in the form of a commercial office building (Building 14), supermarket, ground level retail premises and restaurants. The ground level retail and restaurants are to be centred within Village Square, around the neighbourhood park, and along the pedestrian link between Magdalene Terrace and the railway station. The indicative design scheme also shows some limited retail development to be provided on the ground floor of Building 7 fronting the Cooks River. The indicative design scheme proposes a commercial development within a lower building of RL42.7 adjacent to the railway station (Building 14).

The Concept Plan will reduce the overall non residential floor space component proposed on the site from that approved within the existing Master Plan (i.e. approximately 50,000m² of non residential SIGFA approved and a minimum of 9,000m² now proposed under the Concept Plan, plus around 2,000m² already developed on the site).

While the indicative design scheme shows non-residential uses comprising retail and commercial, the future non-residential uses to be developed on the site could be a range of non-residential uses as permitted in the 10(a1) zone, including, but not limited to, hotels, student accommodation, and serviced apartments. The Concept Plan application seeks to maintain all uses currently permissible under the 10(a1) and 6(c) zones as permissible with consent under the Concept Plan.

A list of the uses permissible on the site, to be maintained under the Concept Plan, are provided in extracts from Rockdale LEP 2000 and Rockdale PSO at **Appendix D**.

5.9 Street Layout, Access and Parking

Primary Streets

Two north-south streets are proposed as primary access streets within the site. Through the site the existing arc of Brodie Spark Drive has been extended eastwards towards Cooks River similar to the existing Master Plan. Along the north-west boundary of the site, Spark Lane is extended eastwards towards Cooks River. The street provides a buffer between the railway line and the proposed development (**Figure 23**).

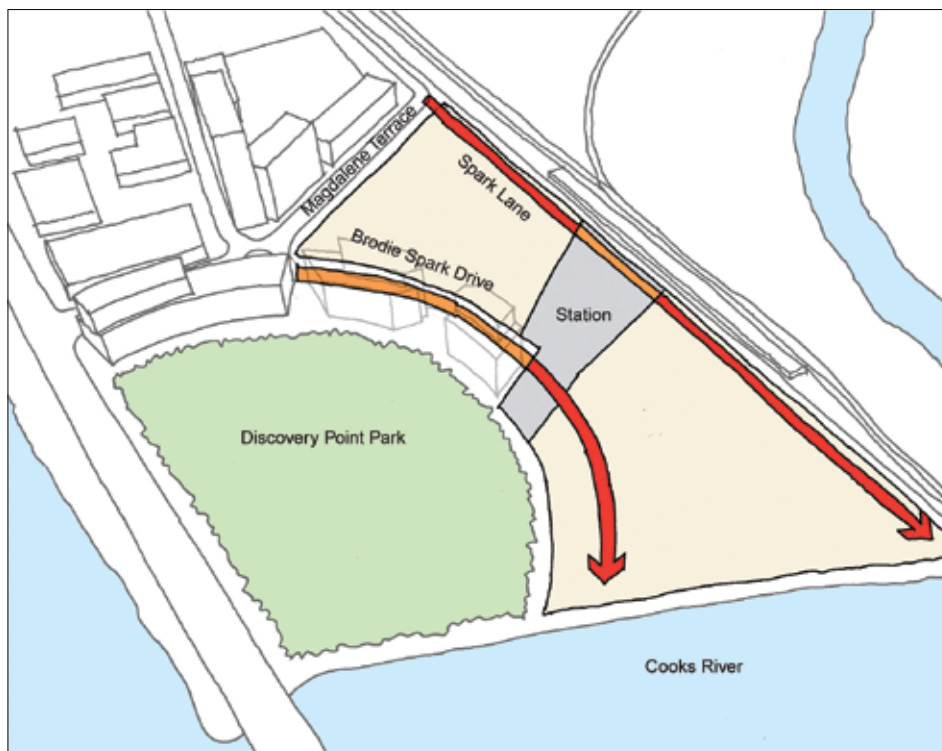


Figure 23 – Primary Street Layout
Source: *Bates Smart*

Secondary Streets and Through Site Links

Between the two primary streets, an alternating pattern of pedestrian and vehicular links has been introduced to increase permeability, provide station access and break the blocks into smaller development parcels. These secondary streets and pedestrian links have been aligned to maximise physical and visual connections into the existing Discovery Point Park (**Figure 24**).

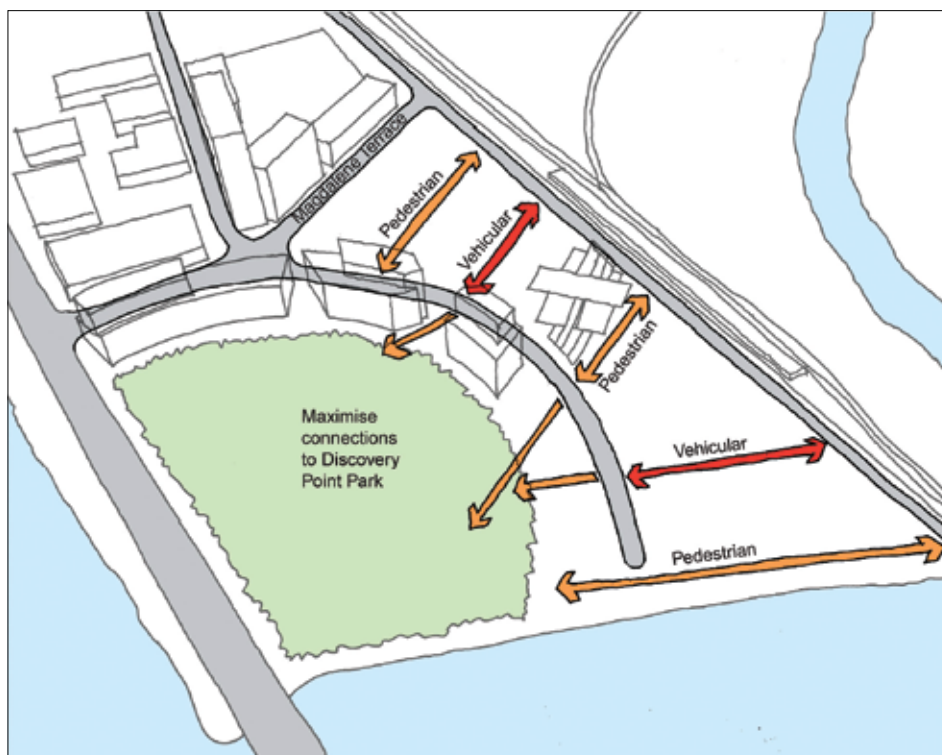


Figure 24 – Secondary Streets and Through Site Links
Source: *Bates Smart*

Pedestrian Street and Park

A new pedestrian street is proposed running parallel to Brodie Spark Drive, directly connecting the existing Station entrance with Magdalene Terrace. Flanking the street is a new neighbourhood park located centrally within the Southern Precinct, as described further in the Landscaping and Public Domain section below (**Figure 25**).

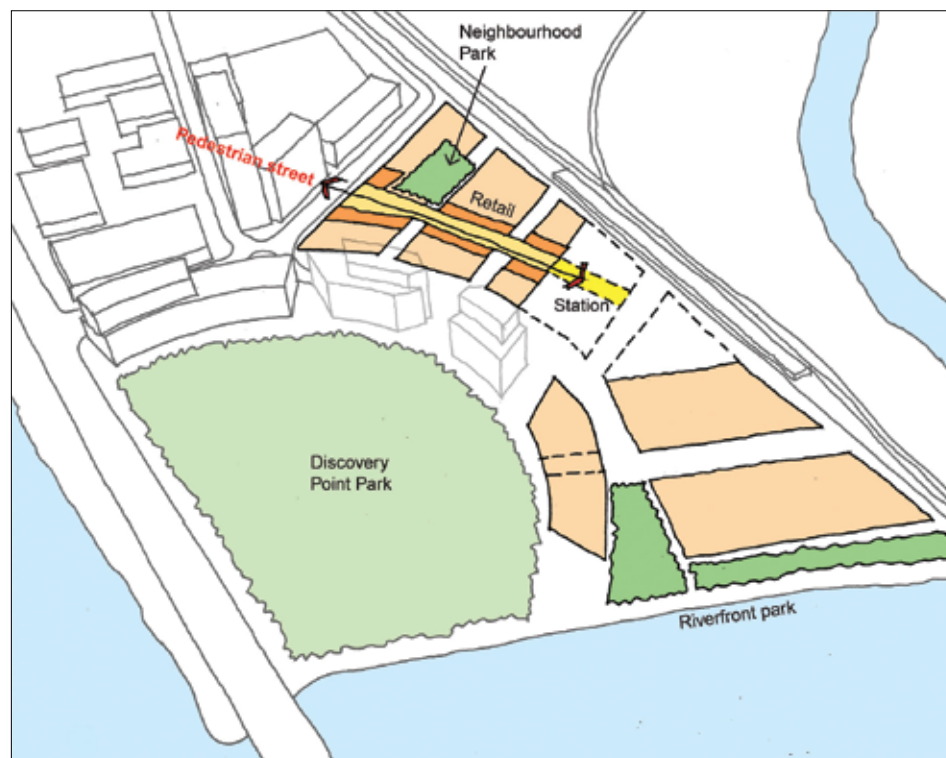


Figure 25 – Proposed Pedestrian Street and Park
Source: Bates Smart

Basement and Above Ground Parking

The Concept Plan application seeks approval for the car park building envelopes identified in plans provided under separate cover. Car parking is proposed within car parks below and above ground. The area for the above ground car parking component is in addition to the proposed 132,000m² (SIGFA) and has not been counted as gross floor area. Approximately 25% of the total parking provision is to be provided above ground, screened from view behind residential units and building entry lobbies. The anticipated location of on-street parking and entrances to basement parking is identified in the indicative design scheme plans within **Figure 26**.

There are two contiguous basements on the site, which can be built in stages as each residential precinct is added. Having only two basements minimises perimeter piling and maximises shared facilities including entries and internal ramp. The basements are one level deep with the exception of the south east portion of Basement 1 which is three levels deep and makes use of the depth of the existing piled wall to accommodate an additional level. There is no basement parking to be constructed under the neighbourhood park which is a deep soil zone. The northern basement is setback from the station to allow an existing substation/switch room and electrical HV cables to remain in-situ.

The majority of entrances to car parks are located along Spark Lane adjoining the railway. A large public car park (approximately 130 spaces) for shoppers is to be provided in the Southern Precinct. During key retail hours, parking for longer than three hours will be charged at commercial rates to ensure the car park is not used as a commuter car park. This is consistent with the existing master plan consent. Resident parking will be located under the residential buildings.

Above ground car parking will be provided in the podiums of proposed buildings 4, 5, 8, 9, 10, 11 and 12. In the northern precinct, the above ground parking will be typically screened behind two storey residential apartments and building entry lobbies which activate the street frontage. Along the north-west edge of the site the above ground car parking forms a buffer to the railway line and will also be appropriately screened.

Visitor parking will be provided on-street (40 spaces), and within the basement car parks. On-street visitor parking will be provided along Brodie Spark Lane, Magdalene Terrace and Chisholm Street within the northern precinct.



Figure 26 – Site Access and Parking
Source: *Bates Smart*

Parking Rates

Concept Approval is sought for parking rates to be adopted in future Project Applications.

- Maximum 1 space per studio and one bedroom unit;
- Minimum 1 space and maximum of 2 spaces per two bedroom unit;
- Maximum of 2 spaces per three+ bedroom units;
- Minimum 1 visitor space per 20 residential units;
- Minimum 1 space per 50m² of non-residential GFA (commercial);
- Minimum 1 space per 35m² of non-residential GFA (retail).

Justification for these rates is provided in the Environmental Assessment at Section 6 and in the Traffic and Parking Report provided at **Appendix G**.

5.10 Landscaping, Open Space and Public Domain

An indicative landscape strategy has been included within the *Bates Smart Design Report* (attached under separate cover). Drawing L-MP-01 of the scheme shows the different precincts and areas within the site and an indicative landscape strategy (also shown in **Figure 27**).

The following descriptions are for the Landscape Concept Plan, more detailed landscape plans will be provided with the relevant Project Applications.



Figure 27 – Indicative Landscape Concept Layout
Source: *Turf Design*

Discovery Point Park

This park is a major public park and heritage element. The proposed landscaping will improve connectivity between park and urban areas and within the park itself including:

- a new Park Promenade linking the Chapel Plaza, the Verge-Vine pedestrian plaza, the new Station Park, continuing east to Wolli Creek, past Buildings 6 and 7;
- several new pedestrian paths links to the new park promenade at various locations within the park. Other paths, seating areas and planting enhance overall pedestrian amenity and visual quality;
- extensive planting surrounding rail infrastructure to reduce the visual impacts of the rail cutting, from within the park and adjoining apartment buildings; and
- service access to both rail equipment and Energy Australia substations, will be integrated into planting, as will setback distances of trees from rail infrastructure.

Neighbourhood Park

The landscape Concept Plan includes a new neighbourhood park located centrally within the Southern Precinct. This new park connects to surrounding streets via a network of pedestrian links. The proposed built form provides excellent solar access to the park due to the low building heights of the podium to the north, the generous width of the pedestrian walks and the park's north facing orientation. A deep soil zone enables provision of extensive planting of shade trees.

The park is envisaged to feature:

- a large central lawn with surrounding pedestrian walks;
- a cafe terrace comprised of deciduous planting and timber decking along the Building 3;
- a seating area on the western edge framed by deciduous trees and a large specimen fig tree; and
- seating and feature trees set within a wider pedestrian zone adjacent to the supermarket.

Waterfront Park

The landscape Concept Plan provides for the extension of Discovery Point Park along the north-eastern edge of the site to create a new park along the Cooks River frontage (Waterfront Park). Waterfront Park extends north from Brodie Spark Drive, offering northerly views and direct pedestrian access to Cooks River.

The park is envisaged to feature:

- an upper plaza and pedestrian shared zone with water elements;
- a mid-level plaza offering seating, water feature and expansive water views;
- universal pedestrian access, centrally located and extensively landscaped;
- the natural ground line at the water's edge is retained and a lightweight boardwalk within the site boundary will provide a usable interface with the water;
- a shared pedestrian and bike path along the north-western edge, part of the site's cycle network;
- an open lawn connecting the mid-level plaza to the creek side open space with feature simple yet robust concrete benches for seating and informal children's play; and
- a water edge featuring mangrove, salt grass and littoral vegetation integrated with bleacher steps and controlled access to the water edge enabling activities such as kayaking.

Station Park and Station North Walk

Station Park, located over the rail line, provides a local open space between the Station East pedestrian walk, Brodie Spark Drive and the new Parkside Promenade at Discovery Point Park.

The park is envisaged to feature:

- a large central lawn, raised 500mm above surrounding pavement level, providing sufficient soil volume and depth (800mm) for shade trees;
- a variety of seating: backed seating, benches, seating walls, steps, offering both sun and shade; and
- a significant public art element that encourages interaction particularly for children.

Station North Walk, a new pedestrian thoroughfare will provide access to the north and east of the railway station. The Walk is made of two thoroughfares joined by a seam of understorey planting, flowering trees, paving, seating and lighting that offer vistas between the station entry and Station Park. Site lines will be maintained at all times in accordance with principles of pedestrian safety. One path incorporates shared cycle access to a bicycle and motorcycle parking area located in the undercroft of proposed Building 13.

Private Domain

The landscape Concept Plan also envisages private recreation areas for residents, including:

- three podium 'commons' for use by adjoining apartment residents. Each common will feature lawns, garden beds, tree plantings, shade structures, seating and barbeque facilities;
- a pool, and associated change rooms and gym facilities are provided within each of the three residential podiums, along with allotment gardens for residents (between Buildings 1c and 4, Buildings 8, 9, and 10, and Buildings 11 and 12);
- future buildings are proposed to feature 'residents only' green roofs, featuring gardens, shade structures and barbecue facilities for small group gatherings. These rooftop gardens offering panoramic views over Wolli Creek, Botany Bay and the city will be carefully planned with respect to the provision of rooftop services; and
- Building 3 will feature a pool and associated change room facilities.

Street Planting

The key features of the street planting include:

- new street planting along Brodie Spark Drive, to integrate with the modification of the roadway (the removal of the existing centre island and locate street lighting to the kerbside);
- the planting of a feature Fig tree adjacent to the rail corridor, to provide a visual marker on the outside curve of Brodie Spark Drive;
- the planting of shade trees and lush understorey planting as well the installation of seating and lighting along Discovery Point Place; and
- a seam of understorey plantings, flowering trees, pavings, seating and lighting joining two pedestrian thoroughfares along Station East Walk.

Public Art

A detailed Public Art Strategy will be undertaken and submitted as part of the relevant future Project Application. The Strategy will include five individual installations across the site, located within the new public domain areas (see locations mapped within **Figure 28**), including:

- within new neighbourhood park;
- within a dedicated public art/interpretive area to the east of the Wollie Creek Railway Station;
- to the north of Brodie Spark Drive, leading to the river frontage;
- along the river foreshore; and
- within Discovery Point Park, interwoven with the trees.

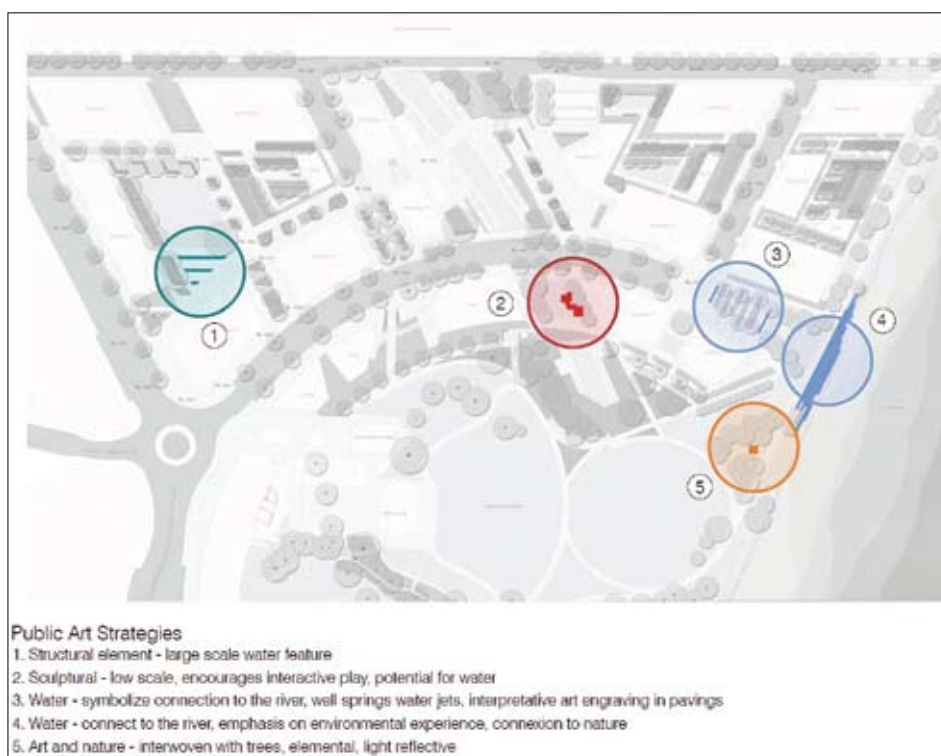


Figure 28 – Public Art Strategy

Source: *Turf Design*

5.11 Traffic and Transport Connections

External Road Network

The Assessment of Traffic, Transport and Accessibility Implications identifies the prescribed upgrades to the road network as identified within the wider Wollie Creek Redevelopment Area (excluding Discovery Point). These upgrades, although unlikely to be achieved for many years, include:

- The construction of Gertrude Street between Princes Highway and Arncliffe Street;
- The construction of a new access road parallel to and between the Highway and Arncliffe Street; and
- The widening of the Highway and Arncliffe Street.

Public Transport

The site is currently highly accessible to public transport, with the Wollie Creek Railway Station located within the site providing access to the Illawarra, South Coast, Airport and East Hills rail lines. In addition, the temporary cul-de-sac to the west of the site currently provides bus access to Wollie Creek Railway Station. During construction of the Concept Plan, pedestrian and bus access to the railway station will be maintained and the final road layout has been designed to support bus access and circulation. The proposed public transport network is identified within **Figure 29**.

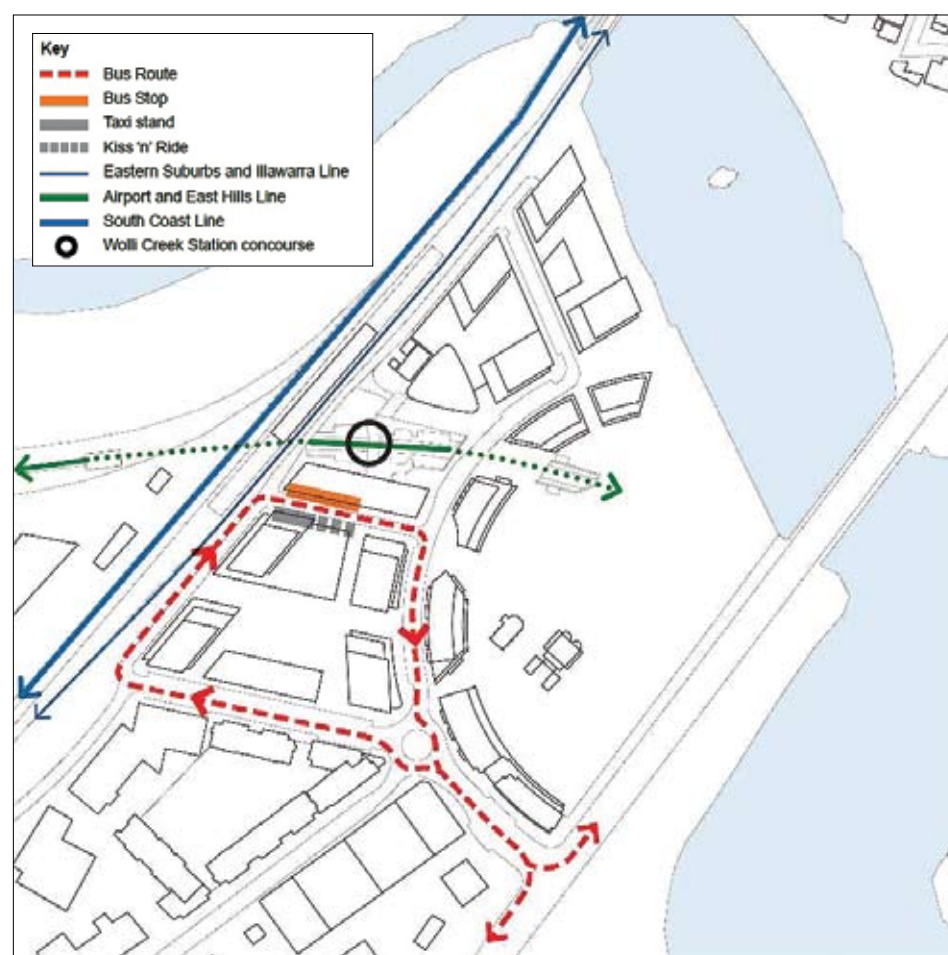


Figure 29 – Public Transport network
Source: *Bates Smart*

Bicycle Facilities

Bicycle paths are provided along Brodie Spark Drive and the riverfront to connect Madgalene Terrace to the Cooks River. The riverfront cycle paths then connect through Discovery Point Park to link back to the wider regional cycle network. Bicycle and motorcycle parking is provided at the northern entrance to Wollie Creek Station. Provisions will be made for bicycle storage in residential building basements within subsequent project applications. The existing and proposed cycle routes are identified with **Figure 30**.



Figure 30 – Existing and Proposed Cycle Routes
Source: *Bates Smart*

Pedestrian Network

Figure 31 below identifies the proposed pedestrian network and linkages within site and immediate surrounds.

The Concept Plan provides for an alternating pattern of vehicular and pedestrian links (as identified within **Figure 24** in Section 5.9) to break up the development blocks and increase physical and visual connections across the site and maximise linkages to Discovery Point Park. The key pedestrian linkages include:

- two curved north-south pathways, one alongside Brodie Spark Drive and along the western edge of Discovery Point Park – the Public Arc Promenade;
- pedestrian pathways along Discovery Point Place and Chisholm Street that link to shared areas and new park spaces;
- a new pedestrian street through the new neighbourhood park and between buildings, running parallel to Brodie Spark Drive; and
- a number of east-west pathways between development blocks.

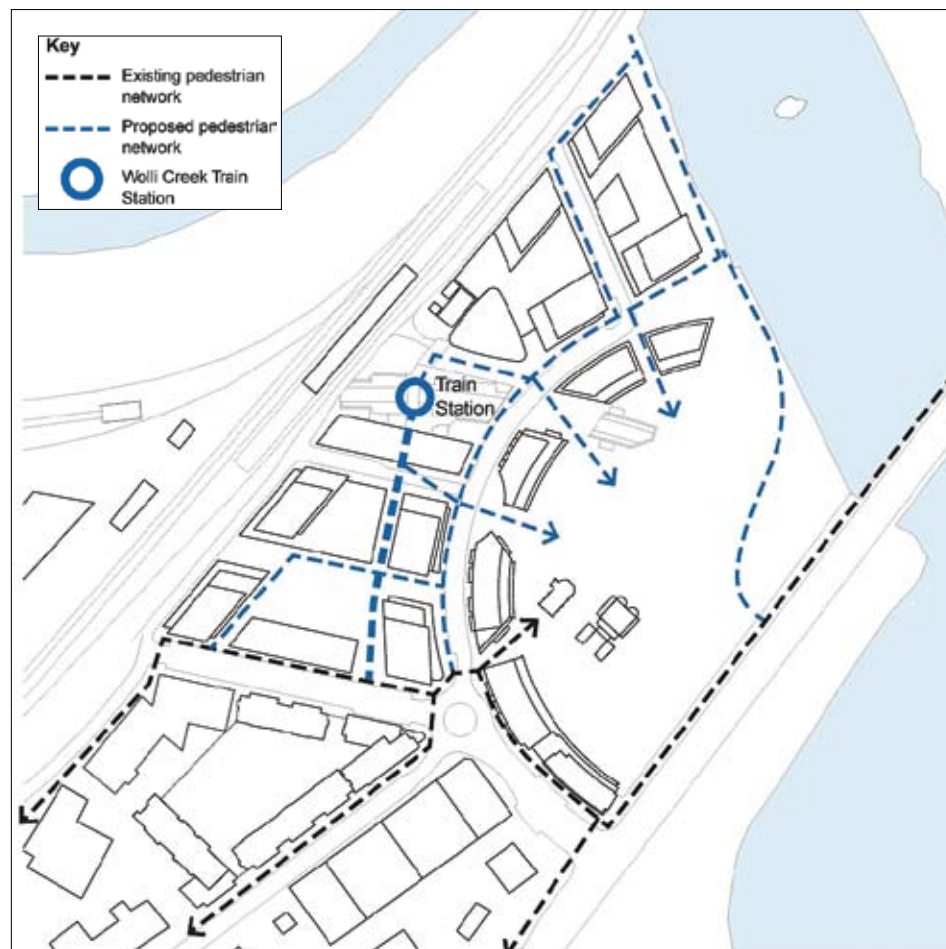


Figure 31 – Pedestrian Network of Discovery Point and surrounding streets
Source: *Bates Smart*

5.12 Utilities and Services Strategy

MPI Consultants (NSW) Pty Ltd has prepared advice regarding the availability and capacity of services on the site and in the vicinity of the site (**Appendix J**).

Services, including electrical, telecommunications will be upgraded and extended to accommodate the proposed development, refer to Electrical, Fire and Hydraulic Services Plans at **Appendix J**. A more detailed description, including the location and detailed provision of services on the site will be included within future Project Applications. However, the Concept Plan Services Strategy demonstrates that site services are capable of extension/augmentation.

Electricity

Typically, there will be one electrical substation per building across the proposed development, but where loads and location dictate, shared substations will be provided.

It is proposed that substations will comprise standard Energy Australia pad mounted Kiosk type substations location on ground in suitable locations with trafficable access as required by Energy Australia Standards. The existing 400kVA pole mounted Substation PT10860 may need to be relocated at an early stage prior to construction of Stage 2.

It is intended that the street lighting will be designed to the relevant standard levels of illumination and to comply with the Energy Australia requirements. All future electrical design and works, with respect to 11kV and LV power, will be undertaken by suitably accredited Service Providers so as to ensure Energy Australia approval.

Telecommunications

Telephone and information technology services to each building will primarily be copper cables with at least two 100mm diameter conduits provided.

Further requirements from Telstra will be established in future project applications, and will determine the exact locations of services and telecommunication conduits that may need to be moved / demolished.

Sewer

All sewer services from the new buildings will likely be connected to a new privately owned Sewer Mining Treatment Plant. Treated Class A water will be exported from this plant to Marrickville Council's parkland on the northern side of the Cooks River and for use in toilets, some washing machines, car wash bays and irrigation on the Discovery Point development.

Natural Gas

Natural gas for the site will be extended from the existing 210kPa 110mm PE authority gas main in Brodie Spark Drive. Gas will reticulate down Discovery Point Place and Chisholm Street via in-ground pipe in nominated services zones.

The site gas service will be constructed from PE pipe work and fittings. All work will be in accordance with local council and authority requirements.

Hydraulic and Fire Services

The potable water connection will extend from the existing mains in Brodie Spark Drive and Magdalene Terrace. Ring main pipe work will pass within Spark Lane, Chisholm Street and Discovery Point Place. Pipe work will be in-ground within nominated services zones. The ring main system will achieve the requirements of a Grade 2 Water Supply for buildings above 25 metres in height.

Fire hydrant locations will be installed in accordance with the fire brigade, local council and local authority requirements. Street Fire Hydrants will be provided to the requirements of NSW Fire Brigade.

The hydraulic and fire services design will be in accordance with the relevant codes and authorities requirements.

Mechanical Services

Mechanical services will be designed in accordance with the Building Code of Australia.

5.13 Project Implementation and Staging

An Indicative Staging Strategy is included within the *Bates Smart Design Report* provided under separate cover.

The Concept Plan allows the logical and efficient sequencing of infrastructure with development stages, and for each building stage to be completed with appropriate amenity at its conclusion.

The staging plan proposes firstly to complete the southern precinct including the neighbourhood park and the retail areas; secondly to complete the arc of Discovery Point Park (Dress Circle Precinct) and thirdly to complete the Northern 'Waterfront' Precinct. The timing of the delivery of Building 14 will be as soon as possible, depending on the nature of the commercial market.

It is noted however that the actual staging of the project may vary due to the market and that some stages may occur concurrently. As such a revised Staging Plan will be prepared and updated with each subsequent Project Application, as included in the draft Statement of Commitments at Section 7.

5.14 Section 94 Contributions

A Developer Contributions Report has been prepared by Discovery Point Pty Limited and is provided at **Appendix K**.

To date Discovery Point Pty Ltd has paid \$3.16 million in Section 94 Contributions in response to conditions of development consent for Sites 1, 2 and 4 under the existing Master Plan. Based on the Indicative Design Scheme prepared by Bates Smart Architects, it is estimated that a further \$17.3 million in Section 94 contributions would be payable for the proposed Concept Plan development and the current Section 94 Contributions Plan rates (based on the indicative design and dwelling unit mix). The estimated cost of the public domain works proposed under the Concept Plan is more than \$19 million. This value does not include a factor for land value.

The Concept Plan proposes to provide the following public domain works within the Discovery Point site:

- A 2.3ha district park with frontage to Cooks River known as “Discovery Point Park”;
- A new (3,200m²) “Neighbourhood Park” at the southern end of the site which will function as a new civic village square adjoined by a future supermarket, speciality retail, cafes including a new pedestrian street linking Magdalene Terrace with Wolli Creek Railway Station;
- A new (3,800m²) “Waterfront Park” at the northern end of the site between Discovery Point Park and the Illawarra Railway Line including a new landscaped public plaza at the northern end of Brodie Spark Drive;
- A new (860m²) park above the railway corridor known as “Station Park”;
- Roads throughout the development site including roads that will be used for public purposes to access the railway station, parks and neighbourhood retail centre. This includes the construction of a new link road from Magdalene Terrace to Brodie Spark Drive via Wolli Creek Station for a proposed bus route. Provision will be made for bus and taxi stands adjoining the station in addition to “kiss and ride” spaces. Public access to the Waterfront Park will be provided via Brodie Spark Drive;
- Traffic management works;
- Streetscape works including provision of plazas, landscaping, street furniture, community and directional signage, civic spaces and pedestrian precincts, public plaza and access to railway station;
- Pedestrian pathways and cycleways; and
- Flood mitigation, stormwater management and foreshore remediation works.

The Concept Plan proposes to provide the above-mentioned facilities and material public benefit in lieu of payment of Section 94 Contributions (which may be levied as part of the approvals for future Project and Development Applications) in relation to open space, roads and traffic management, town centre and streetscape works, flood mitigation and stormwater facilities and pedestrian and cycle facilities. Refer to the Statement of Commitments in Section 7 of this report for details of the proposed facilities and offsets from Section 94 Contributions.

An offset is also sought for the contribution relating to administration and management of the Section 94 Contributions Plan.

No offsets are sought for “community facilities and services” under this Concept Plan application and contributions will be paid with the relevant project and development applications.

5.15 Future Project Applications

On 23 March 2010, the Director-General of the Department of Planning issued the requirements for the preparation of an Environmental Assessment to accompany a Concept Plan, Stage 1 and Stage 2 Project Applications for the project under Section 75F of the EP&A Act. A combined set of Director-General Requirements has been issued for the Concept Plan (MP10_003) and Stage 1 and Stage 2 Project Applications (MP10_0030 and MP10_0031).

A description of the likely Stage 1 and Stage 2 development parameters is outlined below. A diagram identifying the area of the site subject to the Stage 1 and Stage 2 Project Applications is provided at **Figure 32, 33, 34 and 35** below. It is anticipated that the Project Applications will be lodged within the next 12 months.



Figure 32 – Land subject to the Concept Plan, Stage 1 and Stage 2 Project Applications
Source: Bates Smart

Stage 1 Project Application

The Stage 1 Project Application will include the construction of proposed Building 1c, Building 1b, a new neighbourhood park and associated landscaping, car park and infrastructure works, identified as Stages 1a, 1b and 1c within the Staging Plan (works indicated on **Figures 33 and 34**).

The indicative design scheme shows that the proposed Building 1b as a residential building with some retail floor space. The proposed new supermarket is to be located on the ground level of Building 1b podium with one level of apartments (approximately 11 apartments) and communal open space area above. The design scheme shows the proposed Building 1c as a mixed use building.

The new neighbourhood park is proposed to be developed in this early stage to complement the new ground level retail facilities proposed in Stage 1. A temporary park will also be provided adjacent to the new neighbourhood park in the footprint of the future Building 3.



Figure 33 – Stages 1A and 1B (part of future Stage 1 Project Application)
Source: *Bates Smart*



Figure 34 – Stage 1C (part of future Stage 1 Project Application)
Source: *Bates Smart*

Stage 2 Project Application

The Stage 2 Project Application will likely include the construction of proposed Building 2 and the adjoining pedestrian street. Proposed Building 2 is a building at RL 79.65 and is a residential building with some retail and associated landscaping, car park and infrastructure works.



Figure 35 – Future Stage 2 Project Application
Source: *Bates Smart*

Future Project Applications and Consent Authority

As all development on the site has been declared a Major Project, the proponent also seeks that future stages of the development, with a Capital Investment Value (CIV) greater than \$20 million, remain with the Minister for Planning as Consent Authority as related development under Section 75R and 75B(3) of the Act.

It is imperative that this major urban renewal can be executed in a staged and coordinated manner with a single consent authority with respect to each stage (> \$20 million) to:

- Provide certainty of the planning approvals process;
- Provide the holistic assessment of and orderly development of the site, by recognising the integrated nature of site issues and constraints. For example, the common basement parking levels and required preparatory work for each stage would benefit from a single consent authority;
- Meet public expectations regarding the timely provision of new open space and infrastructure; and
- Meet Government expectations regarding the timely provision of housing to assist in sub-regional housing targets.

It is noted that the \$20 million threshold is similar that which currently applies for other major urban residential redevelopment sites in Sydney at the beginning stages of their development, including the Carlton United Brewery site and the Royal Rehabilitation Centre Sydney site (\$5 million threshold). Although these two sites are identified as State Significant Sites by the State Environmental Planning Policy (Major Development) 2005, the Minister for Planning should similarly be the Consent Authority for the Discovery Point site due to the overall CIV (over \$400million), the significant nature of the Concept Plan and its ability to contribute in a timely manner towards Metropolitan Strategy's targets for additional dwellings within strategic locations in a high quality environment.

6.0 Environmental Assessment

This section of the report assesses and responds to the environmental impacts of the Concept Plan proposal. It addresses the matters for consideration set out in the Director-General's Environmental Assessment Requirements (DGRs).

The draft Statement of Commitments complements the findings of this section.

6.1 Director-General's Environmental Assessment Requirements

Table 5 provides a detailed summary of the individual matters listed in the Director-General's Environmental Assessment Requirements (DGRs) and / or identifies where each of these requirements has been addressed in this report and the accompanying technical studies.

Table 5 – Director-General's Environmental Assessment Requirements

Director-General's requirements	Location in Report / Application
General Requirements	
Executive Summary	Page viii
Site Analysis	Section 3
Description of the proposed development	Section 5
Assessment of key issues	Section 6
Assessment of potential impacts	Section 6
Draft Statement of Commitments	Section 7
Statement of Validity	Page vii
Quantity Surveyor's Certificate	Appendix B
Conclusion and Justification	Section 8
Plans and Documents	
Site Survey Plan	Appendix E
Site Analysis Plan	Provided under separate cover in <i>Bates Smart Design Report</i>
Locality / Context Plan	Figure 3 and <i>Bates Smart Design Report</i>
Architectural Drawings	Provided under separate cover in <i>Bates Smart Design Report</i>
Model	Provided under separate cover in <i>Bates Smart Design Report</i>
Geotechnical and Structural Report	Appendix P and Appendix Q
Stormwater Concept Plan	Appendix Z
Erosion and Sediment Plan	Appendix Z
View Analysis	Section 6.16 and Appendix T
Landscape Plan	Provided under separate cover in <i>Bates Smart Design Report</i>
Shadow Diagrams	Provided under separate cover in <i>Bates Smart Design Report</i>

Director-General's requirements	Location in Report / Application
Construction Management Plan and Traffic Management Plan	Appendix G and Statement of Commitments
Construction Methodology	Section 6.29
Key Issues	
Address relevant EPIs, policies and guidelines	Sections 6.2-6.7
Built form and height	
<ul style="list-style-type: none"> - Height, bulk and scale of the proposed development within the contents of the locality. In particular, detailed building envelope/ height and contextual studies should be undertaken to ensure the proposal integrates with the local environment. 	Sections 6.9.1, 6.16 and <i>Bates Smart Design Report</i> visual montages.
<ul style="list-style-type: none"> - Demonstrate that the building heights have been approved by relevant authorities where required, including the Federal Department of Infrastructure, Transport, Regional Development and Local Government, Air services Australia and the Civil Aviation Safety Authority. 	Section 6.28 and Appendix L
<ul style="list-style-type: none"> - Address impacts including overshadowing and amenity of the plaza on the corner of Arncliffe Street and Brodie Spark Drive) of the proposal upon the adjoining Major Project (MP 08-0235). 	Section 6.11
<ul style="list-style-type: none"> - The EA shall provide the following: <ul style="list-style-type: none"> - Comparison to the existing approved Master Plan; 	Section 6.8 and Appendix I
<ul style="list-style-type: none"> - View analysis to and from the site from key vantage points; 	Section 6.16 and Appendix T
<ul style="list-style-type: none"> - View analysis from existing tall buildings in Wolli Creek: 	Section 6.16 and Appendix T
<ul style="list-style-type: none"> - Options for the siting and layout of the building envelope; and 	Sections 6.9 and 5.2
<ul style="list-style-type: none"> - Comparison to the Obstacle Limitation height. 	Section 6.28 and Appendix L
Urban Design	
<ul style="list-style-type: none"> - The design quality with specific consideration of the facade, massing, setbacks, building articulation, use of appropriate colours, materials/finishes, landscaping, safety by design (CPTED) and public domain. 	Section 6.9 and Statement of Commitments
<ul style="list-style-type: none"> - The EA shall also provide: <ul style="list-style-type: none"> - Active retail frontages should be provided to Brodie Spark Drive, Magdalene Terrace and adjacent to the railway station; 	Section 6.12
<ul style="list-style-type: none"> - All weather protection to be provided on retail streets; 	Section 6.12, 6.21 and Statement of Commitments
<ul style="list-style-type: none"> - Pedestrian access to Discovery Point Park, the Cooks River foreshore and the train station to be improved. 	Sections 5.11, 6.12, 6.15 and 6.17
Economic Impact Assessment	
<ul style="list-style-type: none"> - The economic impact of the proposal (including the reduction to the gross floor areas of the non-residential component of the proposal when compared to the existing Master Plan on the site) and include an investigation into the proposal's impact upon the retail, commercial and residential industry within the locality. 	Section 6.13 and Appendix R
<ul style="list-style-type: none"> - The proposal would support the objectives/aims of relevant State and regional strategies for the locality. 	Section 6.13 and Appendix R

Director-General's requirements	Location in Report / Application
Environmental and Residential Amenity	
<ul style="list-style-type: none"> - Solar access, acoustic privacy, visual privacy, view loss and wind impacts and achieve a high level of environmental and residential amenity. In this regard, consider appropriate separation distances to any adjacent residential buildings. - The issue of noise from the airport and railway line and provide details of how this will be managed and ameliorated through the design of the building, in compliance with relevant Australian Standards. 	<p>Sections 6.10, 6.11, 6.21 and 6.22.</p> <p>Section 6.22 and Appendix N</p>
Noise and Vibration Assessment	
The issue of noise and vibration impacts from the railway corridor and provide detail how this will be managed and ameliorated through the design of the building, in compliance with relevant Australian Standards and the Department's Development near Rail Corridors and Busy Roads – Interim Guidelines.	Section 6.6, 6.22 and Appendix N
Transport & Accessibility Impacts (Construction and Operational)	
<ul style="list-style-type: none"> - Traffic and Accessibility Impact Study prepared in accordance with the RTA's Guide to Traffic Generating Developments, considering: <ul style="list-style-type: none"> - Traffic generation and any required road/intersection upgrades (including but not limited to the intersection of Princes Highway/ Brodie Spark Drive), - The adequacy of on-site car parking for the proposal having regard to local planning controls, RTA guidelines and the high public transport accessibility of the site (Note: the Department supports reduced car parking rates in areas well-served by public transport), - The ability of buses to maintain services during construction and once completed; - Access, loading dock(s) and service vehicle movements; - The potential for implementing a location-specific sustainable travel plan (e.g. "Travelsmart" or other travel behaviour change initiative) - The implications of the proposed development for non-car travel modes (including public transport use, walking and cycling) and the provision of facilities to increase the non-car travel share, including bicycle connections from the site to the surrounding bicycle network and bicycle parking in both residential and commercial/retail portions of the proposed development (including the provision of amenities for cyclists), and - How the proposal integrates with the Wolli Creek Railway Station and how the proposal would impact upon the operation of the existing railway lines. 	<p>Section 6.17 and Appendix G</p> <p>Section 6.17 and Appendix G</p> <p>Sections 6.17 and 6.29 and Appendix G</p> <p>Section 6.17 and Appendix G. Also to be addressed in detailed project applications.</p> <p>Section 6.17</p> <p>Section 6.17 and Appendix G</p> <p>Section 5.11, 6.17 and Appendix G</p>
Ecologically Sustainable Development	
<ul style="list-style-type: none"> - How the development will incorporate ESD principles in the design, construction and ongoing operation phases of the development. - Demonstrate that the development has been assessed against a suitably accredited rating scheme to meet industry best practice. 	<p>Section 6.23 and Appendix Y</p> <p>Section 6.23 and Appendix Y</p>

Director-General's requirements	Location in Report / Application
Contributions	
The provision of public benefit, services and infrastructure having regard to Council's Section 94 Contribution Plan and provide details of any Voluntary Planning Agreements or other legally binding instrument proposed to facilitate this development.	Sections 5.14 and 6.14.3
Staging	
Details regarding the staging of the proposed development	Section 5.15
Contamination	
Demonstrate compliance that the site is suitable for the proposed use in accordance with SEPP 55	Section 6.27 and Appendix M
Public Domain	
The interface between the proposed uses and public domain, and the relationship to and impact upon the existing public domain and address the provision of linkages with and between other public domain spaces, including Cahill Park and Waterford Park. The EA shall consider the provision of a public art strategy	Sections 5.10, 5.11, 6.12, 6.15, 6.17 and Statement of Commitments
Drainage and Groundcover	
<ul style="list-style-type: none">- Address drainage/flooding issues associated with the development/site, including: stormwater infrastructure and incorporation of Water Sensitive Urban Design measures.	Sections 6.24 and 6.27 and Appendices F and Z
<ul style="list-style-type: none">- An Assessment of any flood risk on site in consideration of any relevant provisions of the NSW Floodplain Development Manual (2005) including the potential effects of climate change, sea level rise and an increase in rainfall intensity.	Section 6.27 and Appendix F
<ul style="list-style-type: none">- Impacts upon groundwater resources, and when impacts are identified, provide contingency measures to remediate, reduce or manage potential impacts.	Section 6.27 and Appendix Q
Heritage	
<ul style="list-style-type: none">- A Heritage Impact Assessment of the site, and a Statement of Heritage Impact, that is to include:	
<ul style="list-style-type: none"><ul style="list-style-type: none">- Detailed evaluation of any impacts that the development would have on the heritage significance of the site, in particular the heritage significance and setting of Tempe House and St Magdalen's Chapel,	Section 6.18 and Appendix U
<ul style="list-style-type: none"><ul style="list-style-type: none">- Consideration of the cumulative impacts of the proposed works on the heritage items and their curtilages,	Section 6.18 and Appendix U
<ul style="list-style-type: none"><ul style="list-style-type: none">- Awareness of the possible existence of any archaeological relics which may be disturbed during the works that may require an archaeological assessment to be undertaken, and	Sections 6.18 and 6.19 and Appendices V and W
<ul style="list-style-type: none"><ul style="list-style-type: none">- An Archaeological Assessment of Aboriginal and non-Indigenous archaeological resources, including an assessment of the significance and potential impact on the archaeological resources.	Sections 6.19 and 6.20 and Appendices V and W
Electrolysis Risk	
A report by an electrolysis expert on the Electrolysis Risk to the development from stray currents.	Section 6.27 and Appendix O
Statement of Commitments	
A draft Statement of Commitments detailing measures for environmental management, mitigation measures and monitoring for the project.	Section 7

Director-General's requirements		Location in Report / Application
Land Ownership		
Details showing the proposed development in relation to the land/stratum ownership in the area, in particular RailCorp's land/stratum ownership.		Appendix E and DA1-001 provided under separate cover.
Development Agreements		
Address the existing Development Agreement in place with RailCorp for the Discovery Point works.		Section 5.4
Consultation		
Undertake an appropriate and justified level of consultation in accordance with the Department's <i>Major Project Community Consultation Guidelines October 2007</i> (including demonstrating discussions with Rockdale City Council, RailCorp, State Transit, Sydney Airport Corporation, Civil Aviation Safety Authority and Air Services Australia).		Section 4 and Appendix H

6.2 Commonwealth Legislation

6.2.1 Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)

The *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places, defined in the Act as matters of national environmental significance. The Act requires approval from the federal Minister for Environment for actions that may have national environmental significance.

Previous investigations on the site associated with the Master Plan consent (D500/01), sub-podium consent (D600/01) and heritage, public domain and foreshore restoration work consents (D463/01) have concluded that:

- The majority of development will take place on land that has already been extensively cleared and heavily disturbed, and as such there will not be any adverse impacts on flora and fauna in the area;
- Disturbed and modified environments dominate the study area. These habitat types have low ecological value and would not be important for any of those threatened species known or potentially occurring in the study area;
- The study site is not considered to form, or be a major component of any significant fauna dispersal and movement corridors;
- There are no critical habitats, threatened species, populations of ecological communities on the site;
- The highly degraded nature of the site would be significantly improved by the proposal, which incorporates foreshore area improvements, replanting around Tempe House and along roads/public open space within the site, and incorporation of species local to the area; and
- Sufficient details of the bank and foreshore treatment were provided and assessed as part of the public domain, heritage and foreshore restoration works development application D463/01.

Given the continued highly disturbed nature of the site, which has been further developed since the time of these assessments; it is considered unlikely that the proposal will have an impact on any EPBC listed flora, fauna and ecological communities. Tempe House and St Magdalen's Chapel are not listed as national heritage matters under the EPBC Act.

6.3 State Legislation

6.3.1 Threatened Species Conservation Act 1995

The *Threatened Species Conservation Act 1995* (TSC Act) lists endangered species, populations and ecological communities and provides for their protection. It also provides for the protection of the critical habitat of threatened species, populations and ecological communities that are endangered. For the reasons cited in Section 6.2.1 above, it is considered unlikely that the proposal will have any effect on threatened species, populations or ecological communities or their habitats within the locality.

6.3.2 Environmental Planning and Assessment Act 1979

Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) outlines the process for considering applications under the Major Development SEPP. In particular it outlines:

- What development constitutes a Major Development;
- The matters which the Minister must take into account when assessing a major application;
- Information which must be submitted with an major Project Application;
- The environmental assessment requirements for approval;
- Public exhibition of Major Project Applications;
- Assessment report procedures; and
- Appeals under Part 3A.

This report responds to these requirements.

The Concept Plan is consistent with the relevant objects of the EP&A Act for the following reasons:

- the dwelling yield at Discovery Point will provide more living opportunities within a highly suitable and accessible site in the existing urban footprint of Sydney, thereby contributing to a reduction in demand for residential development along the urban fringe;
- the land use mix at Discovery Point will increase the development feasibility and promote the economic use and development of the land while adapting to residential demand within an area highly accessible to public transport, recreational and employment opportunities;
- the Concept Plan includes the provision for significant open space areas available to the public, including Discovery Point Park, increased access to the Cooks River foreshore within the northern portion of the site, and the creation of a new neighbourhood park adjacent to the retail precinct within the southern portion of the site;
- the Concept Plan will create a high quality living environment with improved residential amenity through the general compliance with the Residential Flat Design Code, which did not apply at the time of the original Master Plan approval;
- the proposed dwelling yield within the Concept Plan will contribute to the increased supply of residential development within the Rockdale LGA and will provide for a mix of studio, one, two and three + bedroom apartments, which will contribute to the provision for a variety of housing options within Discovery Point; and
- the assessment process of the Concept Plan by the NSW Government will include the public exhibition of the proposal, and therefore the opportunity for the involvement and participation by Rockdale City Council and local residents.

6.3.3 Heritage Act 1977

Pursuant to the *Heritage Act 1977* (Heritage Act), a permit from the NSW Heritage Council is required if archaeological relics are to be exposed, moved, damaged or destroyed and a permit is required for matters affecting items listed on the State Heritage Register. The requirement for these permits does not apply to Major Projects under Section 75U of the EP&A Act.

Nonetheless, consideration of European and Indigenous archaeological relics has been considered in the assessment by Casey and Lowe and Jo McDonald Cultural Heritage Management. This assessment is addressed at Sections 6.19 and 6.20. Any archaeological remains on the site are listed as 'relics' under the Heritage Act.

St Magdalen's Chapel and Tempe House, including the Tempe House Precinct which incorporates Discovery Point Park, are listed on the State Heritage Register as a "Complex Group" and is the subject of a permanent conservation order under the *Heritage Act*. An assessment of the suitability of the Concept Plan on the heritage significance and setting of these items has been undertaken by Tanner Architects and is addressed in Section 6.18.

6.3.4 Water Management Act 2000

The *Water Management Act 2000* (WM Act) provides for the sustainable and integrated management of the water resources of the State.

Approval is required under section 90 (water management works) for stormwater and flood management works for the site. Similarly an activity approval under section 91 of the WM Act approval is required to carry out a controlled activity in, on or under waterfront land. Waterfront land is the bed of a river, lake or estuary and includes land 40 metres from the highest bank of a river, the shore of a lake or high water mark of an estuary. This therefore includes land on the site within 40 metres of Cooks River.

Section 75U of the EP&A Act removes the requirement for a permit under the WM Act for a project approved under Part 3A of the EP&A Act and accordingly the provisions of the WM Act that prohibit an activity without such an authority do not apply.

Nevertheless, planning for the site, in particular the Flood Study, Water Sensitive Urban Design (WSUD) solutions in the Sustainability Strategy and landscaping along the foreshore park, have considered the requirements of the WM Act and consultation with the Department of Environment and Climate Change (DECCW) was undertaken by the Department of Planning as part of the preparation of the DGRs.

6.3.5 Fisheries Management Act 1994

The objects of the *Fisheries Management Act 1994* (Fisheries Act) include conserving, developing and sharing fishery resources, conserving fish stocks and key habitats and conserving threatened species, populations and ecological communities of fish and marine vegetation. Pursuant to the Fisheries Act, licenses are required to harm mangroves or seagrasses and for dredging. The requirements for such permits under section 201, 205 and 219 do not apply to Part 3A applications.

It is not considered likely that the foreshore landscaping works will impact on any matters listed under the Fisheries Act.

6.3.6 National Parks and Wildlife Act 1974

Sections 84 and 90 of the *National Parks and Wildlife Act 1974* (NPW Act) provide the primary statutory means for the protection and management of Aboriginal sites and relics within NSW. The Act requires, amongst other things:

- Consultation with the Department of Environment, Conservation and Climate Change (DECC) prior to development to determine the presence of items of Aboriginal heritage;
- Consultation with local Aboriginal groups; and
- Consent to disturb or destroy Aboriginal heritage sites/items.

Pursuant to the NPW Act, a permit is required for the removal, damage or destruction of an Aboriginal object or place. Archaeological investigations have concluded that the site has the potential to contain Aboriginal objects. In the case of Part 3A project, this permit is not required. However the usual requirements under the Act in relation to the management of indigenous heritage would still apply and an assessment of any potential impact on indigenous heritage is included at Section 6.20.

6.3.7 Roads Act 1993

The *Roads Act 1993* (Roads Act) provides for public access to roads and access to roads from private land. It also establishes procedures for opening and closing public roads and regulates various activities on public roads. Section 138 of the Roads Act requires consent to be issued for work on or that affects a public road, or to connect to a public road. Such consent cannot be refused for a Part 3A project if the consent is necessary for carrying out the project and if it is consistent with an approval granted under Part 3A. Connection of internal roads associated with the Concept Plan into Council's external road network, will be a relevant matter for detailed consideration in the subsequent Project Applications for the site and is addressed at Section 6.17.

6.3.8 Airports Act 1996 and the Airports (Protection of Airspace) Regulations 1996

Due to the site's proximity to the Sydney Airport, the proposed development is defined as a 'controlled activity' and subject to the *Airports Act 1996* and the *Airports (Penetration of Airspace) Regulations 1996*.

An application was submitted to SACL in February 2010 based on the preliminary Concept Plan design. Approval was recently received (15 June 2010) by DITRD LG for the Bates Smart Concept Plan for the building heights that penetrated the Inner Horizontal Surface (IHS) in the preliminary Concept Plan (**Appendix L**).

Due to minor modifications to the Concept Plan envelopes since this time primarily relating to allowance for alternative construction methods for floors and plant and equipment tolerances, the current Concept Plans were referred for re-approval on 16 June 2010.

An Aeronautical Impact Analysis was prepared by The Ambiggi Group (refer to **Appendix L**) and on 16 June 2010, along with an application prepared by Discovery Point, was re-forwarded to Sydney Airport Corporation Limited (SACL) to seek approval for the proposed building height penetrations of the Concept Plan into the IHS. The application will be forwarded to the Department of Infrastructure, Transport, Regional Development and Local Government (DITRD LG) for approval under the *Airports (Penetration of Airspace) Regulations 1996*.

This issue and the recommendations of the Ambiggi assessment are discussed in greater detail in Section 6.28.

6.4 Strategic Implications

State Plan

The New South Wales State Plan was released in March 2010. The plan sets a strategic direction and goals for the NSW Government across a broad range of services and infrastructure. The plan nominates one of the key challenges for the state as being the planning challenges that arise from a continuing population growth. In addition to this, the plan nominates environmental challenges from climate change and drought.

Discovery Point will assist in implementing solutions to these challenges. The Concept Plan will provide a substantial amount of housing in an area which is highly accessible to public transport infrastructure and social services. It will also demonstrate a high level of sustainability with the provision of those measures indicated within the ESD and Energy Efficiency assessment at Section 6.23.

The Part 3A Concept Plan satisfies key priorities of the State Plan, namely:

- *Increase the number of jobs closer to home* – the Concept Plan will increase opportunities for people to live within 30 minutes from the city or major centres (Sydney CBD, Hurstville and Sydney Airport and environs) and within a very close proximity to public transport at Wolli Creek Railway Station;
- *Improve housing affordability* – the dwelling yield proposed within the Concept Plan will increase housing supply within Discovery Point and the Rockdale LGA and will continue to provide a diversity in housing mix and sizes to meet the demand for housing in this locality and provide a variety of housing options; and
- *Increase the number of people using parks* – the Concept Plan will provide pedestrian networks to enable more people to use the parks within Discovery Point by improving public access along the Cooks River foreshore with the new riverside reserve, introducing a new public open space at the southern end of the site and will continue to provide public access to Discovery Point Park.

Sydney Metropolitan Strategy (2005) and Metropolitan Strategy Review – “Sydney Towards 2036”

“City of Cities: A Plan for Sydney’s Future” (the Metropolitan Strategy for

Sydney) was launched by the NSW Government in December 2005. It provides commentary and direction for a 25-30 year’ period at a regional level on issues such as land use, economic development, jobs, transport, innovation, centres and corridors, and residential areas within Sydney. The 2005 Strategy aimed to accommodate 1.1 million additional residents and 550,000 new jobs over the period to 2031.

In March 2010, the Department of Planning announced the first five year review of the Metropolitan Strategy. The review will seek to respond to recent challenges facing growth in Sydney including the global financial crisis, housing affordability and climate change. The review will integrate the Metropolitan Strategy with the Metropolitan Transport Plan, while accommodating increased population projections across Sydney, such as:

- A population forecast to reach 6 million by 2036 (an increase of 1.7 million from the 2006 projections);
- A need for 770,000 additional homes by 2036; and
- A need to expand Sydney’s employment capacity to 2.89 million jobs.

The Concept Plan will capitalise on the site's accessible location to public transport, the retail precinct, new neighbourhood park and foreshore park along the Cooks River will ensure the Concept Plan supports key actions within the Metropolitan Strategy, namely:

- B4.1 Concentrate retail activity in centres, business development zones and enterprise corridors;
- C1.3 Plan for increased housing capacity targets in existing areas;
- C2.1 Focus residential development around centres, town centres, villages and neighbourhood centres;
- C2.3 Provide a mix of housing;
- C5.1 Improve the design of new development and urban renewal;
- E3.1 Contain Sydney's urban footprint;
- F1.3 Improve access to waterways and links between bushland, parks and centres; and
- F2.3 Provide for urban civic space in planning for centres.

Draft South Sub-regional Strategy

The Draft South Subregional Strategy was released in December 2007. It is a key part of the implementation of the Metropolitan Strategy and when adopted is intended to guide land use planning in the Rockdale local government area to 2031.

This Strategy identifies the following targets for the Rockdale LGA:

- 7,000 additional dwellings by 2031;
- 13,000 new jobs to 2031.

As a result of the increased population forecast for Sydney to 2036, it is expected the targets for each sub region will be amended or redistributed to some extent. An analysis of the Concept Plan's contribution to the aims of the Sub-regional Strategy is provided below.

Housing

The Draft South Subregional Strategy sets dwelling target of 7,000 additional dwellings for Rockdale LGA by 2031. The location of Wolli Creek Railway Station in the centre of the site makes Discovery Point ideal for a transit adjacent development. Around 1,600 residential apartments were envisaged for the site under the current Master Plan consent. It is anticipated that the Part 3A Concept Plan scheme will accommodate an estimated 1,200-1,500 dwellings in addition to the 223 apartments already completed and 88 apartments currently under construction. The proposed development will therefore make an important contribution to future housing growth in Rockdale LGA.

The proposed increase in the number of dwellings to be accommodated on the site is the result of the proposed reallocation of gross floor area on the site from non-residential floor space to residential floor space. The total number of dwellings will be dependent on final dwelling mix across the whole development. The proposal is consistent with the aim of the Metropolitan Strategy to focus residential development in areas with good access to public transport and local services.

Economy and Employment

The Concept Plan proposal reallocates some of the approved gross floor area from non-residential to residential purposes. The existing Master Plan required the development of 54,337m² (RGFA) of non-residential gross floor space on the site or equivalent to 50,000m² (SIGFA), a maximum of 14,000m² (RGFA) of which was to be retail floor space. The bulk of non-residential floor space (41,790m² RGFA or equivalent 38,990m² SIGFA) envisaged under the existing Master Plan was to be provided in a commercial office tower above the existing railway station.

The proposed Part 3A Concept Plan for Discovery Point will include a minimum of 9,000m² (SIGFA) of non-residential gross floor space. A further 1,763m² (SIGFA) of non-residential floor space has already been constructed on Sites 1 and 2, most of which remains vacant despite being completed 3-4 years ago.

A significant number of direct and indirect jobs during construction will be generated by the construction of 1,200-1,500 apartments, a neighbourhood retail centre, parkland and associated infrastructure. The additional minimum 9,000m² (SIGFA) of non-residential floor space that will exist on the site upon completion will continue to support local employment. Furthermore, in addition to the direct employment generated by the development, there will be a multiplier (or indirect) effects through the local, regional and State economies.

The Concept Plan application does not seek to reduce development opportunities on the site but rather reconfigure land uses to respond to past, current and future anticipated demand for services and facilities that are sustainable. It is intended that Discovery Point will become a vibrant residential community on the shore of the Cooks River supported by a well designed neighbourhood village centre. A smaller, more appropriate, commercial office building is proposed adjoining the Wollie Creek Railway Station and is adequate to support any demand for commercial facilities in the locality in the years to come.

For further discussion regarding the contribution of the Concept Plan to the employment capacity target identified for the Rockdale LGA, refer to Section 6.13.3.

Transport

The site subject to the Concept Plan is highly accessible by public transport. Wollie Creek Railway Station is located within the site, providing direct access to the Illawarra, East Hills, Airport, Bondi Junction and Great Southern rail lines. In addition, the Sydney Buses routes 348 and 422 provide public transport linkages to the surrounding local suburbs, Bondi Junction, Kogarah and the Sydney CBD.

The proposed construction staging program supports and encourages public transport usage by maintaining bus and pedestrian access to the Wollie Creek Railway Station throughout the construction period (refer Section 6.29 of this EAR). The proposed street network enables bus access and circulation, and maintains the interchange between the 348 bus route to Bondi Junction and the railway station.

The proposed parking rates will provide sufficient parking to adequately service the development while discouraging the use of the public car parks (including visitor parking) by commuters using Wollie Creek Railway Station. The proposed retail services, including shops and restaurants, will reduce the need for residents to leave the site for their daily services and therefore encourages a reduction in the use of the private vehicle.

The Concept Plan proposes well connected pedestrian and cyclist facilities, linking the proposed buildings to the railway station, public open space and existing pedestrian and cycleways immediately adjacent to the site.

Centres and Corridors

The site is located within Wolli Creek which is identified as a “village” in the draft South Sub-regional Strategy. The draft Strategy classifies a village as a centre located within 600m radius from central transport/business node and containing a strip of shops with a small supermarket, hairdresser, take-away food shops and between 2,100 and 5,500 dwellings.

The Discovery Point Concept Plan is consistent with the village classification contained in the draft sub-regional strategy. A total of 223 apartments have already been completed on the site. A further 88 apartments are under construction and an additional 1,200-1,500 apartments are envisaged under the new Concept Plan application. The site is well serviced by public transport with Wolli Creek Railway Station located in the centre of the site.

The Concept Plan application will contain a minimum of 9,000m² (SIGFA) of non-residential gross floor area. The indicative design scheme envisages this may include approximately 5,500m² (SIGFA) of commercial office space and approximately 4,400m² (SIGFA) of retail space. The indicative design scheme proposes retail space including one large tenancy in part of Building 1b which could accommodate a small supermarket such as an IGA or Harris Farm Markets, or the like. The indicative design scheme shows additional specialty retail and restaurant/café tenancies located around the perimeter of the new neighbourhood park under proposed Buildings 1b, 1c, 2, 3 and 5 and some possible ground floor retail tenancies in the proposed Building 14. The indicative design scheme shows one additional retail tenancy at the northern end of the site under proposed Building 7 which could accommodate a café and/or restaurant.

Environment, Heritage and Resources

Through the reallocation of the gross floor area from commercial development to residential development, the Part 3A Concept Plan will provide 1,200-1,500 additional dwellings, in addition to the 311 dwellings already completed / under construction. The increased dwelling yield on the site increases housing opportunities within Sydney’s existing urban footprint and will contribute to a reduction in the demand for additional land to be used for urban purposes on the urban fringe. The Concept Plan will balance the demand for land uses within this locality, particularly through the provision of retail, open space and recreational facilities to support a sustainable land use mix on the site.

The Concept Plan will continue to retain the two heritage items Tempe House and St Madgalen’s Chapel and protect the cultural heritage of Discovery Point. In addition, the heritage arc around the perimeter of the Tempe House Precinct, created through height and façade treatment to the buildings adjacent to the Tempe House, will also be retained and continued along the northern eastern end of the site.

Parks, Public Places and Culture

The Concept Plan will continue to provide access to large areas of open space to encourage increased usage of the parks and recreational facilities by the existing and future residents of Discovery Point. The Concept Plan retains the large open space area, Discovery Point Park, between the Cooks River and the heritage items. In addition, the revised Concept Plan will increase public access to the Cooks River foreshore, at the north-eastern end of the site, and provide a new neighbourhood park open space area at the southern end of the site.

Metropolitan Transport Plan 2010

The Metropolitan Transport Plan has recently been released for public comment.

This Plan is a \$50.2 billion, ten year fully funded package of transport infrastructure for Sydney that responds to growing transport challenges in Sydney as the current population of 4.1 million increases to more than 6 million by 2036.

The Concept Plan is consistent with the Metropolitan Transport Plan as it will provide significant new opportunities for living, working, shopping and recreation within walking distance to Wolli Creek Railway Station and bus stops along the Princes Highway.

The public transport services accessible within and immediately adjacent to the site provide transport links to significant employment regions, including the Sydney CBD and Sydney Airport and its environs, therefore providing opportunities for future Discovery Point residents to use public transport to travel to work.

Destinations Rockdale

Destinations Rockdale, prepared by Rockdale City Council in 2005, identifies a number of key projects, purposes and objectives in relation to specific sites within the Rockdale LGA. The key projects, purposes and objectives do not relate to Wolli Creek or the site.

6.5 Relevant State Environmental Planning Policies

The following State Environmental Planning Policies are relevant to the proposal and are discussed further below:

- SEPP (Major Development) 2005;
- SEPP (Infrastructure) 2007;
- SEPP 55 – Remediation of Land;
- SEPP 65 – Design Quality of Residential Flat Development and the accompanying Residential Flat Design Code (RFDC); and
- SEPP Building Sustainability Index 2004.

6.5.1 State Environmental Planning Policy (Major Development) 2005

Group 5 of Clause 13 of Schedule 1 of the State Environmental Planning Policy (Major Development) 2005 (Major Development SEPP) provides for development with a Capital Investment Value (CIV) greater than \$100 million to be considered as a Major Project under Part 3A of the Act. The proposed Concept Plan has an estimated CIV of over \$400 million.

All development on the site has been declared a Major Project and accordingly we seek that all future stages of the development, with a Capital Investment Value (CIV) greater than \$20 million, remain with the Minister for Planning as Consent Authority as related development under section 75R and 75B(3) of the Act. This issue is outlined in further detail in Section 5.15 of this EAR.

A copy of the quantity surveyors calculation summary is provided at **Appendix B**.

6.5.3 State Environmental Planning Policy (Infrastructure) 2007

State Environmental Planning Policy (Infrastructure) 2007 (Infrastructure SEPP) came into force in December 2007 and repealed State Environmental Planning Policy No. 63 – Major Transport Projects. The Infrastructure SEPP aims to facilitate the effective delivery of infrastructure across the state and identifies matters to be considered in the assessment of development adjacent to particular types of infrastructure development.

Division 15 (Railways) of the Infrastructure SEPP relates to the site as it is located adjacent to the Illawarra and East Hills railway lines. Any application for excavation below a certain level within or adjacent to that corridor or for the erection of cranes in air space above a rail corridor must be referred to RailCorp for concurrence.

The detailed Project Applications for the buildings adjacent to the station will be referred under this provision. However, it is anticipated that the Concept Plan will be referred.

Division 15 also requires residential development adjacent to a rail corridor to meet certain noise criteria. This issue is addressed in Section 6.22.

The proposal is also classified as a traffic generating development on the basis that the development contains more than 300 dwellings. As such the Concept Plan will be required to be referred to the Roads and Traffic Authority (RTA). The RTA was consulted as part of the preparation of the Concept Plan.

6.5.4 State Environmental Planning Policy No 55 – Remediation of Land

State Environmental Planning Policy No. 55 – Remediation of Land (SEPP 55) aims to promote the remediation of contaminated land for the purpose of reducing the risk of harm to human health or any other aspect of the environment. The DGRs require the EAR to consider whether the land is contaminated, and that if the land is contaminated whether or not the land can be made suitable for the proposed use.

The Contamination Report prepared by Coffey Environments (refer to **Appendix M**) identifies the site as suitable for high density residential development (with minimal access to soil). Refer to Section 6.27 for further assessment of contamination.

6.5.5 State Environmental Planning Policy No. 65 – Design Quality of Residential Flat Development

State Environmental Planning Policy No. 65 – Design Quality of Residential Flat Development (SEPP 65) aims to improve the design quality of residential flat development in New South Wales. It sets out 10 design quality principles relating to built form and amenity.

As the Concept Plan identifies building envelopes and floor space areas for residential flat development, the SEPP's design principles of context, scale, built form and density apply.

The 10 design quality principles are addressed in detail with the *Bates Smart Design Report* (provided under separate cover).

An assessment of the Concept Plan's consistency with the design quality principles of SEPP 65 demonstrates that the design quality of the proposal is consistent with the principles of the SEPP. A design verification statement is included with a SEPP 65 Architectural Statement prepared by Bates Smart provided under separate cover.

The Concept Plan also generally complies with the design quality objectives and design principles of the Residential Flat Design Code (RFDC).

However, indicative floor plans for the development reveal that the future detailed Project Applications for individual buildings are unlikely in some instances to fully achieve some of the “rules of thumb” set out in the Code. Given this, it is proposed to demonstrate at the Concept Plan level that the development can rely on better design practice to ensure that the amenity of the proposed development is not compromised in any way and that an inability to achieve some of the rules of thumb is generally related to the context of the site and that the objectives of the ‘Rules of Thumb’ are still met.

The variations to these rules of thumb and a description of the measures proposed to ensure that a high standard of amenity is achieved are described in the Environmental Assessment Sections 6.9 and 6.10 below. Approval at the Concept Plan stage for these variations is sought to ensure a degree of certainty for Project Applications moving forward.

6.5.5 State Environmental Planning Policy (Building Sustainability Index) 2004

BASIX, the Building Sustainability Index, was introduced by the NSW Government, to ensure homes and apartments are designed to use less potable water and emit fewer greenhouse gas emissions. BASIX sets minimum energy and water reduction targets for houses and apartments to achieve this goal.

The residential component of the Concept Plan is to comply with BASIX categories of thermal comfort, energy and water. The possibility for stretching BASIX minimum compliance will be explored in future individual Project Applications.

6.6 Relevant Guidelines

Integrated Land Use and Transport Policy Package

The Department of Planning’s Integrated Land Use and Transport policy identifies ten Accessible Development Principles to encourage and support development that is highly accessible by walking, cycling and public transport. The ten principles are:

- Principle 1. Concentrate in centres;
- Principle 2. Mix uses in centres;
- Principle 3. Align centres within corridors;
- Principle 4. Link public transport with land use strategies;
- Principle 5. Connect streets;
- Principle 6. Improve pedestrian access;
- Principle 7. Improve cycle access;
- Principle 8. Manage parking supply;
- Principle 9. Improve road management; and
- Principle 10. Implement good urban design.

The Part 3A Concept Plan is consistent with the Integrated Land Use and Transport policy as:

- the site is identified as part of the Wolli Creek centre, classified as a village under the draft South Sub-regional Strategy and along the Airport-East Hills rail corridor,
- the site surrounds the Wolli Creek Railway Station, providing direct access to the Sydney CBD;
- the proposal includes mixed uses in the centre, with a neighbourhood village retail precinct to the south of the site and retains a smaller more viable commercial development adjacent to the rail station; and
- all streets within the proposed road network are linked and will provide pedestrian access along pathways as well as other pedestrian linkages throughout the site.

Development near Rail Corridors and Busy Roads – Interim Guideline

The Department of Planning's Interim Guidelines on Development near Rail Corridors and Busy Roads makes recommendations for the assessment of noise impacts to developments from rail and road corridors and for mitigating such impacts. Pursuant to State Environmental Planning Policy (Infrastructure) 2007 (Infrastructure SEPP), a consent authority must take the guidelines into consideration before determining an application for development adjacent to a rail corridor. The Interim Guidelines are supportive of increasing residential densities near rail corridors to better integrate land use and transport.

Due to noise impacts of rail corridors, the Interim Guidelines recommends that an acoustic assessment for noise sensitive development should be undertaken due to the site's proximity to a rail corridor. The results of the Acoustic and Vibration Assessment, prepared by Heggies (**Appendix N**) are discussed in detail in Section 6.22.

In accordance with the Guidelines, the following measures have been incorporated into the Concept Plan to reduce the impact of the railway line and Princes Highway on the proposed development:

- residential development has been setback from Wolli Creek Railway Station, with the Station Plaza located on the northern side of the railway line and the commercial building on the southern side;
- the Landscape Concept Plan and Discovery Point Park and the has been designed to mitigate noise impacts from the railway line and Princes Highway through the use of appropriate plantings;
- the podiums for Buildings 1C and 4 (Building 1B), Buildings 11 and 12, and Buildings 8, 9 and 10 will act as noise barriers for the residential development above;
- the podiums along Spark Lane, including the above ground car parking areas, will assist to block noise from the Illawarra Railway Line;
- the site subject to the Concept Plan is setback from the Princes Highway, resulting in less noise impacts on the proposed buildings (in comparison to the Greenbank, Verge and Vine developments);
- the existing topography of Discovery Point Park will act as a noise barrier, shielding noise from the Princes Highway to Buildings 6 and 7. Buildings 6 and 7 will incorporate appropriate acoustic treatments and will further buffer noise from the highway to the other proposed buildings to the west; and
- the proposed layout and building treatments of the residential buildings, including balconies, will be prepared in accordance with the Interim Guidelines at future Project Application stages.

In addition, the following Sections of the Interim Guidelines are addressed within the report:

- Section 5.2 of the Guidelines is addressed within the Electrolysis Report (**Appendix O**) at Section 6.27 of this report; and
- Section 6 of the Guidelines is addressed within the Structural and Geotechnical Reports at Sections 6.25 and 6.26 of this Report and **Appendix P** and **Q**.

Planning Guidelines for Walking and Cycling

The Department of Planning's "Planning Guidelines for Walking and Cycling" aim to improve the consideration of walking and cycling in urban environments, and provides a walking and cycling focus to the Integrated Land Use and Transport policy.

The Concept Plan is consistent with the Planning Guidelines for Walking and Cycling as it includes increased densities within a site highly accessible to public transport at Wolli Creek Railway Station, including future retail, commercial and open space within walking distance of all dwellings. In addition, the Concept Plan makes the provision for numerous pedestrian and cycle facilities, within the Discovery Point site, identified in detail within the Assessment of Traffic, Transport and Accessibility Implications prepared by Transport and Traffic Planning Associates (**Appendix G**) and Section 6.17.

6.7 Rockdale Council Planning Instruments and Controls

The Minister for Planning is not bound by the provisions of an environmental planning instrument, other than a State Environmental Planning Policy in determining an application for a major project (section 75R(3)). In the giving of approval for a Concept Plan the Minister may take into account (but is not required to) the provisions of any environmental planning instrument that would apply but for the application of section 75R. Despite this, the DGRs require the proposal to justify any proposed departures from the development standards in Rockdale LEP 2000 as they relate to the site.

6.7.1 Summary of Compliance with Rockdale LEP 2000

Provision/ Standard/Control	Requirements	Compliance
Zoning	<p>The site is zoned 10(a1) – Railway Precinct, with the exception of Discovery Point Park. This zoning includes Tempe House and St Magdalen's Chapel.</p> <p>The zone permits with consent a large range of uses including but not limited to residential, retail, commercial, cafe and recreation uses.</p> <p>The Concept Plan application seeks to maintain all uses currently permissible with consent in the 10(a1) zone (refer to list of permissible uses within Appendix D).</p>	Y
	<p>Discovery Point Park is zoned Open Space 6(c) Heritage Conservation, pursuant to the Rockdale Planning Scheme Ordinance.</p> <p>This part of the site is marked as a 'deferred matter' under LEP 2000.</p> <p>The Concept Plan application seeks to maintain all uses currently permissible with consent in the 6(c) zone (refer to list of permissible uses within Appendix D).</p>	Y
Height	Maximum building heights (in RLs) specified for the nine Master Plan sites are shown on a height control diagram.	N (layout of Concept Plan varies to Master Plan consent and associated detailed planning controls) Refer to Section 6.7.3.
Maximum Gross Floor Area – Total	<p>A maximum total of Rockdale Gross Floor Area (RGFA) of 167,504m², or 156,280m² (SIGFA).</p> <p>LEP also sets maximum GFA on a site by site basis across the nine Master Plan development sites identified on the land use diagram.</p> <p>The maximum GFAs for the site exclude car parking.</p>	N – refer Section 5.7.2 and Section 6.7.3.
Gross Floor Area – Minimum non-residential component	Non-residential gross floor area required to be a minimum of 54,337m ² (RGFA). The LEP also prescribes minimum non-residential gross floor area on a site by site basis for the nine development sites identified on the land use diagram. The bulk of the non-residential gross floor area (41,700m ² RGFA) is allocated to Site 8, which was to comprise a commercial office building above the railway station.	N – refer Section 5.7.1 and Section 6.7.3.
Gross Floor Area – Maximum Retail Component	A maximum gross floor area of 14,000m ² (RGFA) of retail floor space is permitted on the site.	Y – refer Section 5.7.1 and Section 6.7.3.
Land Use Control Diagram	In addition to zoning, an additional layer of permissibility is provided in Schedule 3 of LEP 2000. This identifies nine different development sites within Discovery Point in addition to heritage items, plazas and foreshore areas.	N – (layout of Concept Plan varies to the Master Plan consent).
Underground Area Diagram	An underground parking areas diagram is contained at Diagram 4 of Schedule 2 of LEP 2000.	Y – refer Section 6.7.3.
Parking	The number of underground parking spaces is not to exceed 2,210 spaces.	Y – refer Section 6.17.
Heritage	The LEP lists the Tempe House Precinct as a heritage item, which includes Tempe House, St Magdalen's Chapel and Discovery Point Park land. The LEP also identifies a view corridor to be protected between Tempe House and the Cooks River foreshore. The approval authority must ensure development will not be incompatible with the historic, scientific, cultural, social, archaeological, architectural, natural or aesthetic significance of any heritage item or its setting.	Y – refer Section 6.18.

6.7.2 Development Control Plan No. 45 - Railway Precinct

Rockdale DCP 45 – Railway Precinct (Discovery Point) (DCP 45) is a site specific Development Control Plan. DCP 45 outlines aims and objectives for development of the site and includes provisions relating to land use, built form, precinct character, urban form, building height, setbacks, solar access, materials and finishes, circulation and access, open space and public domain, views and vistas, heritage management, environmental management and public art.

Part 3 of the DCP establishes building envelopes and desired built form controls for each of the nine development sites, which are generally the same as the approved envelopes contained the Master Plan consent DA 500/01.

6.7.3 Discussion on Compliance with Key Local Planning Controls

The current local planning instruments applicable to the site primarily reflect the intent of the approved Discovery Point Master Plan (D500/01). Both LEP 2000 and DCP 45 include diagrams which show specific building footprints, envelopes and land uses with more specific requirements contained in the existing Master Plan consent.

The proposed Concept Plan will replace the existing Master Plan as it relates to the remaining development area of the site. Consequently the proposal will differ from the footprints, heights and building envelopes contained in the existing LEP and DCP. The proposal however retains some of the general design principles and objectives contained within these plans as addressed in the sections below.

Floor Space

The proposal is generally consistent with the maximum total permitted gross floor area control for the site with a minor increase of around 3,000m² proposed. The main difference between the existing scheme and the proposed scheme relates to the removal of the large commercial office tower above the railway line which was to accommodate 41,790m² of gross floor space (RGFA). The Concept Plan application proposes a minimum of 9,000m² (SIGFA) of non-residential floor space. It is envisaged that proposed Building 14 will be a commercial office tower as shown on the indicative design scheme. Building 14 is able to accommodate 5,500m² of GFA. The proposal therefore proposes to replace the planned commercial tower with a reduced tower of RL 42.7 (approx 5 storeys) adjoining the railway line, which responds to market demand and is justified in further detail at Section 6.13.

The indicative design scheme envisages the provision of a new neighbourhood shopping centre around a new public park at the southern end of the site which will create a point of difference between the facilities and services at Discovery Point and the proposed regional facilities proposed on the adjoining NAHAS site fronting the Princes Highway. This new neighbourhood centre will become the focal point of activity for the site and is ideally located adjoining the Wolli Creek railway station.

It is envisaged that the new retail centre will have a GFA of around 4,000m². While this is less than the approved equivalent 13,062m² (SIGFA) retail floor space, the intended design and function of the new neighbourhood village centre represents an improvement to the existing Master Plan retail space.

Building Height

The height and land use controls in the existing Rockdale LEP 2000 and DCP 45 lack flexibility and prescribe very detailed building footprints and envelopes for nine nominated development sites. The existing controls impact upon future residential amenity as they were largely developed prior to the introduction of SEPP 65. One of the key design parameters for the new scheme is the creation of a high quality residential environment generally consistent with the principles of SEPP 65.

The proposed scheme includes a range of building heights with a maximum building height of RL 79.65, being 21 storeys applying to two buildings throughout the site. Maximum height of residential buildings will range from RL40 to RL79.65 (indicatively between 8 and 21 storeys), whereas the anticipated commercial building (Building 14) will be at RL42.7 (around 5 storeys). The maximum height currently permitted under the LEP is RL67 (Site 6), which could equate to around 19 to 20 storeys.

The careful placement of modified heights across the site has arisen through a reduction in shared podiums across the site, which requires the careful placement of floor space to retain a similar GFA to the approved Master Plan across the site. In addition, the increase in height across the site decreases the building footprint area across the site and allows for the incorporation of additional public domain areas, plazas and landscaped spaces, most notably the new neighbourhood park in the southern portion of the site.

The modifications to height has also arisen through the provision of above ground parking, due to inherent technical difficulties and costs associated with basement car parking in acid sulphate soils and de-watering from ground water conditions on the site.

Further assessment of the bulk and scale within the Concept Plan is included within Section 6.9 of this report.

Car Parking

The issue of car parking is discussed in detail in Section 6.17.

Compliance with Site Specific DCP Provisions

As stated, DCP 45 provides very prescriptive detailed provisions for development of nine development sites. These provisions generally reflect the approved envelopes contained in the Master Plan consent DA 500/01. Therefore, a detailed discussion of compliance with this DCP is not included in this EAR, which seeks to replace the existing Master Plan as it relates to development of the site. A detailed discussion of DCP 45 also repeats the discussion regarding LEP 2000 (above). Differing footprints, heights and building envelopes are proposed. The proceeding sections of the EAR demonstrate the suitability of the Concept Plan from an economic, social, environmental and urban design perspective and thereby provide the justification for replacing the existing Master Plan. A number of design principles and objectives for the site from the LEP/DCP have been considered in the design development of the Concept Plan, including:

- Land uses proposed have been formulated to make best use of the unique waterfront, transport and open space attributes of the site;
- Maximising residential amenity by taking advantage of views across the heritage areas of the site, the waterfront, public green space, and the distant views of the airport, rail links, city skyline and coastline;
- Providing for the day-to-day shopping and service needs of the local community, but not in the form of a regional shopping centre, major supermarket, or bulky goods facility;
- Creating a built form which clearly leads to the station and its adjoining open space;

- Ensuring that the buildings height do not adversely affect the operation of Sydney Airport;
- Providing a built form adjacent to the conservation zone that does not compete visually with Tempe House and the Chapel;
- Locating the taller 'landmark' buildings still in same general location around the entry to the site and station;
- Conserving and enhancing the visual association of Tempe House with the landscapes of the Cooks River and Mount Olympus and maintaining the views from the station to Tempe House;
- Providing a variety of open spaces in recognition of the variety of proposed uses and to provide choice for the public;
- Providing opportunities for ready public access to the foreshore;
- Developing the Cooks River foreshore frontage to integrate the two distinctive waterfront types and potential connections outside of the site;
- Establishing a series of open spaces and associated internal and external linkages;
- Providing a permeable network of streets and open spaces that will encourage movement through the site;
- Providing a circulation and access system which allows safe and efficient use of roads by all modes of transport including pedestrian and bicycle traffic; and
- Provide facilities to allow a bus route to the station entering the Precinct at the intersection of Magdalene Terrace and Spark Lane via Discovery Point Place and exiting the Precinct via Brodie Spark Drive at the intersection of Arncliffe Street and Magdalene Terrace.

6.8 Comparison with Approved Master Plan

The main changes to the approved Master Plan are summarised in **Appendix I**, together with an assessment of the key benefits of these changes. **Appendix I** also includes figures comparing the heights and building envelopes of the approved Master Plan with the proposed Concept Plan.

It is noted that the approved Master Plan addressed nine development sites, which incorporated a predominance of shared podiums. The proposed Concept Plan moves away from this Master Planning response and now includes separated discrete buildings without shared podiums. This facilitates flexibility for staging and future design/designers. However, the change in built form layout means that a site by site direct comparison between the old building sites and the new development footprints is not practical. Hence the analysis below focuses on overall development parameters between the two schemes.

In comparison to the approved Master Plan, the urban form of the Concept Plan improves the overall design of the site, through the following measures:

- the Concept Plan reduces bulk throughout the site, particularly along the streetscapes and above the railway line through the removal of shared podiums across the site;
- The removal of shared podiums and placement of discrete individual buildings enables reduced building footprints, providing:
 - Functional interface with the newly introduced neighbourhood park;
 - Improved pedestrian connectivity and visual connections through the site;
 - Reduced footprint of buildings to reduce perceived visual bulk;
 - Improved open space outcomes with buildings framed around key areas of common open space and separated by pocket parks;

- Improved visual connections between the station and waterfront, due to reduced footprints;
- Re-orientation of buildings towards the waterfront.
- additional height is proposed on select sites within the Concept Plan, carefully placed in strategic locations, adjacent to the railway station and at the gateway into the site;
- the proposed individual building podiums are generally lower so give the feeling of less bulk at street level; and
- the Concept Plan continues the established heritage arc along Brodie Spark Drive.

A more detailed assessment of the high quality urban design and form of the Concept Plan is outlined in Section 6.9 below.

6.9 Urban Design and Built Form

6.9.1 Height, Bulk and Scale

The Concept Plan proposes a built form that considers the context of the site, including the existing development, the transitional nature of the local area and the close proximity to public transport by a range of modes to and from Wolli Creek Railway Station.

Building Height

The proposed building heights will contribute to the functionality and aesthetics of the site and are acceptable for the following reasons:

- The proposed building heights are compatible with the heights of the existing buildings in and around the site, with particular reference to the 21 storey Proximity development to the south-west;
- The proposed building heights reflect high density development which is suitable on the site given its accessibility to public transport;
- The revised layout provides a positive urban design outcome with a clearly defined Gateway building (Building 2) on the corner of Magdalene Terrace, consistent with surrounding buildings such as Proximity (21 storeys). This Gateway building (separated from adjoining sites to the south, by roads) assists in minimising the effect of overshadowing from this building. The building is also orientated on the north south access to minimise overshadowing to Proximity (Building 13);
- The second landmark building on the site provides a positive urban design outcome with a clearly defined 'urban marker' for the station at maximum of 21 storeys. This building is orientated and its floor plate is designed to maximise solar access and views of the city and surrounding parkland, whilst limiting overshadowing to the station (refer to **Figures 36 and 37**);
- The building height variation of the perimeter buildings along Spark Lane and Brodie Spark Drive, with the placement of additional height on the four corners of the site and buildings generally stepping down towards the railway station, will provide building height variation and good solar access, particularly to the new neighbourhood park (refer to **Figure 38**);
- The arrangement of buildings provides suitable separation and maximises solar access and views from future apartments; and
- Visual analysis of the proposed built form at Section 6.16, demonstrates that the proposed building heights are capable of integration into the built form typology of the locality.



Figure 36 – Drawing identifying the effect of the landmark towers
Source: *Bates Smart*

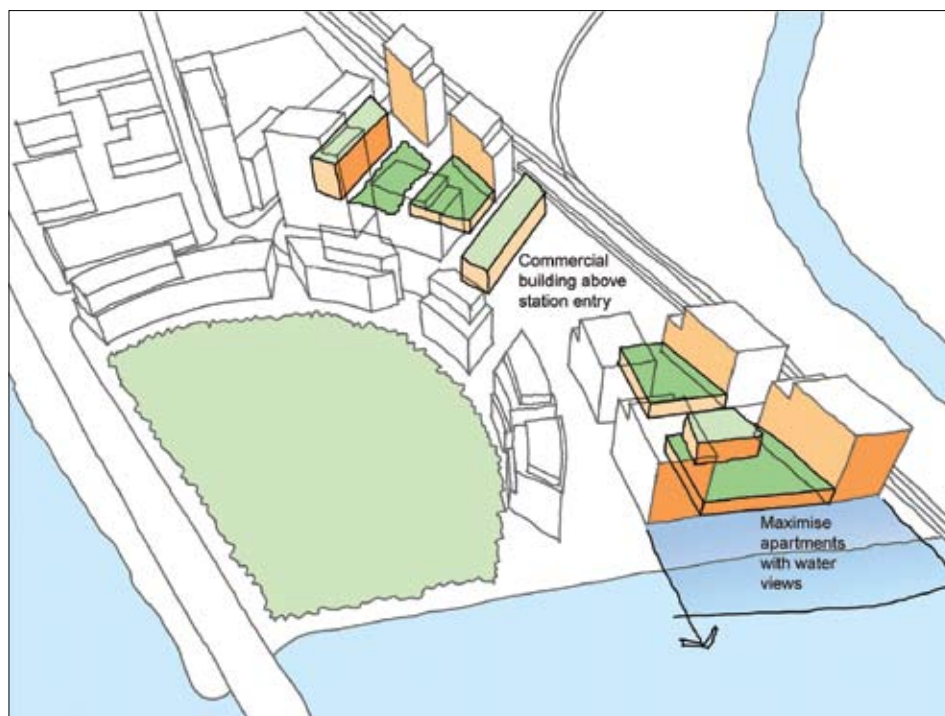


Figure 37 – Drawing identifying sun access to the neighbourhood park and internal courtyards
Source: *Bates Smart*

Building Framework

The following design elements of the building footprints within the Concept Plan contribute positively to the overall built form proposed on the site:

- The perimeter edge buildings provide a consistent street edge defining the public domain and contributing to the pedestrian character of the Concept Plan. The development of landscaped parks and communal courtyards in the centre of the northern and southern precincts enhance amenity (**Figure 38**);
- The building alignment of the Eastern 'Dress Circle' Precinct continues the arc defining the heritage precinct and Discovery Point Park;
- The alignment of Brodie Spark Drive and the proposed buildings reinforces the existing arc, while opening up the street towards the north and providing a visual connection from the railway station to the Cooks River foreshore (refer to **Figure 38**);
- The proposed future two-storey podiums with retail or townhouse typologies will break up the scale of development along the street while improving the on-street character and functionality of the site;
- The arrangement of buildings across the site provides good separation and maximises solar access and views to and from future apartments; and
- As shown in the indicative design scheme, it is anticipated that a lower scale commercial building adjacent to the station will provide a new entrance into the railway station, and support commercial opportunities within a highly accessible location within the site.

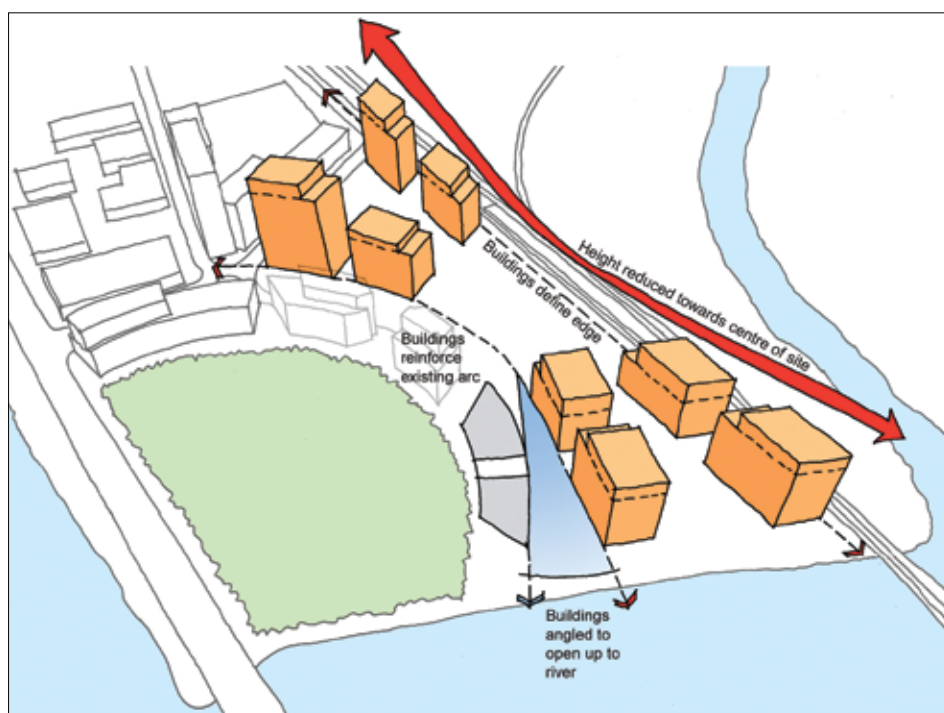


Figure 38 – Drawing identifying the effect of the perimeter buildings
Source: Bates Smart

6.9.2 Building Separation / Visual Privacy

The Residential Flat Design Code (RFDC) recommends a range of building separation distances depending on the height of buildings. The separation distance increases or are staggered as height increases.

These recommended controls are framed around the objectives of maintaining acoustic and visual privacy; controlling adverse overshadowing impacts; promoting daylight access and to provide for adequate open space and deep soil zones within a site.

Figure 39 and DA3-001 (provided under separate cover) identifies the building separation distances proposed for the Concept Plan. The proposed minimum building separation distances are based on the indicative design scheme. It is noted that building separation at the Project Application stage will be measured to proposed buildings and not Concept Plan envelopes. The analysis below is based on the indicative floor layouts and envelopes provided with the Concept Plan. These plans reveal some areas of variation with the building separation “Rules of Thumb” contained in the RFDC which are discussed below.

Notwithstanding the numerical variations from the recommended separation distances, it is considered that the proposed separation distance are suitable given the circumstances of the site and given that the total site development is able to meet the key objectives of the requirement, such as:

- The building separation distances do not affect the ability of the indicative floor plates to demonstrate compliance with the daylight access ‘rule of thumb’ under the RFDC;
- Overall the Concept Plan improves the provision of open space and landscaping within the site and between buildings removing the shared podiums that were a key feature of the Master Plan. This allows the Concept Plan to frame buildings around key areas of common open space, creating new pocket parks and including specific identified areas for deep soil zones such as the neighbourhood park; and
- The proposed use of two-storey podiums with retail or townhouse typologies break up the scale of development along the street reducing perceived bulk at the ‘human scale’, thereby prevent any perception of a wall of buildings.

Where variation in building separation is sought, the development will rely on design features to protect visual privacy measures, such as:

- the placement of highlight windows;
- the orientation of apartments and living areas in particular;
- the use of privacy screens;
- offsetting of balcony areas; and
- indicative floor layouts that are strategically orientated to provide privacy between apartments by avoiding overlooking.

Specific instances where the indicative floor layouts reveal variations from the RFDC development controls are discussed below:

- Between Building 3 and 5: The living areas of Building 5 can be designed to face only highlight windows on the western facade of Building 3. The living areas of Building 3 can be orientated north/south to also prevent direct instances of overlooking between dwellings;
- Between Building 6 and 7: Living areas will face towards Discovery Point Park and Brodie Spark Drive. Highlight windows and/or privacy screens can be used for any bedroom areas facing each other;

- Between Buildings 6 and 11, and Buildings 7 and 8: Separation distances at this point are defined by the continuation of the heritage arc and Brodie Spark Drive. The width of Brodie Spark Drive is determined by road width standards, whilst the placement of Building 6 and 7 are limited by Discovery Point Park and the established heritage arc. It is considered that the separation afforded by Brodie Spark Drive, the offsetting of balconies, use of privacy screens on balconies (which incidentally will also act as protection from western sun for Building 6 and Building 7), will all ensure that suitable privacy is achieved. It is also considered that the broader urban design benefit of the continuation of the heritage arc needs to be considered;
- Between Buildings 8, 9 and 10: The living areas of Building 9 can be orientated north (to Cooks River) and south (Chisholm Street). Balconies of Building 9 are also orientated away towards the uninterrupted views to the north. These measures would minimise instances of direct overlooking between Building 9 towards Building 8 and Building 10. Blank walls or highlight windows could be used in the east and western facades of Building 9 to further minimise privacy impacts;
- Between Building 11 and 13: Due to the offset arrangement of the buildings, only two apartments in each building on each level are affected by the building separation variation. Balconies and living areas in Building 11 are orientated away towards the common central park between building (west) or Discovery Point Park (east), thereby minimising instances of direct overlooking between Buildings 11 and 13. Privacy screens and/or highlight windows will be utilised in any bedrooms in Building 11 that face towards Building 13;
- Between Building 1c and 1b: Variation occurs on Level 1 only. Balconies in each building face different directions and landscaping between buildings will assist in privacy;
- Between Building 1c and Verge: Due to the offset arrangement of the buildings, variation only occurs at the northern end of Verge, potentially affecting two apartments per floor within the Verge building and three apartments per floor in Building 1c in each building on each level, according to the indicative design scheme. Balconies are offset and separation is afforded by Brodie Spark Drive. Apartments with a variation also have oblique outlook towards the park (for Building 1c) or towards the neighbourhood park (for Verge) thereby ensuring these apartments do not simply face onto adjoining buildings wall/balconies/living spaces;
- Between Building 1c and 2: Only two dwellings on each floor of each building (up to Level 13 of Building 2) are affected by the building separation variation, according to the indicative design scheme. The living areas of the dwellings to the west of the buildings can be oriented away, towards the neighbourhood park, while the use of privacy screens and/or highlight windows can be utilised to assist in privacy for the eastern dwellings affected by the building separation variation;
- Between Building 8 and 10: One two dwellings on each floor of each building are affected by the building separation variation, according to the indicative design scheme. All living areas within each of the dwellings can be oriented away, towards the north and the views over the Cooks River (for the eastern dwellings) or the podium common space areas (for the western dwellings), to achieve privacy and ensure apartments do not simply face the adjoining building; and.
- Between Building 10 and 12: Only two dwellings on each floor of each building are affected by the building separation variation, according to the indicative design scheme. All living areas within each of the dwellings can be oriented away, towards the north-western views (for the western dwellings) or the podium common space (for the eastern dwellings), to achieve privacy and ensure apartments do not simply face the adjoining buildings.

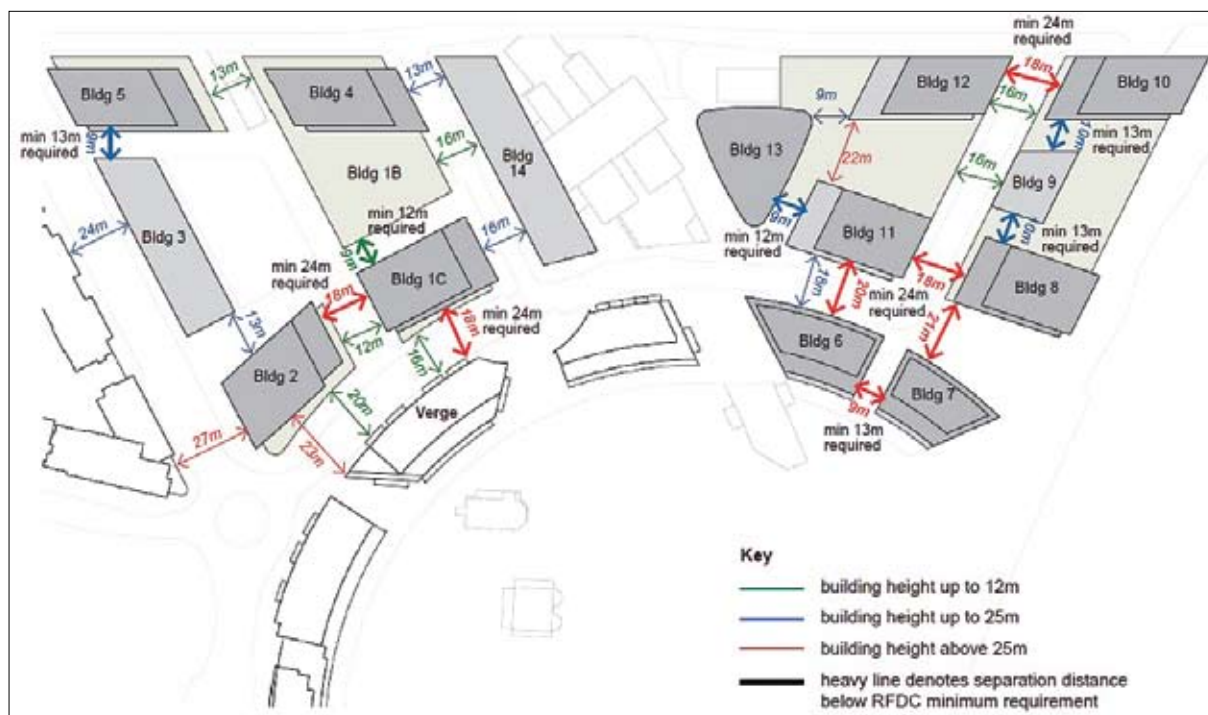


Figure 39 – Diagram indicating building separation distances of indicative floor layout.
Source: *Bates Smart*

6.9.3 Building Depth

In regards to building depth, the RFDC suggests a maximum internal plan depth of a building of 18 metres from glass line to glass line to promote the use of dual aspect apartments.

The objectives of the RFDC relative to building depth are designed to ensure that the spatial arrangements of apartments are functional and well organised and that they provide for access to natural light and ventilation to provide high standards of residential amenity. The maximum building depth within the RFDC is essentially designed to ensure adequate residential amenity for apartment floorplates containing a number of apartments.

The proposed indicative floor layouts for the Concept Plan incorporate minor variations to the maximum building depth requirement as follows:

- Building 1c: between 20m – 23m
- Building 2: between 20m – 23m
- Building 4: between 17m – 20m
- Building 5: between 17m – 20m
- Building 6: between 20m – 23m
- Building 7: between 20m – 23m
- Building 8: between 20m – 23m
- Building 10: between 17m – 20m
- Building 11: between 20m – 23m
- Building 12: between 17m – 20m

The Concept Plan application seeks approval for the above mentioned building depths.

It is considered the proposed building depths are acceptable given the proposed development is able to meet the key objectives of the requirements, as:

- the building depths do not affect the ability of the indicative floor layouts to comply with the daylight access and ventilation 'rules of thumb' under the RFDC;
- the proposed building envelopes within the Concept Plan will ensure a high standard of residential amenity can be achieved; and
- the extent of building depth variation is minor (in the order a few metres for a few apartments in each building seeking the variation) and acceptable given the indicative floor layouts meet the other RFDC criteria.

In addition, the indicative floor plates are functional and well organised thereby enhancing opportunities for amenity that may be adopted within the final floor plate designs, as:

- Floor plates are sized to ensure flexibility in terms of apartment planning and the efficient utilization of space. Floor plate sizes of 600-800m² building ensure commercial viability and are an appropriate size to ensure residential amenity through apartment sizes; and
- Floor plates will be regular with a combination of façade modulation and steps in the envelope used to achieve articulation.

6.10 Internal Residential Amenity

The built form of the proposed development promotes design excellence and is appropriate to the site with the ability for the design of the future residential apartments defining the public domain and positively contributing to the character of the streetscape. The proposed building envelopes provide superior internal amenity and outlook, particularly in comparison to the approved master plan envelopes.

6.10.1 Daylight Access - Residential Flat Design Code "Rule of Thumb"

Direct Sunlight

The spatial layout of the Concept Plan building envelopes aims to maximise the direct sunlight reaching unit living rooms and balconies. The indicative floor layouts that have been prepared demonstrate likely daylight access for the development. Concept Plan approval is not sought for indicative floor layouts but these are included to enable an informed assessment of the Concept Plan envelopes. The indicative floor layouts demonstrate that on average more than 70% of apartments will receive more than two hours of direct sun between 9am and 3pm in mid-winter across the development site, see indicative map at **Figure 40**.

Under the Residential Flat Design Code (RFDC) the "Rules of Thumb" for daylight access suggest a minimum of 70% of apartments should receive at least two hours of direct sunlight during mid-winter within denser urban areas. The indicative design scheme demonstrates that this can be achieved across the development site. Some buildings will receive direct sunlight access for 2 hours mid-winter to more than 70% of apartments, while other buildings will have less than 70% of apartments achieving this level. In instances where the "Rules of Thumb" of the RFDC are not satisfied, the buildings that have lesser compliance have other factors which significantly enhance residential amenity, such as orientation overlooking parks or views.

The indicative design scheme illustrates that three of the proposed fourteen buildings would receive less than 2 hours sunlight to 70% of their apartments on a typical floor (**Figure 41**). We note that most buildings achieve a suitable level of compliance given their orientation. It is also important to note that these buildings have ample amenity and access to diffuse daylight being the buildings that face either the new neighbourhood park or Discovery Point Park. A high proportion of the apartments with less than 2 hours sunlight in midwinter also have ample views towards the north east, east and south east, thereby further enhancing the amenity of these apartments.

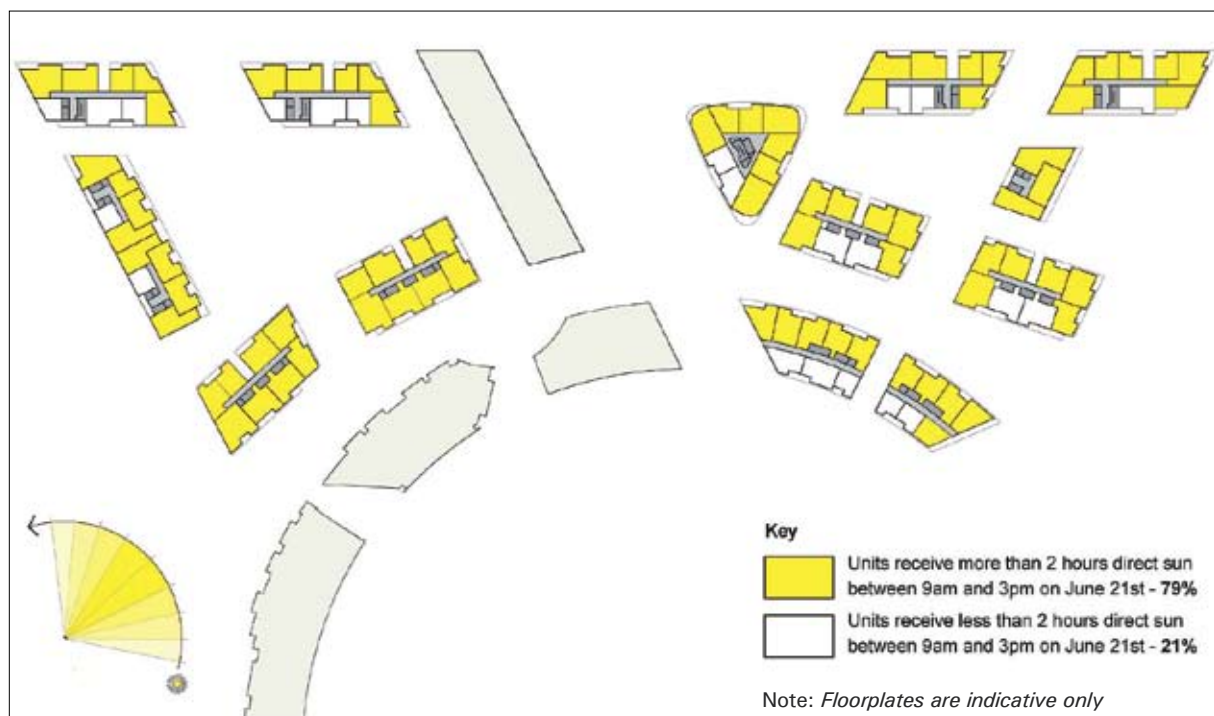


Figure 40 – Indicative floor plates and sun access during mid-winter (overall development) Source: *Bates Smart*

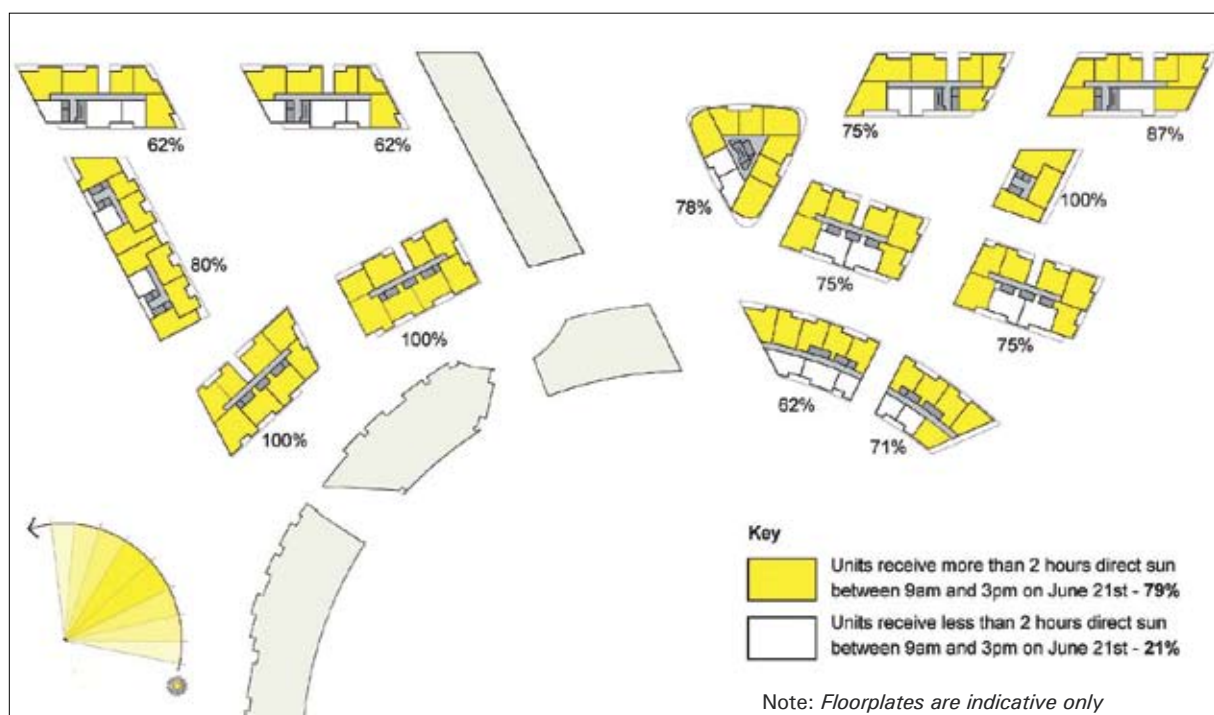


Figure 41 – Building by building attainment of two hours of solar access during mid winter based on a typical floor in the indicative design scheme
Source: *Bates Smart*

Daylight Access

In addition, the RFDC recommends a maximum of 10% of dwellings to have a single southerly aspect (south-west to south-east). The indicative floor layouts reveal that (**Figure 42**):

- Overall, on average 10% of apartments across the development site are single aspect within the 90 degree arc between south east and south west; and
- On a building by building basis, between 0% and 25% of apartments per building contain single aspect south facing units.

The RFDC control is designed to supplement the direct sunlight access control above. The objective of the “Rule of Thumb” is to maintain reasonable daylight access, whether this be direct sunlight or diffuse light from the sky. Notwithstanding that up to 25% of apartments in some buildings in the indicative scheme will contain south facing single aspect apartments it is considered that suitable daylight access will be afforded to the development as:

- On each indicative floor across the development site, a significant number of the southerly facing apartments are orientated to open spaces and street networks resulting in suitable separation from other buildings and a more open aspect that allows diffuse daylight penetration to occur. This means a significant portion of south facing apartments do not directly face a building opposite;
- The indicative floor layout demonstrates compliance with the direct sunlight rule of thumb, by providing a minimum of two hours sunlight to 79% of apartments between 9am and 3pm in mid winter. In the hierarchy of recommended “Rules of Thumb” attainment of this control is considered a desirable “Rule of Thumb” to achieve;

In addition, the layout of buildings is predicated on creating a strong urban form, providing active street frontages to the existing street alignment and the general alignment of streets from the previous Master Plan. This affects the form and orientation achieved;

- Consideration of the overall factors affecting amenity should be weighed up when considering the suitability of single aspect south facing apartments. In this context, a high proportion of these single aspect apartments have ample views towards the north east, east and south east, thereby enhancing the amenity of these apartments; and
- Ample access to direct sunlight is available to the single aspect south facing residences, through the significant public open space of Discovery Point Park, the northern facing foreshore park and the newly created neighbourhood park.

On balance, therefore notwithstanding the technical variation from the RFDC “Rule of Thumb” it is considered that the single aspect south facing apartments will receive adequate diffuse daylight and have other factors such as views that enhance amenity. Overall access to direct sunlight due to resident access to significant open spaces within the development should also be considered.

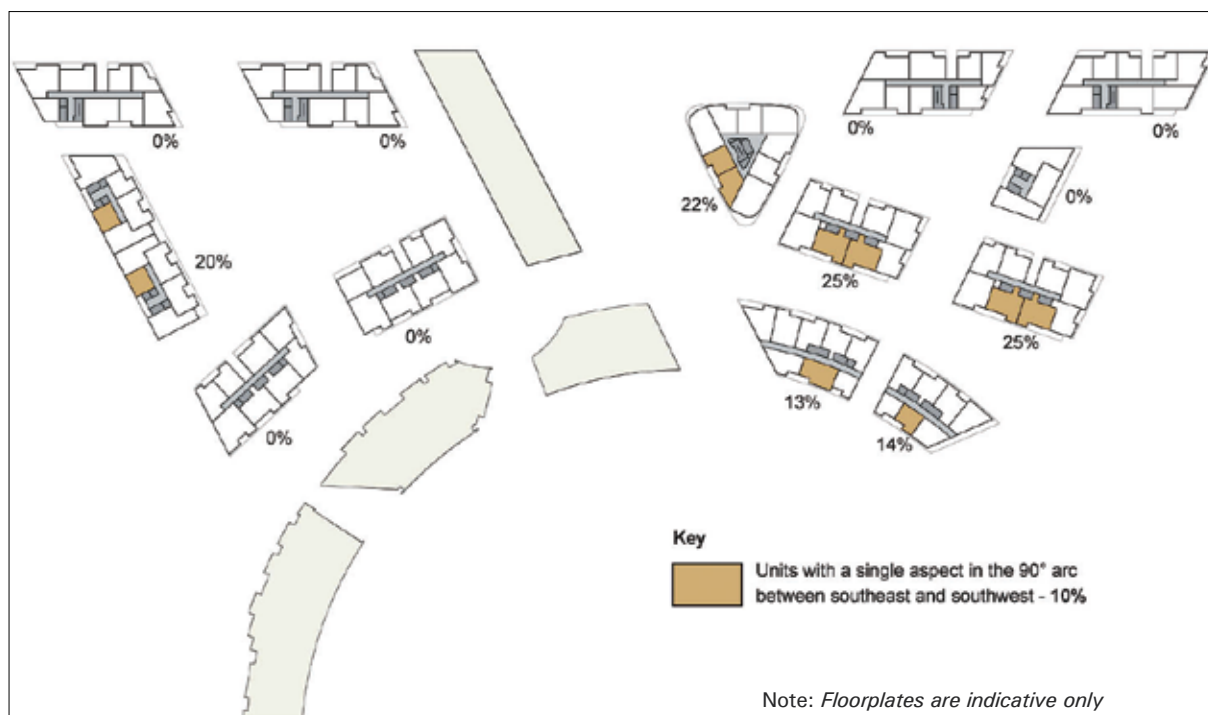


Figure 42 – Indicative typical floor plates and single aspect apartments
Source: *Bates Smart*

6.10.2 Cross Ventilation

The spatial layout of the Concept Plan building envelopes aim to maximise the number of apartments that will achieve cross ventilation and indicative floor layouts have been prepared to demonstrate likely cross ventilation for the development. However, Concept Plan approval is not sought for indicative floor layouts. The indicative floor layouts indicate that up to 64% of apartments across the site will achieve cross ventilation, see indicative map at **Figure 43**.

The Residential Flat Design Code (RFDC) suggests a minimum of 60% of apartments achieve cross ventilation. The indicative floor plates demonstrate that on average greater than 60% of apartments for a typical floor across the development site will achieve cross ventilation. In some buildings more than 60% of apartments will achieve cross ventilation while other buildings will have less than 60% of apartments achieving this level. In instances where the “Rules of Thumb” for cross ventilation of the RFDC are not satisfied, the buildings with lesser compliance have other factors that significantly enhance amenity such as views.



Figure 43 – Compliance of Indicative typical floor layouts with cross- ventilation requirements (64% of apartments)
Source: *Bates Smart*

Specific building by building compliance on cross ventilation is a detailed design issue and a range of indicative floor plates and design measures could yield differing results. As an example specific design features such as ventilation 'breaks', and corner apartments can be designed into specific floor plates at the project application stages to increase compliance on individual buildings (**Figure 44**).

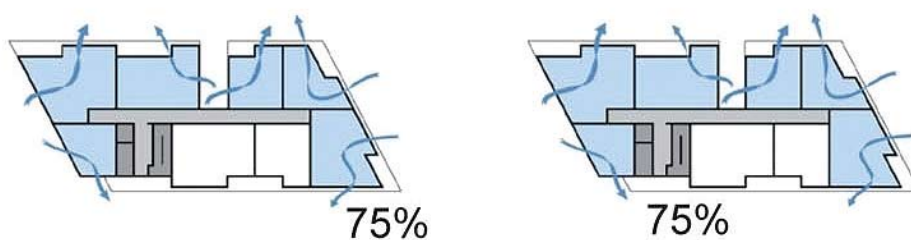


Figure 44 – Use of design features to enhance cross ventilation at detailed design stage.

6.10.3 Acoustic Performance

An Acoustic and Vibration Assessment was prepared by Heggies in regards to the potential noise impacts on the proposed Concept Plan (refer to **Appendix N**). The Acoustic and Vibration Assessment found that the site is impacted by noise from aircraft, road traffic and rail traffic and it is likely some noise mitigation measures would be required for some of the residential buildings. Heggies recommends that details of the mitigation measures are to be determined at the detailed project application stages.

The Acoustic and Vibration Assessment is discussed further in Section 6.22.

6.10.4 Crime and Public Safety

The design of open spaces will create a safe environment based on Crime Prevention through Environmental Design (CPTED) principles, including clear lines of sight, maximised passive surveillance and effective night lighting.

As shown in the indicative design scheme, active street-fronts are proposed throughout the development with access to retail, residential lobbies and townhouses on the ground level. Spark Lane, conceived as the traffic and services route has passive surveillance from the train station, bus loop and apartments above. The channelling of the vehicular traffic on this axis also maximises pedestrian amenity throughout the development. Walking and cycling paths along the river will be improved to connect seamlessly with the wider foreshore network to ensure safety and no entrapment spaces. Casual surveillance of open space areas will be available from the placement of buildings as shown on the the Concept Plan.

A Safety Management Strategy will be prepared and provide guidelines for the application of CPTED principles and Safer by Design best practice models in each detailed future Project Application, and this requirement has been included in the draft Statement of Commitments at Section 7.

6.11 Solar Access and Overshadowing

As part of the *Bates Smart Design Report*, shadow diagrams have been prepared (provided under separate cover) indicating the overshadowing effect of the bulk and scale of the proposed building envelopes on the parks, other public spaces, adjoining development and compliance with the Residential Flat Design Code 'Rule of Thumb' for solar access to apartments. It is noted the shadow analysis have been conducted on the proposed indicative floor plates. The Concept Plan building envelopes represent a notional zone for all built form elements to be included within (including balconies, plant, railings, stair overruns and the like, but excluding sub control devices, architectural design features, awnings and the like) and as such it is more appropriate to model shadow analysis on indicative likely floor plates.

'View from the sun' diagrams have also been prepared, refer to **Figure 45**. The areas buildings that can be seen in the view from the sun diagrams (not obstructed in view by other buildings) will receive sunlight at the time of the day indicated.

Daylight Access - Residential Flat Design Code "Rule of Thumb"

Addressed at Section 6.10.1 above.

Impact on Parks

The shadow diagrams indicate that Discovery Point Park will benefit from consistent morning sun throughout the entire year. Even during the June 21 worst case scenario a minimum of three hours sunlight is received to the majority of the park, with shadowing increasing into the afternoon period. Even at 3pm a significant portion of the park (some 40-50%) retains full sunlight.

The neighbourhood park will receive direct sunlight from midday and in the afternoon for most of the year, in particular a minimum of two hours to 20-30% of the park is maintained in the June 21 worst case scenario, with the effect of sunlight penetration increasing across the remaining times of the year.

The height of Building 14 adjacent to the Wolli Creek Railway Station has carefully been designed (lower than the surrounding buildings) to protect solar access to the new neighbourhood park. Whilst the Station Park receives less than two hours in mid-winter, it is directly contiguous with Discovery Point Park which receives ample northern sun in mid-winter (above).

The Waterfront Park, being at the northern end of the site also receives a minimum of two hours sunlight in mid-winter and substantially more across the year.

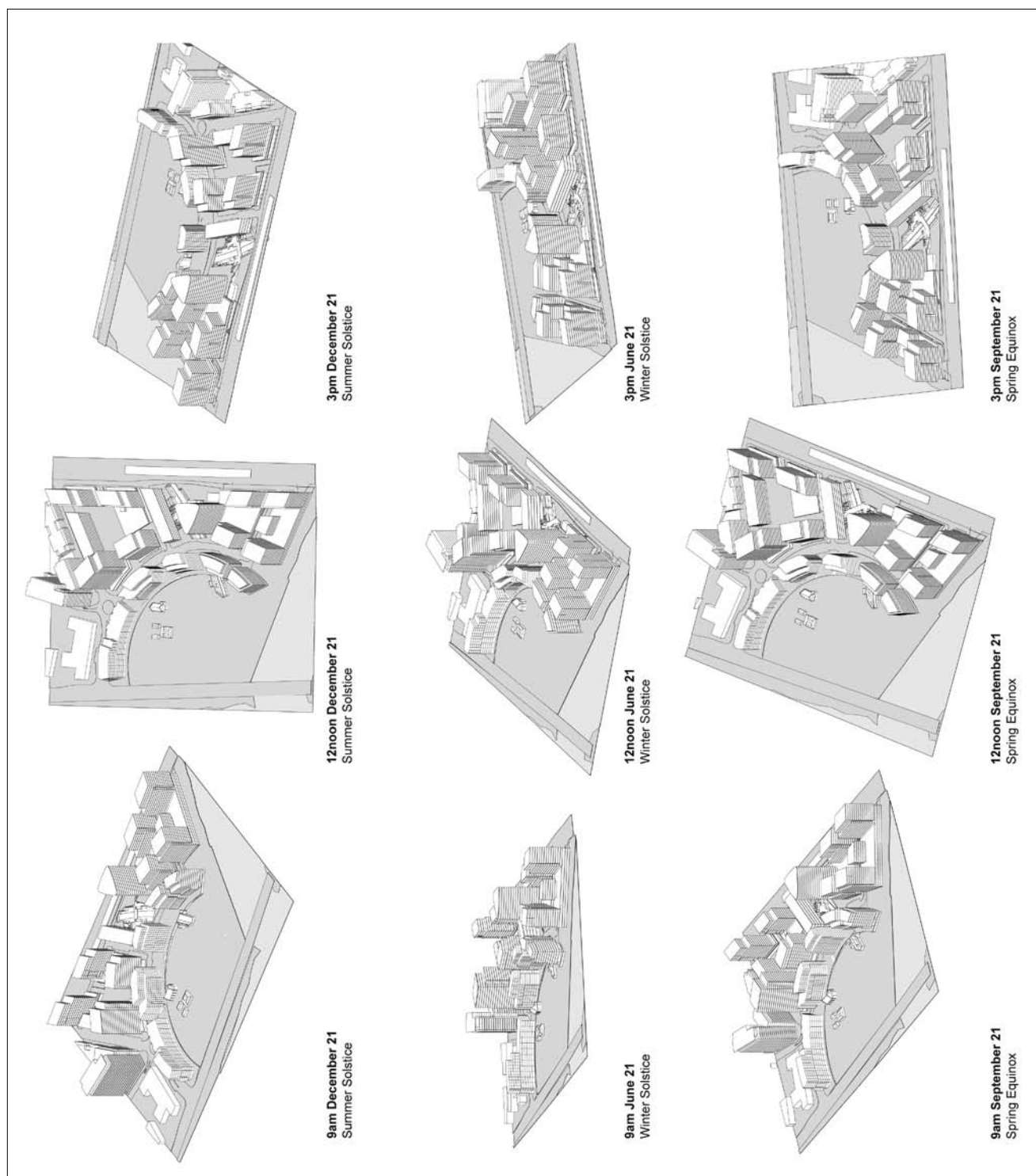


Figure 45 – ‘View from the sun’ sunlight access diagrams
Source: *Bates Smart*

View from the Sun

The building faces visible in the view from the sun diagrams in the *Bates Smart Design Report* indicate those faces that will receive direct sun, while those faces that are not visible will be in shadow. The *Bates Smart Design Report* demonstrates solar penetration into the urban fabric of the development as a result of careful consideration of heights, setbacks and perimeter block planning. Even at winter solstice, a considerable amount of the buildings will receive direct sunlight.

The location and scale of the perimeter buildings aims to ensure the internal courtyards proposed within the building blocks will receive adequate sunlight penetration.

The landmark building (Building 13) adjacent to Wolli Creek Station has been located to limit the overshadowing on the station and the public domain surrounding it.

Impact on Adjoining Development

Buildings heights have been carefully chosen to mitigate overshadowing effects on adjoining developments. The landmark gateway building in the southern precinct (Building 2) has been strategically located so the majority of its shadow is cast onto roads or areas already overshadowed by the approved existing buildings for this site in accordance with the existing Master Plan. On Magdalene Terrace, the height of Building 3 is reduced to minimise overshadowing of the 5-storey Proximity building. Greenbank, Verge and Vine are located to the east of proposed development and, consequently, generally any additional shadowing impact will only be in the afternoon in the June 21 'worst case' scenario.

Shadow diagrams, included within the *Bates Smart Design Report* (provided under separate cover) indicate the following overshadowing impacts on the adjoining developments:

- **Greenbank building:** The Concept Plan indicative floor plates will not overshadow the Greenbank building during the Winter Solstice 'worst case', but will have minor shadowing impacts on the western building during the afternoon periods of the Summer Solstice and Spring Equinox;
- **Verge building:** The Verge building will continue to receive full morning sun throughout the year, with the Vine building (currently under construction) having some impact on sun access during the Winter Solstice, but no impact caused by the Concept Plan indicative floor plates. The proposed Building 1c will have some shadowing impact over the Verge building at the 3pm period throughout the year;
- **Vine building:** Buildings 6 and 7 will have some shadowing impacts over the Vine building during the morning periods throughout the year, with the placement of Building 6 and 7 reflecting the existing heritage arc around Discovery Point Park. The removal of the building constructed over the railway line, as approved within the existing Master Plan, will increase sun access to the more southern apartments in the Vine building during the afternoon but some apartments will be affected by shadowing of Building 13 during the 3pm afternoon period of the Winter Solstice; and
- **Proximity building:** Building 2 will have some shadowing impacts over the Proximity development during the midday period throughout the year and impact on some apartments during the morning period of the Winter Solstice. Most apartments within the Proximity development will receive full sun in the afternoon periods throughout the year, with some impact during the Winter Solstice due to shadowing from Building 3. However, the reduced height of Building 3 (8 storeys), compared to other buildings within the Concept Plan was specifically considered to limit that impact.

In line with the existing master plan consent, it was acknowledged that a degree of additional shadowing from the eventual construction of the undeveloped portions of the site would occur due to the development of higher densities. The ethos in the existing master plan consent was that the amount of sunlight retained for these north facing buildings should also be considered in an overall merit assessment of the minor reductions in sunlight loss.

Shadow diagrams demonstrating impacts on the potential Plaza associated with the NAHAS Major Project Application (MP 08_0235) have been prepared. These diagrams demonstrate the impact of the proposed landmark building on the corner of Magdalene Terrace at the location of the proposed public Plaza and compare this with the building envelope that would have been allowable under the Master Plan and DCP 45.

The diagrams depict a very minor increase in potential shadowing on this plaza from the proposed envelopes above the effect of the DCP 45 envelopes. However, it is noted that two hours sunlight is retained to the majority of the Plaza even in the mid-winter worst case scenario. Logically, the diagrams prepared for the equinoxes and mid-summer depicts greater sunlight penetration across the year.

6.12 Landscaping and Streetscape

Landscaping

The Concept Plan provides for significant open space areas, including the retention and enhancement of Discovery Point Park, public access to western edge of the Cooks River foreshore, the creation of a new neighbourhood park within the southern precinct of the site and the enhancement of a number of pedestrian linkages and connections throughout the site.

Landscape Concept Plan described in detail in Section 5.10, provides an optimum design solution for the site context in that it:

- respects and enhances the heritage significance of Tempe House and St Magdalen's Chapel and its former grounds, now Discovery Point Park;
- increases area of open space provided within the site, in comparison to the approved Master Plan;
- creates a legible and improved network of parks, plazas and streets. Design of these public areas will create a safe environment based on CPTED principles (for example, clear lines of sight, maximised passive surveillance and effective night lighting);
- maximises the experience of Wolli Creek and its parkland frontage;
- creates open spaces that are fit for 'purpose' – the design of outdoor spaces will complement and enrich adjoining commercial, retail and residential land uses;
- enhances environmental quality within the public domain with:
 - an integrated water management approach founded on water sensitive urban design principles;
 - the provision of extensive shade, particularly where hard surfaces prevail to reduce the heat island effect;
- provides winter sun, summer shade, seating and logical pedestrian connections within and between precincts creating a sustainable and comfortable outdoor environment; and
- enhances the feeling of connection to nature (for example, to provide places to lie on grass looking up at the sky).

Streetscape

The Concept Plan adopts a number of principles to create active streetscapes throughout the site as demonstrated in the indicative design scheme, including:

- Anticipated retail services of buildings on the ground floor within the southern precinct, along the pedestrian link between Magdalene Terrace and Wolli Creek Railway Station;
- Anticipated Retail uses fronting the neighbourhood park to create a village atmosphere;
- Residential frontages in the form of townhouses and terraces, with direct access to street level, will active streetscapes as well as shield the appearance of the above ground parking behind the dwellings;
- The ground floor of Building 7 within the eastern precinct is proposed to be activated with a cafe/restaurant; and
- The western boundary street frontage, along Spark Lane, is not proposed to be active, but provides access into the car parking and services, which is used as a buffer to the railway line.

As identified within Leyshon Consulting's Economic Analysis (**Appendix R**) and discussed within Section 6.13 of this report, only a certain quantum of retail services can be supported within the site. As a result, the active streetscapes are focused along part of Magdalene Terrace and the pedestrian walkway between the neighbourhood park and the railway station. Active retail frontages are not provided along the entire length of Brodie Spark Drive or adjacent to the railway station. However, active frontages on these streets will be provided in the form of apartment and townhouse typologies with direct access, frontage and orientation to the street, maintaining activation and casual surveillance. Given the active frontages achieved through design not land use, and that the level of retail services proposed in the indicative design scheme are suitable according to the local retail context, the streetscapes proposed within the Concept Plan are suitable for the purposes of the DGRs.

The street layout throughout the site will further enable street activation and pedestrian movement, particularly along the main thoroughfares of Discovery Point Place, Brodie Spark Drive and the pedestrian link from Magdalene Terrace to the railway station. The indicative landscaping treatments along the streets will further soften and enhance the streetscape.

Discovery Point Place is designed as the main public transportation hub for the development featuring a shared surface for cars, buses, taxis and pedestrians. The street will feature retail with residential uses above on one side of the street and commercial uses adjoining the train station entrance and is well landscaped to provide amenity and character to the first accessible street from the train station. Brodie Spark Drive is conceived as a formal tree-lined boulevard flanked with residential buildings on either side of its arched trajectory. Space is provided for trees, cycling, and on street car parking creating a pedestrian friendly environment.

Private and Communal Open Space

The site is within a locality in transition to a higher density urban area and will provide a high level of residential amenity through the means described above and through the provision of open space in the following manner:

- Each future apartment will incorporate private open space areas in the form of balconies which achieves ample access to sunlight and natural ventilation;
- Green roofs will be investigated in future Project Applications;
- The site benefits from the immediacy to the high quality public domain, including access to Discovery Point Park, the new neighbourhood park, the Cooks River foreshore, Waterfront Park and Station Park; and
- Podium communal open space areas for residents are anticipated to be provided as per the indicative design scheme.

6.13 Economic Issues

Leyshon Consulting has prepared a report to examine the economic implications of the Concept Plan, particularly in relation to the change in the mix of floor space on the site, in comparison to the approved Master Plan (refer to **Appendix R**). This Section of the report will summarise the key economic reasons for the proposed mix of residential and non-residential floorspace. Refer to Section 6.14 for further discussion regarding the social implications of the Concept Plan mix of land uses.

The Leyshon Consulting report uses the retail and commercial GFAs contained in the indicative design scheme as the basis of its assessment report, although the Concept plan seeks approve for a minimum of 9,000m² non-residential development only.

The indicative design scheme proposes a mix of some 4,325m² retail floor space and 5,576m² commercial floor space. The approved Master Plan included some 14,000m² (RGFA) retail floor space across the whole site and around 40,000m² (RGFA) commercial floor space. In comparison to the approved Master Plan the proposed Concept Plan will result in a reduction of around 39,000m² (SIGFA) non-residential floor space. The bulk of the commercial floor space was to be provided in a single large commercial building.

The Master Plan was approved a decade ago, and since that time the residential, commercial and retail markets have changed significantly. The modified mix of floorspace within the Concept Plan reflects two significant influences affecting the ability to develop Discovery Point according to the approved Master Plan: practical development influences and marketing influences. These are discussed below.

6.13.2 Drivers for Quantum of Commercial Floor Space

Leyshon Consulting (**Appendix R**) identifies both practical and marketing influences affecting the feasibility of one large commercial building above the railway station and also within a predominantly residential precinct.

Practical

A detailed feasibility analysis undertaken has indicated a number of practical problems with developing the site, particularly in relation to a large commercial building built over the station. These practical issues include:

- the difficulty, cost and safety risks of developing over the existing rail station footprint, including a cantilever structure above the station;
- the existence of a rail electricity substation and rail electricity high voltage cables adjacent to the site;
- the difficulty in designing a commercial building with regular, usable floor plates and layouts;
- the difficulty of providing sufficient parking directly underneath the proposed building, affecting the commercial viability of the site; and
- the cost of upgrading the railway station as a result of the impacts of the commercial building.

Marketability

There are also market forces impacting on the feasibility of a large commercial building within the site. The key marketing constraint relates to:

- competition with other centres, such as Green Square and Hurstville, which offer similar or lower rents while also clustering commercial development;
- the Sydney office market is favouring office space in office 'park-like' locations such as Macquarie Park, Norwest Business Park, Homebush, Rhodes and Mascot;
- the reduction in car parking allowances due to the proximity to public transport makes it difficult for Discovery Point to compete with centres that allow more commercial car parking;
- the area lacks marketability as it is perceived as a residential precinct rather than a suitable location for commercial premises. There are few (if any) examples of a single commercial building in a primarily residential precinct. In late 2007, Australand undertook a marketing programme in relation to the proposed office space at Wolli Creek. Despite contact with a wide range of organisations this did not yield any positive leads in terms of organisations that may have an interest in Wolli Creek, and interest has further declined with the Global Financial Crisis.

Nature of Commercial Development

The Metropolitan Strategy Review identified the job change between major strategic centres across Sydney between 2001 to 2006. The Review indicates a strong growth rate in business park locations such as Macquarie Park (an additional 8,000 jobs) and Norwest (an additional 8,000 jobs). While more traditional centres suffered from job loss (including Hornsby, Bankstown, Burwood, Chatswood and Hurstville).

In the immediate surrounds of Wolli Creek, job growth occurred mainly within the Sydney Airport and Port Botany areas, a minor increase in Kogarah and a reduction in jobs in Hurstville.

The figures indicated within the Metropolitan Strategy Review reiterate the feasibility analysis undertaken by Australand for Discovery Point, in that it will be difficult to market commercial development within a centre perceived as a residential origin, particularly while competing with centres that currently have a commercial role, particularly when traditional commercial centres such as Bankstown, Burwood, Chatswood and Hurstville are experiencing job loss.

The current nature of commercial development is subdued compared to that when the existing Master Plan was approved (Leyshon Consulting 2010). Since 2000, the Sydney commercial office market has been negatively affected by the 'tech-wreck' between 2001-03, as a result of the downturn of technology companies worldwide, and the more recent Global Financial Crisis. These events, along with the increased demand for low-cost commercial office space with abundant parking (such as Macquarie Park, Rhodes, Norwest and Homebush) have significantly reduced the competitive advantage of commercial office space in traditional centres such as Bondi Junction, Chatswood, Hurstville and St Leonards.

Leyshon Consulting considers the quantum of commercial floor space proposed within the Concept Plan as an appropriate response to the current market realities for commercial office space.

6.13.2 Drivers for Quantum of Retail Floor Space

The quantum of retail floor area proposed within the Concept Plan reflects recent applications for the expansion or creation of new retail precincts within the consumer catchment that includes Discovery Point (and would compete with future retail development on the site). Specifically, the application for a new subregional retail centre on the NAHAS site (adjacent to the site) and the expansion of Marrickville Metro, and the recent approval for increased retail GFA for the purposes of an Aldi supermarket on the adjoining “Proximity” development site. These developments will increase the retail floor space within the subregional retail catchment of Discovery Point and would reduce the demand for a significant retail precinct within the site.

NAHAS Proposed Subregional Retail Centre

Subsequent to the existing Master Plan for Discovery Point being approved, a proposal for a new subregional retail centre on the NAHAS site was declared a major project to which Part 3A of the Act applies. The NAHAS subregional retail proposal will include a discount department store, full-line supermarket, specialty retail and a fresh food market, totalling over 21,000m² of retail floor area. The NAHAS site is to the south of the site, with direct access onto the Princes Highway.

At the time of the Master Plan approval, the NAHAS proposal was not taken into account, and subsequently, the demand for 14,000m² (RGFA) of retail floor area within the site will be significantly reduced by this proposal.

Due to the proximity and access of the NAHAS site to the Princes Highway, it is more superior site for retail development than that the site subject to this Concept Plan. A report prepared by MacroPlan Australia, the consultants for the NAHAS development, indicate the demand for retail services in this locality, and its catchment would extend to the suburbs of Tempe, Earlwood, Bexley, Bardwell Park and Clemton Park. The retail catchment of the retail precinct within the site would be unlikely to extend as far as the NAHAS development due to the sites reduced visual prominence and accessibility along the Princes Highway.

A Project Application proposing a ‘temporary supermarket’ and associated specialty shops, comprising a supermarket of 3,500m² and a total first stage of 5,000m² has also been submitted for the NAHAS site. As a result of the proposed supermarket on the NAHAS site, Discovery Point was unable to secure a lease with either Coles or Woolworths for a supermarket on the site as they preferred NAHAS. With the quantum of retail proposed in the NAHAS ‘temporary supermarket’ application, it is Leyshon’s position that the retail services offered on the site need be scaled down to provide for the convenience needs of Discovery Point residents and commuters using Wolli Creek Railway Station.

Competition with Other Retail Centres

Existing retail centres that would compete with retail services at Discovery Point include the Marrickville Metro shopping centre, Rockdale Plaza and Rockdale Town Centre.

Marrickville Metro currently contains over 28,000m² of GFA, including a discount department store and two supermarkets. A proposed expansion of the Marrickville Metro, with an approximately increase in GFA by over 30,000m², has been declared a Part 3A project. If the expansion of Marrickville Metro is approved it will impact on the northern part of the catchment identified by the NAHAS economic consultants (MacroPlan). Considering both these proposals combined, the market would have no remaining capacity to sustain an additional 14,000m² on the site.

The Rockdale Plaza retail centre also offers over 20,000m² of retail GFA, with a discount department store and two supermarkets. The Rockdale Town Centre currently includes a small discount department store, but no supermarket and is identified by Leyshon Consulting (**Appendix R**) as requiring regeneration.

Notwithstanding these existing / expanding centres, an increase of retail floor space within Wolli Creek area is economically sustainable. However, the proposed development at NAHAS is likely to accommodate any feasible significant retail growth within the Wolli Creek area.

In addition, increased retail GFA for the provision of an ALDI supermarket was recently approved as part of the adjoining Proximity development, further limiting the retail competitiveness of the retail services to be provided as part of the Concept Plan.

Leyshon Consulting (**Appendix R**) concludes that even if the proposed NAHAS development were not to proceed, the quantum of retail floor space proposed on the site would need to be reviewed given the constraints from a retailing perspective relating to the site, including the lack of major road frontage, restrictions on the internal road network and limitations of the total retail floor space on the site. Therefore, the retail floor area on the site has been scaled down so that it provides for the daily needs of residents and commuters using Wolli Creek Railway Station, including the capacity for a small supermarket.

6.13.3 Strategic Context

The proposed quantum of non-residential floor area within the Concept Plan is consistent with the role of Wolli Creek within the key regional and subregional planning strategies (i.e. Sydney Metropolitan Strategy and the Draft South Subregional Strategy). It will not unduly impact on the ability for Rockdale to reach their employment capacity target of 13,000 additional jobs by 2031 and reflects the changing nature of commercial development in the local and regional strategic context.

Role of Wolli Creek

The current State planning strategies, including the Metropolitan Strategy and draft South Subregional Strategy, do not identify Wolli Creek as a location for significant non-residential growth. Wolli Creek is classified as a new Village centre within the draft South Subregional Strategy. The classification of Village within the subregional strategy involves:

“A strip of shops and surrounding residential area within a 5 to 10 minute walk contains a small supermarket, hairdresser, take-away food shops. Contain between 2,100 and 5,500 dwellings.”

The nearest major strategic centres identified within the subregional strategy are Hurstville and Kogarah, both identified as Major Centres. The Princes Highway from Wolli Creek to Hurstville is identified as a potential Enterprise Corridor.

According to the Draft South Subregional Strategy, the role of the Enterprise Corridor is *‘to provide a low cost accommodation for a range of local and regional services including start-up **offices**, light industrial, **showrooms**, building supplies and **retail**’*. The potential Enterprise Corridor relates to the land immediately along the Princes Highway, due to it benefiting from high passing traffic, and therefore does not include the site.

The Rockdale City Council strategic direction for Wolli Creek is inconsistent with the State planning strategies, namely in that Council’s website states that the Wolli Creek area will accommodate some 7,000 workers. An analysis of subregional targets (below) does not reveal the need for 7,000 jobs in this area. Under the centres classifications within the subregional strategy, this would classify Wolli Creek as a Major Centre or Town Centre with a significant employment role in the South subregion.

Furthermore, DCP 45 indicates the role of retail development within Wolli Creek to be limited to the *‘day-to-day shopping and service needs of the local community within the precinct but not in the form of a regional shopping centre, major supermarket or bulky goods facility’*.

Although the proposed NAHAS retail centre is not consistent with DCP 45 in this respect, as identified above, the NAHAS site is more suitable than Discovery Point to provide retail services due to the site's direct access to Princes Highway, visibility and accessibility which will draw a greater catchment.

Employment Capacity Target

The Draft South Subregional Strategy identifies an employment capacity target of 13,000 new jobs within the Rockdale LGA between 2001 and 2031. More specifically, the Strategy identifies specific employment capacity targets for Sydney Airport and Environs (4,000 new jobs) and Cooks Cove (7,000 new jobs) within the Rockdale LGA.

Therefore, 2,000 new jobs are required to be accommodated across the remaining sites within the LGA. As there is no specific target identified for Wolli Creek, it is assumed that employment at Wolli Creek will contribute to the target of 2,000 new jobs within all remaining sites of the Rockdale LGA, including other commercial centres such as Rockdale Town Centre, Rockdale Plaza, Brighton and Bexley.

As stated above, Rockdale City Council's strategic direction for Wolli Creek is not consistent with the State planning strategies, in that the provision of 7,000 jobs in Wolli Creek would far exceed the balance of the target of 2,000 new jobs to be accommodated across the Rockdale LGA (outside Cooks Cove and Sydney Airport).

The proposed Concept Plan (including the existing developed commercial space) will still contribute over 500 new jobs, or 25% of the 2,000 jobs required outside of Cooks Cove and Sydney Airport. Although the approved Master Plan would provide the capacity for some 2,700 new jobs, this is not required to meet the overall 13,000 job target.

Other sites which are likely to contribute to the employment capacity target of 2,000 new jobs (outside of Sydney Airport and Cooks Cove):

- the proposed NAHAS development (739 jobs);
- approved commercial Multiplex development (780 jobs), known as Stage 2 of the 'Proximity' development;
- the current 'LEP deferred' site within Wolli Creek (to the south of the site) which is intended for high density commercial development; and
- existing centres in the Rockdale LGA.

In summary, the 13,000 job target can be met as follows:

■ Sydney Airport (Rockdale LGA part):	4,000 jobs
■ Cooks Cove:	7,000 jobs
■ Discovery Point (existing and proposed Concept Plan):	532 jobs
■ NAHAS:	739 jobs
■ Multiplex Stage 2 'Proximity' (including Aldi supermarket):	780 jobs
■ TOTAL	13,051 jobs

Employment growth in other localities would also yield some growth such as the 'LEP deferred' area within Wolli Creek and commercial centres within the Rockdale LGA such as Rockdale, Rockdale Plaza, Brighton, Bexley and the like.

The Leyshon Consulting Report indicates that the reduced job growth within the site, in comparison to the approved Master Plan, will not impact on the ability for the Rockdale LGA to reach their employment capacity target of 13,000 new jobs, irrespective of the determination made on the NAHAS proposal.

In addition, Leyshon Consulting identifies that if recent employment growth trends in the Rockdale LGA are sustained over the period of 2006-2031, the Rockdale LGA will reach their 2031 target of 2,000 additional jobs (outside Sydney Airport and Cooks Cove), even without the major employment generating projects (including Discovery Point).

6.14 Social Issues

Leyshon Consulting were also appointed by Australand to examine the social implications of the Concept Plan (refer to **Appendix R**). The main social considerations of the Concept Plan are summarised below.

6.14.1 Housing Supply and Choice

The Concept Plan is seeking approval for a housing mix across the development site as follows:

- Studio / one bedroom apartments: Maximum 50%;
- Two bedroom apartments: Minimum 40%; and
- Three + bedroom apartments: Minimum 10%.

The proposed mix is supported by an analysis of the residential market in this area. We note the mix is not dissimilar to other unit mixes encouraged in inner city renewal areas such as Green Square and Rhodes. As an example, the draft City of Sydney Design Excellence DCP encourages:

- a maximum 45% combined studios and one bedroom apartments;
- minimum of 40% two bedroom apartments; and
- minimum 15% three bedroom apartments.

The housing mix proposed within the site is suitable given the demographic trends and the realities of the housing market in Wolli Creek, Rockdale LGA and the wider Sydney region. More specifically, the housing mix is suitable as it adds to the diversity in housing mix and sizes in comparison to the development to date in the Rockdale LGA and Wolli Creek while reflecting recent demographic and market trends in the area. The proposed dwelling sizes will also ensure more affordable housing options are available on the site.

Development to date

There is a predominance of two bedroom apartments in the locality and the wider Rockdale LGA. The proposed mix will add to the diversity of the overall mix in the locality given the existing predominance of two bedroom apartments, such as:

- Wolli Creek, with the majority (64%) of currently constructed apartments being two bedroom apartments;
- the Rockdale LGA, with the majority (75%) of 2006 Census stock of apartments being two bedroom apartments;
- similar housing mixes incorporated within other large scale redevelopment sites such as Bonar Street (70% of two bedroom apartments) and Proximity (73% of two bedroom apartments).

Leyshon Consulting finds that by increasing the availability of one bedroom/studio apartments, the proposed dwelling mix in the Concept Plan will have the effect of diversifying the supply of residential dwellings in the Wolli Creek area away from the preponderance of two-bedroom units.

Demographic trends

Demographic trends for the Rockdale LGA and the Sydney Statistical Division (Sydney Region) indicate a favouring demand for smaller multi-unit residential dwellings. The most significant growth in household types in between 2001 and 2006 in the Sydney Region were:

- lone person + 22,843 households (+ 7.5%)
- couple family without children + 18,041 households (+ 5.7%)
- one parent families + 11,346 households (+ 7.6%).

In 2006, over 77% of all flats and apartments in the Sydney Region were occupied by one or two persons. Leyshon indicates that the demand for apartments is generally driven by smaller households and the significant growth of smaller households within the Sydney Region will increase demand for apartments, and specifically, smaller apartments.

These figures are reflected in the demographic trends in the Rockdale LGA, which is also experiencing generally strong growth in one and two person households. The Rockdale LGA experienced a more significant increase in two person households between 2001 and 2006 than the Sydney Region.

The proposed housing mix will therefore be suitable according to the demographic trends which indicate a growing number of smaller households both within Sydney and the Rockdale LGA.

Market trends

Leyshon indicates that the majority of demand within the Wolli Creek area is for one and two bedroom apartments predominantly from buyers aged less than 40 years, reflecting Wolli Creek as an 'entry point' location for first home buyers in Sydney.

Leyshon considers the proposed mix and quantum of apartments contained in the Concept Plan as appropriate given:

- the actual increase in units proposed within the Concept Plan (compared to the approved master plan) is not of a sufficient scale to lead to an oversupply given their delivery over an extended time period;
- With the increased services available to residents to Wolli Creek improved, the capacity of the site to absorb more residents will increase;
- the quantum of dwelling numbers will improve the available range, quality and choice of apartments, improving options for future residents to take advantage of the favourable attributes of the site for residential development.

Leyshon considers the proposed mix of apartments contained in the Concept Plan is appropriate given the realities of the housing market that applies in Wolli Creek and Rockdale, as outlined above.

In recognition of the fact that market conditions can change over time, the Concept Plan draft Statement of Commitments allows the unit mix to be reassessed in subsequent Project Application stages, similar to the way a staging plan can be updated based on market conditions.

6.14.2 Apartment sizes

The Concept Plan proposes residential apartment sizes of:

- Minimum 40m² for studio apartments;
- Minimum 50m² for 1 bedroom apartments;
- Minimum 70m² for 2 bedroom apartments;
- Minimum 100m² for 3 + bedroom apartments.

It is noted that the above minimum apartment sizes are consistent with or greater than the suggested standardized apartment sizes (that do not exclude affordable housing) specified in the RFDC “Rule of Thumb” for apartment layouts, which are 38.5m² for studios; 50m² for 1 bedroom apartments; 70m² for 2 bedroom apartments and 90m² for 3 bedroom apartments. The above minimum apartment sizes are less than the examples of recommended internal areas for apartment types set out in Part 3 of the Residential Flat Design Code. However, it is noted that the apartment types set out in the RFDC does not represent a comprehensive list of all relevant apartment types and does not adequately address for this site the objectives and better design practice guidelines for apartment layouts in the RFDC, particularly in terms of determining appropriate apartment sizes in relation to geographic location, market demands and affordability.

Discovery Point Pty Limited has determined the minimum apartment sizes following almost a decade of experience in developing and selling apartments on the site. New apartment development must consider the price of semi-detached cottages, dwelling houses and townhouses in the local area relative to the cost of new apartments. It would be uneconomic to develop new apartments which cost more than or similar to existing attached and detached dwellings in the surrounding area. It will therefore be important to offer a range of apartment styles, types and sizes to cater for the local demand. The proposed Concept Plan minimum apartment sizes will enable the development of apartments that contribute to housing affordability in the Sydney Region without impacting on the amenity of such apartments.

Furthermore, the indicative design scheme prepared by Bates Smart Architects can be used to demonstrate the anticipated range of apartment sizes notwithstanding the above minimum sizes. Notwithstanding the above proposed minimum sizes, the indicative design scheme prepared by Bates Smart Architects illustrates apartments up to the following sizes:

- 45m² for studio apartments;
- 70m² for 1 bedroom apartments;
- 95m² for 2 bedroom apartments;
- 125m² for 3 + bedroom apartments.

In addition to apartment size, a range of factors also create amenity within a dwelling. It is considered that the cross ventilation, apartment layouts, views, solar access, privacy, private and communal open space described throughout this EAR will in addition contribute to superior levels of amenity being provided for residents.

The Concept Plan proposes to set minimum apartment sizes as a development parameter for all future project applications to ensure certainty and clarity is provided in relation to this issue. The proposed rates recognise local market conditions and housing affordability without impacting negatively on residential amenity. It is recognized that in some individual circumstances apartment sizes may on occasion need to vary from the standardised sizes set in the Concept Plan. Therefore, a Statement of Commitment has been included that allows minor variations to the minimum apartment sizes to be considered where a better outcome can be demonstrated in relation to apartment efficiency, functionality, amenity and outlook.

6.14.3 Community Services and Facilities

The approved Master Plan proposed approximately 1,200 apartments across the site, equating to 2,532 persons (assuming an occupancy rate of 2.11 persons per dwelling, as indicated in the 2006 Census). Currently, 311 apartments have been constructed, or are currently under construction, under the Master Plan.

The Concept Plan estimates a further 1,200 to 1,500 apartments will be developed on the site (subject to final mix) which, including those dwellings already constructed under the Master Plan, will equate to around 1,500 to 1,800 apartments or around 3,200 to 3,800 residents. The Concept Plan will therefore result in between an additional 300 to 600 dwellings and around 600 to 1,200 additional residents within the site, however, it will also result in a reduction of approximately 2,150 commercial workers on the site (compared to the approved Master Plan).

Due to a higher than average gross floor space per dwelling (at 110m²) which was assumed for Wolli Creek and that the planned residential floor space is greater than that within the approved Master Plan, the Rockdale Section 94 Contributions Plan 2004 underestimates the likely number of future apartments and therefore the likely number of future residents within Wolli Creek and the Discovery Point site.

However, the Contributions Plan overestimates the likely number of apartments and residents to have settled in the area by 2014. Therefore, the future number of residents can be reviewed in the context of future Contributions Plans post 2014. Hence, the additional population envisaged under the Concept Plan would not have adverse implications for the provision of facilities for the resident population foreseen in the Section 94 Plan to 2014 (Leyshon Consulting).

The facilities envisaged for Discovery Point under the Section 94 Plan include a range of works associated with improving access and conditions for pedestrians and cyclists and other general local road improvements. The Section 94 Plan also includes the provision for a multi-purpose community facility, including a child care centre, community services management, community meeting spaces and informal culture of educational and entertainment services.

Leyshon finds that it is unlikely the increase in population on the site, as a result of the proposed quantum of residential apartments, will have any adverse effect on the operation of the proposed community facility under the Section 94 plan or the proposed physical works related to roads, pedestrian and cyclist facilities.

However, given the residential development in the Wolli Creek area is likely to exceed that envisaged within the existing Section 94 Plan, it is recommended the Section 94 Plan be revised in 2014 to take into account the increased population within the Wolli Creek area (including Discovery Point).

Social Impact

The Leyshon Report (**Appendix R**) identifies that the increase in population as a result of the Concept Plan is unlikely to give rise to adverse social impacts. The increase in population will provide greater opportunities for more people to live within a highly accessible public transport location in close proximity to major work centres (Sydney Airport, Mascot and Port Botany).

Leyshon concludes that the increase in residential population proposed on the site will not have an adverse impact on the community services proposed within the site. The increased residential population will assist to support the proposed retail and non-residential services within the site such as restaurants and entertainment facilities.

6.15 Access and Mobility

Morris Goding Accessibility Consulting have prepared an Accessibility Report to assess the suitability of the Concept Plan from an access perspective (refer to **Appendix S**). The report addresses the potential for accessibility of design of each of the building envelopes and the external domain as proposed within the Concept Plan.

The Accessibility Report identifies that:

- An accessible entrance can be achieved from the main pedestrian footpath to the main entry to each of the building envelopes proposed within the Concept Plan, compliant with the Building Code of Australia, the draft Disability Discrimination Act (DDA) Premises Standards and Rockdale Councils Access Development Control Plan (see indicative access points identified within **Figure 46**);
- Due to the highly accessible nature of the site, all buildings are located within a close accessible distance to Discovery Point Park and Wolli Creek Railway Station;
- The use of level pathways and appropriate road crossings will make the journey between those buildings located the furthest away from the railway station to the railway station more efficient for wheelchair users and compliant with the equity and dignity principles of the DDA. This will be addressed further in the detailed future Project Applications;
- The path of travel from the residential lobby area within each residential building to each unit above the ground floor is made available via the use of passenger lifts, traversable by wheelchair users, which will be compliant with the Building Code of Australia and the draft DDA Premises Standards;
- The use of passenger lifts within each residential building will achieve a level of equitable, dignified and independent linkage from all residential apartments to any common use facilities associated within the building;
- Due to the form of the building floorplate within each residential building and the commercial building, the circulation areas in front of all lifts on all floors will be able to achieve appropriate circulation spaces as to allow for appropriate manoeuvrability for wheelchair users;
- Continuous accessible paths of travel can be provided to all residential apartments within each residential building, including adaptable apartments contained within the building. Accessible pathways can also be achieved to adaptable unit car bays, which will be required for each adaptable unit; and
- The path of travel from the commercial lobby of Building 14 to each unit above the ground floor is made available via the use of 2 passenger lifts, traversable by wheelchair users, compliant with BCA and the draft DDA Premises Standards. In addition, the use of the 2 passenger lifts will achieve a level of equitable, dignified and independent linkages from all commercial areas to any common use facilities associated within the building.

External Public Domain

The proposed street layout (as indicated on DA3-001 provided under separate cover) will provide for future design that facilitates access to and from the Princes Highway, Magdalene Terrace and other neighbouring streets to Discovery Point Park, Tempe House, St Magdalen's Chapel, Wolli Creek Railway Station and the Cooks River foreshore. A continuous network of accessible pathways can be achieved from all residential buildings to/from Discovery Point Park and the Cooks River foreshore. Detailed levels and compliance with accessible paths of travel will be demonstrated in the detailed applications for each building.

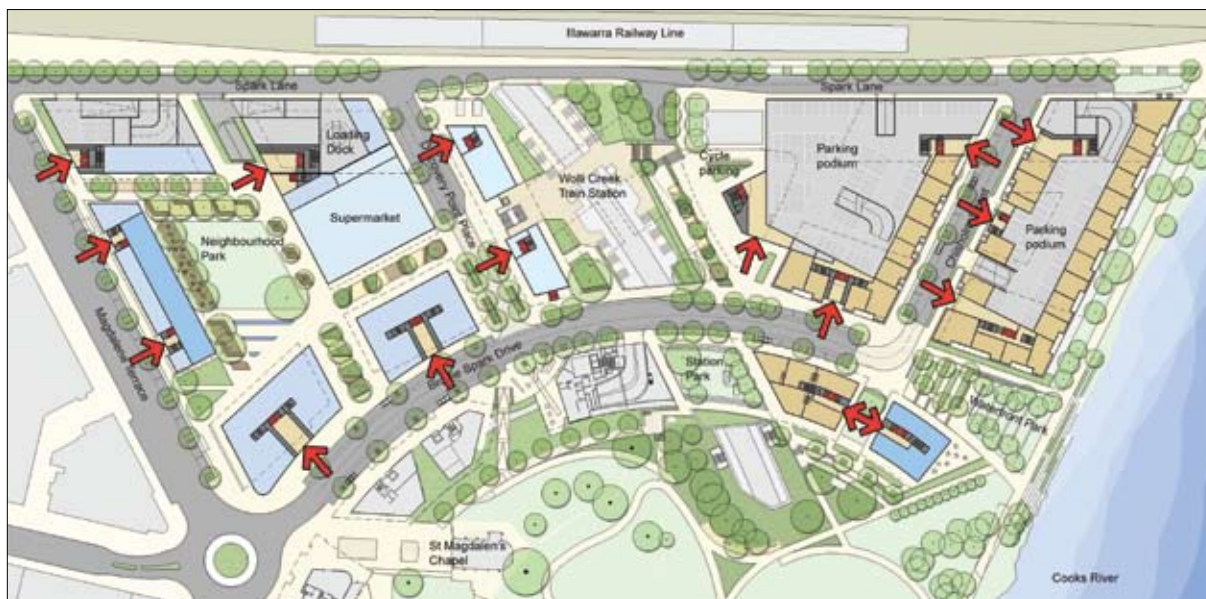


Figure 46 – Indicative access points to each building within the Concept Plan
Source: Bates Smart

The review of the Concept Plan documentation reveals that the proposed building envelopes are capable of complying with the relevant Standards and Regulations, being:

- Federal *Disability Discrimination Act 1992* (DDA);
- Draft DDA Premises Standards (to be incorporated into the BCA in May 2011);
- Building Code of Australia (BCA) Part D3;
- AS 1428.1-2009 – (Design for Access and Mobility);
- AS 1428.4 – (Tactile Ground Surface Indicators);
- AS 1735.12 – (Lift facilities for persons with disabilities); and
- AS 2890.6 – (Car parking).

Confirmed demonstration of compliance will occur during the detailed application stage for each building, including consideration of public domain areas for each stage. In addition, Morris Goding Accessibility Consulting makes the following specific recommendations to occur during the detailed project application stage for each building:

- provide 10% adaptable units;
- provide 1 adaptable unit car bay for each adaptable unit;
- provide an accessible toilet within every bank of male and female toilets in retail and commercial area. The accessible toilet to have internal dimensions in accordance with AS1428.1:2008; and
- retail accessible car bays will be 2% of total retail car bays and commercial accessible car bays will be 1% of total commercial car bays.

These requirements have been included in the draft Statement of Commitments at Section 7.

6.16 Visual and View Analysis

Photomontages prepared by BASE (refer to **Appendix T**) have been prepared to support a View Analysis of the Concept Plan to the site's regional and immediate context and impacts on views to and through the site. Visual amenity and impacts resulting from the Concept Plan, when viewed from locations outside of the site, are also considered.

Australand/Landcom has also prepared an animated indicative flythrough for the Concept Plan to support the analysis, provided under separate cover.

The photomontages were prepared from locations identified by the project team following consultation with the Department of Planning.

Existing Views

The site has views over Botany Bay and the estuarine river system which flows into it. Directly to the north, the site has views onto Waterworth Park and Creek located on a peninsula defined by Wolli Creek and Cooks River. To the northeast, the site has views to the Sydney CBD in the distance. To the east, the airport is also visible. Directly south, the site has views of the Kogarah Golf Course and the Cooks River in the distance.

The proposed building heights within the Concept Plan will further extend opportunities for district views to be made available from future apartments on the site.

View Impacts

The site is located within an area currently in transition to high density mixed use development forms. As the majority of the site is currently vacant, any large scale mixed use development proposed on the site (as is permissible under the existing planning controls and approved within the existing Master Plan) will have an immediate visual impact on the local and regional views to and from the site.

Furthermore, as the majority of the site is currently vacant, the development of the site for high density mixed use development will impact on the existing views available from the surrounding developments. However, in comparison to the existing Master Plan, the use of taller, more slender buildings in carefully located areas reduces bulk across the site and therefore increases opportunities for views to be retained from the existing surrounding buildings, particularly views to the Cooks River to the north and maintenance of views through the site to Discovery Point Park.

Response to Local Context

The Concept Plan responds to the existing local context through the following measures:

- the Concept Plan will retain the existing views from Tempe House to Fatima Island;
- the proposed range of building heights respond appropriately to existing surrounding development;
- the setback of Buildings 7, 8 and 10 from the Cooks River maintains the visual connection along the river foreshore;
- the Concept Plan has the visual appearance consistent with the future nature of the local area as a high density mixed use precinct;
- the Concept Plan will maintain views from north of the site to Tempe House;
- views from other tall buildings in the locality such as the upper levels of Proximity will continue over Verge towards Discovery Point Park and the Cooks River;

- the existing Greenbank, Verge and Vine residential buildings will continue to enjoy uninterrupted north and north easterly views over Discovery Point Park towards the Cooks River; and
- the two landmark buildings, Building 2 and Building 13, act as gateway and urban marker buildings, signifying the main road intersection at Brodie Spark Drive and Magdalene Terrace, the entrance into the Discovery Point development, and marking the location of the railway station.

Internal Visual Amenity

The Concept Plan considers amenity and views within the site through the following design outcomes:

- the continuation of the heritage arc maintains the visual delineation between the heritage precinct (including Discovery Point Park) and the new development along Brodie Spark Drive;
- the alignment of Spark Lane will continue the visual connection to the Cooks River;
- the angles of Buildings 6 and 7 and Buildings 8 and 11, open up to provide a visual connection from the railway station to Waterfront Park and the Cooks River;
- the location of Station Park, between the Vine building (currently under construction) and Building 6, will continue the visual link between Discovery Point Park and the railway station;
- the reduction in the use of shared podium buildings within the site will reduce the visual dominance and the seeming 'wall of development' as seen by pedestrians, as within the existing Master Plan;
- the use of residential 'townhouse typologies' will screen above ground car parking and improve the visual amenity for pedestrians in the public domain;
- the alternating east-west pedestrian and vehicle through-site links ensure visual connections will be provided throughout the site and have been designed to maximise visual connections with Discovery Point Park;
- the proposed use of the neighbourhood park and roof top common podiums provide attractive outlooks for residents in the adjoining residential buildings;
- the two landmark towers have been designed to maximise views for all apartments, with the Cooks River and Sydney CBD to the north, Waterworth Park to the west and the Botany Bay and Kogarah Golf Course to the east; and
- the building envelopes in the southern precinct will maintain visual connections between Magdalene Terrace, the new neighbourhood park and Village Square and the railway station.

6.17 Traffic and Transport

Transport and Traffic Planning Associates (TTPA) has prepared an assessment of the traffic, transport and accessibility implications for the proposed Concept Plan (refer to **Appendix G**).

Car Parking

As previously stated, Concept Approval is sought for parking rates to be adopted in future Project Applications.

- Maximum 1 space per studio and one bedroom unit;
- Minimum 1 space and maximum of 2 spaces per two bedroom unit;
- 2 spaces per three + bedroom units;
- Minimum 1 visitor space per 20 residential units;
- Minimum 1 space per 50m² of non-residential GFA (commercial);
- Minimum 1 space per 35m² of non-residential GFA (retail).

Discovery Point Pty Limited has determined the parking rates following almost a decade of experience in developing and selling apartments on the site. We note that the Rockdale Council Parking and Loading Code specifies:

- 1 parking space per small/medium dwelling;
- 2 parking spaces for a large dwelling (defined in the PSO as above 85m², comparable to a two bedroom apartment);
- Visitor parking, one space per 4 dwellings (or no visitor parking if commercial component of on-site parking is available after hours);
- Retail, 1 space per 25m² GFA (35m² for Rockdale Centre); and
- Offices, 1 space per 40m² (60m² for Rockdale Centre).

The existing approved Master Plan is not however subject to any parking rates and instead the Master Plan consent (DA500/01) is conditioned to provide a minimum of 2,240 spaces on the site. In contrast the subpodium consent (DA600/01) as amended requires the provision of a maximum of 2,210 spaces.

The proposed car parking provision is considered to provide a balanced and flexible outcome in that:

- The proposed maximum limit for studios, one bedroom and three bedroom apartments is consistent with Council's Car Parking Code;
- The range between one and two parking spaces for two bedroom apartments is an appropriate response to the 'large dwelling' parking rates in the Code and the site's proximity to public transport;
- Whilst specific visitor parking for the Concept Plan is set at 1 space per 20 residential units, consideration of the availability of retail parking and on street parking after hours should also be considered. The provision of visitor parking is commensurate with the site's accessible location and desire to minimise potential commuter parking in visitor spaces;
- The retail parking provision is less than the overall Rockdale LGA criteria but equates to the comparable Rockdale Town Centre criteria of 1 space per 35m² of GFA. The provision for retail parking is appropriate as the small floor space is not considered to be an 'external attractor' providing largely for residents, workers and public transport passengers; and
- The commercial parking rate is less than the overall Rockdale LGA criteria but is generally consistent with the comparable Rockdale Centre criteria of 1 space per 60m² and is consistent with the principle of providing more constrained worker parking in an accessible location.

The indicative floor plans prepared by Bates Smart show one potential development option for the site which could be accommodated within the approved Concept Plan building envelopes and includes 73 studio apartments; 660 one bedroom apartments; 587 two bedroom apartments, 147 three bedroom apartments (total 1467 apartments); 4,385m² of retail and 5,576m² of commercial. It is apparent that the total car parking spaces to be provided in the eventual overall development of the site will be dependent on final mix and design of subsequent detailed project applications. However, assessment of the overall traffic and parking implications for the Concept Plan has been based on the indicative mix and number of apartments.

Based on the parking rates sought, it is important to note that a maximum parking outcome is unlikely to be realised. Furthermore, it is realistic to assume that greater than a 'minimum' parking outcome will be achieved as some one bedroom units will have a car space and some two bedroom units will have two car spaces. Based on the application of the proposed rates and the Concept Plan indicative scheme mix of apartments, retail and commercial space, a minimum car parking figure of 1,191 car spaces and a maximum number of car spaces (given the proposed car parking rates) of 2,520 car spaces (in addition to the 381 spaces already constructed/under construction) is assessed. The maximum number of car spaces has been used for traffic modelling purposes, but it is anticipated that a considerably fewer number of car spaces will be provided on site. As an example the indicative basements prepared by Bates Smart illustrate a likely scenario for parking provision on the site. The indicative plans include 1,524 car spaces in addition to the 381 spaces already constructed or currently under construction. Based on the preceding, Discovery Point Pty Ltd seeks maximum and minimum parking rates to provide flexibility to respond to the future mix and detailed design, whilst allowing the consent authority a degree of certainty in specifying parking rates in the instrument of approval.

Potential Traffic Impact

Previous planning on the site, most notably the approved Master Plan and amendments have been accompanied by various traffic assessments. The most recent assessments (TTPA, 2006) estimate between 1,400 and 1,680 vehicle trips per hour. The Part 3A Concept Plan proposes changes to the Master Plan development outcome with reduced non-residential floor space and increased residential apartments.

As noted above, the final development outcome on the site will be determined at the detailed Project Application stage when final mix and number of dwellings is known. For the purpose of assessing the anticipated traffic generation for the Concept Plan, the elements of the indicative design scheme have again been used. TTPA have then utilised RTA Development Guideline criteria to assess the likely traffic generation of the proposed Concept Plan in conjunction with the existing apartments built or under construction (311 apartments). The projected traffic generation is estimated at 967 vehicle trips per hour.

Thus it is apparent that the projected traffic generation under the proposed Concept Plan will be significantly less than that of the previous Master Plan assessments. The project outcome is only some 58-69% of that projected under the Master Plan and therefore the implications for all of the access intersections is significantly better. As such, the Concept Plan will not require road/intersection upgrade works.

Vehicle Access and Servicing

Spark Lane remains the services and vehicular access route with access to the majority of car parks and for service vehicles. The traffic, transport and access assessment prepared by TTPA (**Appendix G**) indicates that with the car parking and servicing access along Spark Lane, conflict between vehicles, cyclists and pedestrians will be avoided. Furthermore, TTPA concludes that the entrances to the basement car parking areas are located on sections of the road that are straight, relatively level and appropriate sight distances will be available.

The proposed accesses to the Concept Plan building envelopes will comply with the design criteria of AS2890.1 and 2 and will accommodate all vehicles requiring access to the site.

Although the detailed design of service vehicles will be provided within the future Project Applications, TTPA has determined the proposed provision of service vehicles along Spark Lane will be suitable and appropriate.

Pedestrian Environment

TTPA found that the Concept Plan makes provision for the pedestrian environment through the following measures:

- a 'vehicle free' central corridor linking Magdalene Terrace and Discovery Point Place;
- reduced road crossing widths at intersections and along Discovery Point Place to the bus/rail interchange;
- numerous 'vehicle free' plaza areas;
- continuous footways along the block frontages with numerous 'set back' widenings;
- a high level of surveillance, lighting and urban design/landscaping;
- minimal conflicts at vehicle accesses; and
- access integration with Discovery Point Park and the external pedestrian network.

The Concept Plan also proposes additional pedestrian streets including a north-south street to the railway station and east-west pedestrian streets running through the development to the park.

Cycle Facilities

TTPA found that the Concept Plan makes the provision for cyclists through the following measures:

- proposed bicycle lanes along Cooks River foreshore and Brodie Spark Drive allowing for connection to shared footway facilities on the internal network;
- bicycle stands for staff and shoppers;
- 'end of trip' facilities for staff;
- allowance for connection to the external network including the Regional Cycle Route (Kurnell to Homebush Bay); and
- underground bike parking for residents.

In addition, the proposed new access to the station will be provided with bicycle and motorcycle parking bays.

Public Transport

TTPA found that the Concept Plan makes the provision for public transport services through the following measures:

- maintain access, standing and interchange for bus services with the railway station during the staged construction process as indicated on **Figures 51-54**;
- the provision for buses to suitably access the site via Magdalene Terrace, Spark Lane and Discovery Point Place and depart via Brodie Spark Drive with the completed development as indicated on the turning path;
- the provision of appropriate segregated standing for buses (2 spaces) on Discovery Point Place adjacent to the railway station entrance including shelter, lighting and other facilities;

- the provision of taxi rank on Discovery Point Place;
- the provision of footways and internal links to facilitate travel between bus and rail services; and
- the provision of retail services within the precinct reducing the need for residents and commuters to travel outside of the site for daily needs (and therefore use private vehicles).

TravelSmart

The Concept Plan incorporates the following measures consistent with a TravelSmart program:

- the incorporation of pedestrian and cycle pathways throughout the site, including links to existing pathways adjoining the development;
- maintaining bus and pedestrian access to the railway station during construction of the development;
- locating the commercial building immediately adjoining the railway station to ensure employees are encouraged to use public transport;
- incorporating retail services within the site to provide for the daily services of residents, commuters and workers on site, reducing the need for multi stop trips and therefore the use of the private vehicle;
- the incorporation of four car spaces allocated to a potential car share program;
- the reduction in car parking spaces to encourage the use of public transport; and
- the design of the road layout facilitates bus access and circulation.

TTPA concludes that the Concept Plan will:

- provide for a 50% modal split to other transport modes for work related trips and preclude commuter parking;
- provide a new road link to facilitate access and circulation;
- provide sufficient parking to adequately service the development while at the same time managing the supply of parking to discourage excessive private car usage;
- provide a safe and connected pedestrian and cyclist movements including vehicle free pedestrian corridors which were not a feature of the master plan;
- have suitable and appropriate vehicle access, internal circulation and servicing arrangements; and
- will not result in adverse traffic implications and will have a traffic generation less than that under the existing master plan.

The various issues raised by transport authorities in the preparation of the DGRs have been responded to in the Concept Plans and documentation, with specific responses provided in the TTPA traffic report.

6.18 European Heritage

A Statement of European Heritage Impact has been prepared by Tanner Architects in relation to the proposed Concept Plan at Discovery Point (**Appendix U**). The report has been prepared to assess the impact of the proposed development on the Tempe House and St Magdalen's Chapel heritage precinct within the area subject to the proposed Concept Plan.

Assessment of Heritage Significance

Tempe House and St Magdalen's Chapel are identified on the State Heritage Register as a 'complex group' due to their historical significance in relation to their Neo-Classical Georgian architecture, the association with previous occupants and the largely unaltered landscape setting. The garden and grounds of Tempe House are significant at a State level due to their location along the Cooks River and their development by A.B. Spark.

The maintenance of views to and from Tempe House and St Magdalen's Chapel, particular from Tempe House to the Cooks River and Fatima Island is identified for retention.

An endorsed Conservation Management Plan (CMP) was prepared for the buildings by Tanner Architects in 2001. **Figure 17** identifies the extent of the State Heritage Register listing.

Impact Assessment

A detailed assessment has been undertaken against the provisions of the:

- Conservation Management Plan 2001;
- State Heritage Register listing;
- Rockdale LEP 2000 provisions and DCP 45.

A summary of assessment is provided below.

The proposed Part 3A Concept Plan does not involve any works to the heritage items and only very minor works within the heritage curtilage. Of the 14 buildings proposed within the Concept Plan, Buildings 6 and 7 are located within the immediate vicinity of the heritage items. Buildings 6 and 7 are located to the north-west of Tempe House and St Magdalen's Chapel (outside the heritage precinct), and will continue the heritage arc developed by the existing development (Verge and Vine buildings) along Brodie Spark Drive.

The location of the buildings within the Concept Plan, particularly Buildings 6 and 7, will maintain the principal views of the heritage item within their existing setting from the north and north-east of the site as well as between Tempe House and St Magdalen's Chapel and Wolli Creek Railway Station. The proposed building heights of Buildings 6 and 7 have a maximum RL 50.5 (indicative number of 12 storeys), consistent with the existing buildings located on the arc and less than the other buildings proposed west of Brodie Spark Drive.

The proposed landscape works are complimentary to the heritage items, including the new pathway around and through the heritage curtilage which will enhance the pedestrian experience of Tempe House and St Magdalen's Chapel. The proposed landscape works will also provide a buffer between the heritage items and the new development along the arc of Brodie Spark Drive.

Although the scale of the buildings proposed within the Concept Plan will make them visually dominant in the vicinity of the heritage items, the proposed development is not considered to adversely impact on the significance of Tempe House, St Magdalen's Chapel or the precinct as set out in the endorsed Conservation Management Plan (CMP, 2001). The scale of Building 6 and 7, and the other buildings to the east of the heritage arc, have been proposed in response to the relationship between the new buildings with the heritage item, the established heritage curtilage will be retained and the building placement will continue the heritage arc established along Brodie Spark Drive.

Overall the Part 3A Concept Plan presents building envelopes, landscaping and site works and promotes views to and from the heritage items that are appropriate from a heritage perspective.

Recommendations

As part of the future Project Applications for Building 6 and 7, the detailed building design including materials and finishes, and articulation of the building form is to ensure that the new buildings are sympathetic to the heritage items, their curtilage and the heritage arc along Brodie Spark Drive. This is included in the Statement of Commitments at Section 7.

6.19 Non-Indigenous Archaeology

A Statement of Heritage Impact for Non-Indigenous Archaeological Remains has been prepared by Casey and Lowe Pty Ltd Archaeology and Heritage (refer to **Appendix V**). The report has been prepared to assess the impact of the proposed development on the non-indigenous archaeological remains of structures, features or artefact deposits belonging to the Tempe House estate.

The key aspects of the Statement of Heritage Impact are outlined below.

Assessment of Significance

The Discovery Point site includes Tempe House and St Magdalen's Chapel which are listed on the State Heritage Register. Previous archaeological fieldwork has been undertaken in accordance with Part 4 of the EP&A Act relating to the existing Master Plan consent, including:

- Archaeological Assessment of Tempe House and Grounds (2001);
- Archaeological Management Plan Tempe House and Grounds (2002); and
- Archaeological Investigation of Tempe House and Grounds (2010), as required by the Management Plan.

The Archaeological Investigation (2010) divides the property into seven main areas, as identified on **Figure 47**. The proposed Concept Plan applies to Areas 6 and 7 and parts of Area 4 and 5.

The Statement of Heritage Impact for Non-Indigenous Archaeology identifies the remains of the Gardener's Cottage and Pine House which belonged to the 1840s development of Alexander Brodie Spark's estate and garden and a wharf structure to the north of the site, as potential locations for archaeological remains.

The garden belongs to a rare example of a mid-nineteenth century planned estate and is closely associated with Spark and his vision of his Tempe Estate. Because of the likely limited nature of any archaeological remains, they have a local level of heritage significance. **Figure 48** shows the approximate location of each of the potential archaeological relics in relation to the site.

The archaeological items are not listed on any heritage register and are outside the Tempe Housing State Heritage Register area. They do, however, fall under the relics provisions of the NSW *Heritage Act 1977*.

Although the land has been subject to various impacts, including soil remediation, it is unlikely that archaeological remains have survived *in situ*.

Impact Assessment

Any surviving archaeological remains of the garden or its buildings within the development area will be removed by the proposed works. Any remains of the Gardener's Cottage and Pine House may have been impacted by the remediation of the areas or other modern impacts and, if timber buildings, their remains may also be restricted to postholes and artefact deposits rather than structural remains. The remains of the wharf are unlikely to be substantial. It is not proposed to test the site of the wharf as the remains are considered to have limited significance.

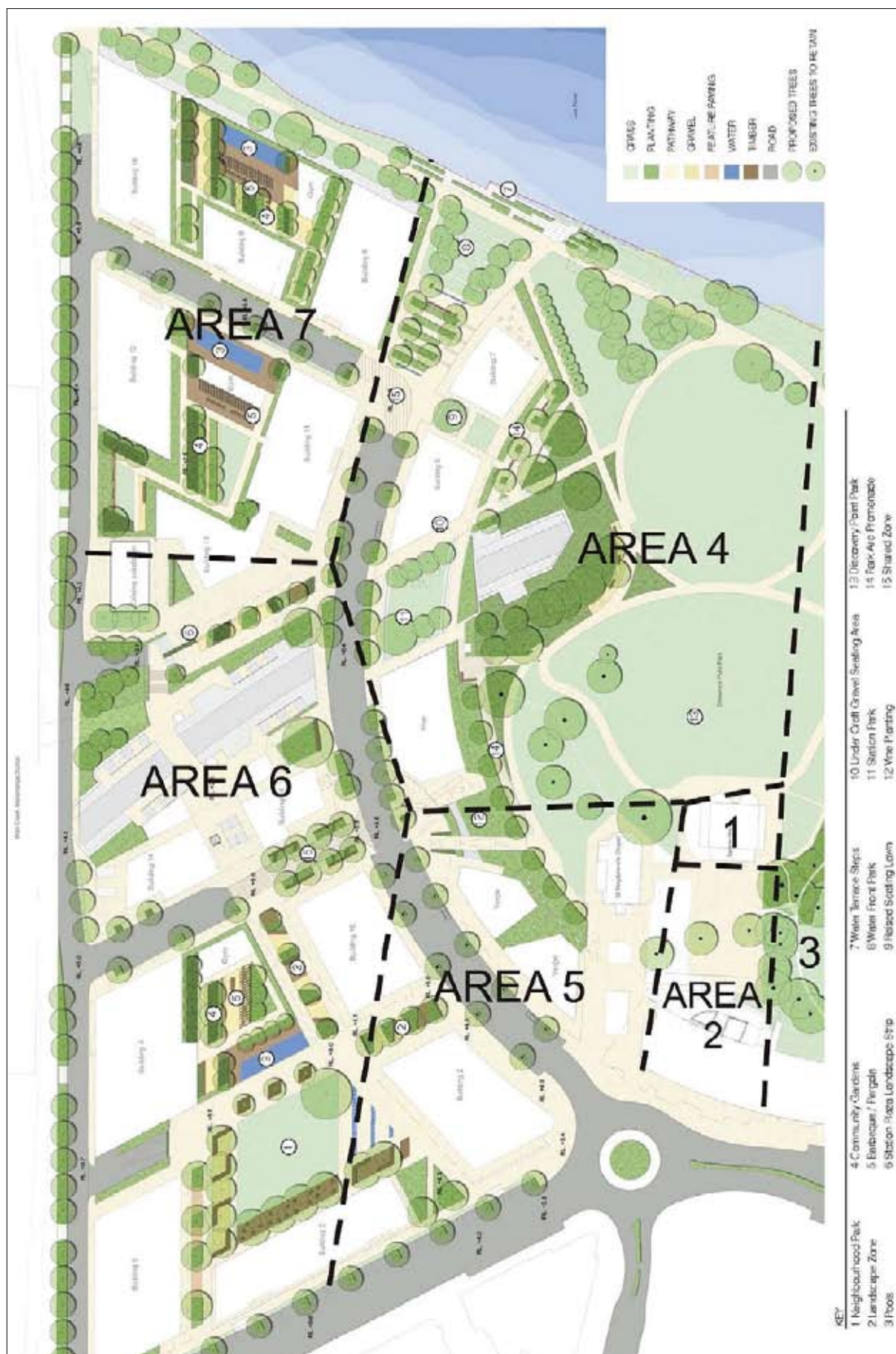


Figure 47 – Archaeological Investigation (2010) Areas
Source: *Casey and Lowe and Turf Design*



Figure 48 – Concept Plan area overlaid with plan (c.1841) showing location of Gardener's Cottage, Pine House and wharf
Source: (Casey & Lowe Non-Indigenous Archaeology 2010)

Recommendations

The Statement of Heritage Impact for Non-Indigenous Archaeology concludes that the impact of the proposed Concept Plan is no greater than the impact of the Master Plan already approved on the site. However, it is recommended that:

- The management of the potential archaeological remains of the Gardener's Cottage and Pine House should be in line with the approved Archaeological Management Plan which covered Area 6 (Casey and Lowe 2002). As such, the likely location of these buildings should be determined through triangulation of historic plans and any remains be recorded in detail using archaeological excavation, detailed planning and GIS survey and mapping; and
- Should substantial intact archaeological deposits or features not identified in the Archaeological Assessment be discovered, work must cease in the affected area(s) and the Heritage Office contacted for advice. Additional assessment and approval may be required prior to works continuing in the affected area(s) based on the nature of the discovery.

These recommendations have been incorporated into the draft Statement of Commitments at Section 7.

6.20 Indigenous Archaeology

An Aboriginal Heritage Impact Statement has been prepared by Jo McDonald Cultural Heritage Management Pty Ltd (refer to **Appendix W**). The report was prepared to assess the impact on Aboriginal heritage from the Part 3A Concept Plan taking into account previous archaeological investigations within Discovery Point and management recommendations. The key aspects of the Aboriginal Heritage Impact Statement are outlined below.

Archaeological Background

The study area falls within the boundaries of the Metropolitan Local Aboriginal Land Council (MLALC). The MLALC was consulted during all previous investigations of Aboriginal heritage on the site, and during the applications for section 87 and section 90 permits for excavation works under previous consents on the site. A copy of the Aboriginal Heritage Impact Statement was forwarded to MLALC for their comments.

As identified within Section 3.9, several studies of Aboriginal heritage have been conducted within the site. Of particular importance is the 2004 salvage excavations undertaken to locate the historic garden areas of Tempe House, during which a number of Aboriginal stone artefacts were uncovered. The land subject to the 2004 excavation is identified as Zone 1 (Previous Study Area) on **Figure 50**. The conclusions of the 2004 excavations include:

- the archaeological salvage was completed in accordance with the conditions of the NSW National Parks and Wildlife section 90 Consent and Permit to salvage (#2016) and there is no requirement for further archaeological investigation in this area in relation to the proposed development at Discovery Point;
- the legal obligations of the client under the terms of permit #2016 relating to Aboriginal objects have been completed; and
- Indigenous and archaeological values are to be included in the Conservation Management Plan for Tempe House.

Impact Assessment

A Land Use Impact Assessment was carried out by Jo McDonald Cultural Heritage Management Pty Ltd to determine known disturbances and impacts on the study area of the Part 3A Concept Plan. Highly significant archaeological information has been recovered from the site, including an occupation date of 10,700 years before present. The site also represents a rare example of Aboriginal occupation in an estuarine landscape throughout the Holocene.



Figure 49 – Zones of archaeological potential
Source: (Jo McDonald Cultural Heritage Management Pty Ltd 2010)

Although the site has been highly disturbed by previous construction and land modification, some remnant significant intact archaeological deposit has been found to exist but due to the disturbed nature of the site, it is difficult to predict the location of further pockets of remnant intact archaeological deposit. The landscape of the study area and its surrounds has been highly modified during the construction of the Princes Highway, construction of various buildings and then during the initial development of the Discovery Point Precinct and the Wollie Creek Railway Station.

As a result of the Land Use Impact Assessment, an archaeological sensitivity map has been created by the assessors and can be seen in **Figure 49**. Four zones of archaeological sensitivity are used for the assessment. These zones include:

- Zone 1 – Previous Study Area;
- Zone 2 – Moderate archaeological potential;
- Zone 3 – Low archaeological potential;
- Zone 4 – No archaeological potential.

The archaeological sensitivity map identifies:

- the northern section of the study area adjacent to the riverbank as Zone 4 (no archaeological potential). This area is either reclaimed land or highly modified and has been filled with material from river dredging and construction waste;
- the land to the north of the railway station and to the south-west of the study area as Zone 3 lands (low archaeological potential). It is unlikely any archaeological material would remain or be preserved in these locations as a result of past disturbances;
- The land identified as Zone 2 (moderate archaeological potential) is west of the 2004 study area and likely to contain pockets of intact Aboriginal archaeological deposit; and
- The 2004 study area has been marked Zone 1 (previous study area) and excavation obligations under a previous permit have been carried out.

As concluded within the Aboriginal Heritage Impact Statement, Zone 1 (Previous Study Area), Zone 3 (Low archaeological potential) and Zone 4 (No archaeological potential) do not require further archaeological work and should be considered developable.

Recommendations

The recommendations of the Aboriginal Heritage Impact Assessment are as follows:

- As part of the construction works for land identified as Zone 2 (having moderate potential) in the south-western portion of the study area, a test excavation programme should be carried out on the land prior to commencement of works to ascertain whether intact archaeological material is present;
- Further archaeological investigation will be required in the Zone 2 area to the east of St Magdalen's Chapel if subsurface deposits are to be impacted by proposed works;
- Aboriginal archaeological excavation should be co-ordinated with any proposed investigation of non-Indigenous material, since intact Aboriginal archaeological deposits will be below any possibly historic materials;
- A section 90 Aboriginal Heritage Impact Permit (AHIP) is not required to impact Aboriginal heritage under the Part 3A provisions. DECCW and the Department of Planning should be consulted regarding the approach being advocated before commencement of any proposed archaeological works;
- A representative of the Metropolitan Local Aboriginal Land Council (MLALC) may wish to be present to monitor topsoil removal and ground disturbance works;
- If human skeletal material is found, all works must cease immediately and the NSW Police Department and DECCW must be informed. Works cannot recommence until the Police Department is satisfied that the bones do not relate to a recent crime. Then, DECCW will have to grant a section 90 AHIP for removal of the Aboriginal bones. This must be done in consultation with the Aboriginal community; and
- MLALC may wish to have Care and Control of the archaeological material retrieved by this salvage excavation. This will need to be negotiated by them, DECCW and the Australian Museum.

These recommendations are reflected in the draft Statement of Commitments in Section 7.

6.21 Wind Impact

A Wind Report has been prepared by Heggies Pty Ltd (**Appendix X**) to assess the impact of the proposed Concept Plan on the local wind environment.

Relevant assessment criteria

The Wind Report tested the impact on the local winds against the acceptability criteria as per the Central Sydney DCP 1996 that is currently referenced by many Australian Local Government DCPs (including Rockdale City Council) with the general objective for an annual 3-second gust wind speed to remain at or below 16 metres per second.

This value represents a maximum level of wind intensity which the majority of the population would find acceptable for comfortable walking on a regular basis at any particular location.

A wind tunnel test was undertaken on a 1:400 scale model of the Concept Plan, and neighbouring buildings and topography within a 400m radius, to determine where maximum annual gust speed has the potential to exceed acceptable levels. The results of this test are used to determine impacted areas where potential adverse wind conditions may occur and, if required, to develop effective mitigation measures to minimise the wind tunnel effects.

Impact assessment

The wind tunnel test identified areas where there was potential for the 16m/sec walking comfort to be exceeded prior to any mitigation measures, refer to maps within **Appendix X**. The building environment tested did not take into account existing or proposed landscaping or architectural wind mitigation treatments (such as canopies and awnings) around the site, it simply assesses the impact of wind on the proposed building envelopes.

However, abundant landscaping is proposed which will mitigate the impact of the 'raw' wind conditions described above.

The assessment indicates proposed landscaping works (refer to Landscape Plan at **Figure 27** and **Appendix X**) will help mitigate winds impacting:

- South-west facades of Buildings, 2, 3 and 4 under southwest wind quadrant conditions;
- South-east facades of buildings 2, 1c, 6, 7, and 11 under south-east quadrant wind conditions; and
- West facades of Buildings 10, 9 and 8 and north-west facade of Building 6 from west quadrant wind conditions.

In addition, eaves, awnings and canopies over the main entrance lobby of all the proposed major residential buildings, retail umbrellas (fixed) to all outdoor dining areas and awnings over retail tenancies (full length) will also mitigate downwash impacts of these areas.

The green roofs envisaged within the Landscape Concept Plan are under high wind conditions due to the higher wind speeds at elevated height. The impact of wind on the green roofs will be assessed at future Project Application stages.

The Wind Tunnel Study indicated that the proposed NAHAS development to the south of the site would have a beneficial impact on the wind environment through the addition shielding from southerly winds.

Recommendations

The Wind Report recommends specific additional landscaping works to be undertaken to further mitigate wind impacts on the site in addition to the mitigation measures above. These landscaping recommendations have been incorporated into the landscaping plan (provided under separate cover), and specifically include dense vegetation:

- For the Neighbourhood Park, close to the Building 2 corners where there are adverse wind flow for westerly winds;
- At the undercroft below Building 13 to mitigate the wind funnelling underneath Building 13; and
- At the northern corner of Building 10 to mitigate winds from the west clockwise through the east quadrants.

The Wind Report identifies that the envisaged landscape works, along with the installation of a 1.5m high parapet surrounding the green food garden area will reduce the wind impact on the green roofs.

The Wind Report also recommends the shielding of the outdoor cafe (dining) area located in the northern forecourt area of Building 7 with perimeter landscaping (or alternative vertical windbreak elements) and awnings or canopies adjacent to building corners. These details would be detailed within a future detailed Project Application for this area.

In addition, within each future Project Application, the wind mitigation treatments for each building (including the green roofs) will be refined (e.g. specific landscaping strategies, dimensions recommended for awnings) to ensure that wind comfort conditions are achieved in accordance with the conclusions of this assessment.

The report concludes that the combination of the planned landscaping and localised wind treatments will enable wind speeds throughout the Discovery Point Concept Plan to be contained at or below the 16m/second walking comfort criterion and is therefore acceptable for Concept Plan approval.

6.22 Noise and Vibration Impact

An Acoustic and Vibration Assessment was prepared by Heggies in relation to the proposed Concept Plan (refer to **Appendix N**). The following sources have been identified as potential sources of intrusive noise at the site:

- aircraft;
- road traffic on Princes Highway;
- internal road traffic noise; and
- rail traffic on the Illawarra Line and East Hills Line (surface track) rail traffic on the Airport Line (underground track) including station announcements.

In addition, the likely mechanical noises associated with the proposed development may include:

- air-conditioning and ventilation plant;
- car park ventilation systems;
- toilet exhaust systems;
- rooftop exhaust fans;
- car parking and vehicle movements; and
- waste handling, deliveries and associated building services.

Noise Criteria and Guidelines

The Acoustic and Vibration Assessment assess the Concept Plan against the following identifies relevant criteria and guidelines:

- Department of Planning's *'Development Near Rail Corridors and Busy Roads – Interim Guideline'*;
- AS2107:2000 Acoustics—Recommended design sound levels and reverberation times for building interiors;
- DECCW's Assessing Vibration: a technical guideline;
- AS2021-2000 'Acoustics - Aircraft Noise Intrusion - Building Siting and Construction';
- Noise emissions from industrial type noise sources from the development such as mechanical services and loading docks are to consider DECCW's Industrial Noise Policy (INP); and
- Internal acoustic isolation requirements are determined by BCA Section F5.

Representative Ambient Noise and Background Noise

Heggies undertook noise and vibration surveys to record the existing ambient noise levels on the site. The key findings of the surveys were:

- The site is affected by major long term noise from the surrounding road network;
- the site is affected by short term noise from nearby industrial sources;
- background noises are marginally higher in the survey location closer to the Princes Highway; and
- ambient noise levels are marginally higher in the survey location closer to the rail traffic.

Noise Impact Assessment and Recommendations

Heggies made the following conclusions and recommendations regarding the impact of noise and vibration on the proposed Concept Plan:

- **Road Traffic:** The site has the potential to be impacted from existing traffic on the Princes Highway and also from the creation of internal roads to be constructed as part of the development. The selection and extent of specific glazing solutions is capable of being developed at the detailed project application stage to mitigate this impact;
- **Airborne Rail Noise:** The site may be affected by airborne rail noise, but any kind of glazing required to mitigate aircraft noise is likely to be at a higher specification. Thus, amelioration of airborne rail noise will likely be addressed by the higher specification during the detailed project application stages;
- **Aircraft Noise:** The site falls within the ANEF 20 and ANEF 25 contours and therefore, under AS2021-2000, is classified as "acceptable" for commercial and retail buildings and "conditionally acceptable" for residential buildings thereby requiring mitigation measures. As such, the required noise reductions for the residential building envelopes would need to be considered in accordance with AS2021-2000. Laminated and/or secondary glazing may be required to control aircraft noise in certain locations and will be detailed in the relevant Project Applications;
- **Rail Regenerated Noise:** Rail regenerated noise levels is a secondary effect of vibration. The anticipated rail regeneration noise from passenger trains on the underground Airport Line is equal to the night-time criterion in the Interim Guidelines and vibration isolation measures are required for some buildings. It is likely that Buildings 6, 13 and 14 (or parts thereof) will require vibration isolation from the rail line. Buildings adjacent to the Illawarra Line will not require these amelioration measures;

- **Railway Vibration:** The railway vibration levels for both the Illawarra and Airport Rail Lines indicate that the proposed buildings are unlikely to require vibration isolation (other than that required for the rail regenerated noise described above);
- **External Plant Noise Emissions:** Project specific noise criteria based on the INP are included in the acoustic report. These criteria will be reviewed at the Project Application stages to take into account potential shielding from the built environment. The potential for mechanical noise associated with the development should be controlled by common engineering methods and will be further assessed at the individual project application stage;
- **BCA Internal Acoustic Requirements:** The internal acoustic isolation requirements must, at a minimum, comply with those of the BCA. Internal noise levels will also comply with the Road and Rail Noise Assessment Criteria within the Department's Interim Guideline; and
- **Further Acoustic Assessments:** A detailed assessment of aircraft, road traffic and rail traffic, including regenerated structure borne noise, will be required at the relevant project application stages against the criteria cited in the Concept Plan acoustic report.

Overall, the assessment concludes that conventional noise and vibration controls can be implemented to ensure compliance with the acoustic design criteria contained within the *Development Near Rail Corridors and Busy Roads – Interim Guideline*.

The Concept Plan provides appropriate noise and vibration criteria for use in future applications. Such measures would be developed and detailed during the relevant project application stages;

These requirements have been included in the draft Statement of Commitments at Section 7.

6.23 ESD and Energy Efficiency

The *Bates Smart Design Report* (provided under separate cover) identifies the following sustainability measures, incorporated into the design of the Concept Plan, that have been incorporated into the proposed development:

- Building envelopes have been arranged to accommodate generous balcony overhangs to minimise solar gain in summer;
- The orientation of the long axis of the site at 40 degrees to north provides an excellent orientation for most buildings to receive good solar access throughout the year;
- The proposed building massing ensures good solar access to apartments including those on the lowest levels, as well as to public and communal spaces;
- The indicative design scheme shows that the majority of apartments will have dual orientation maximising opportunities for cross ventilation;
- Wherever possible, low-energy lighting operating on motion sensors and energy efficient fixtures will be incorporated into apartments and common areas;
- A site-wide sewer recycling plant to process blackwater;
- Water efficient fixtures will be incorporated into the apartments;
- The buildings will be constructed predominantly from concrete, which has a low embodied energy. A portion of recycled content will be incorporated if possible; and
- The indicative design scheme shows green roofs will provide significant visual and physical amenity for residents and reduce heat gain at podium level. A combination of water features and lightly planted spaces will offer a variety of spaces in which to linger and enjoy the natural environment.

In addition, Cundall was commissioned to prepare an ESD Report for the Concept Plan (refer to **Appendix Y**). The following ESD initiatives are recommended by Cundall for incorporation into future Project Applications stages:

- Environmental management mitigation is to be addressed utilising the ISO 14001 framework for all head contractors in the proposed development;
- The residential component of the Concept Plan is to comply with BASIX categories of thermal comfort, energy and water; and
- The commercial building is to target a NABERS energy Base Building rating of 4.5 stars.

These requirements have been included in the draft Statement of Commitments at Section 7.

Other detailed sustainability measures to be considered in the Project Application stages are included within Appendix A of the ESD Report (**Appendix Y**). The detailed ESD initiatives for each building will be identified in detail within the future Project Application with reference to the Concept Plan ESD Strategy.

6.24 Soil and Water Management

A Soil and Water Management Plan has been prepared by Smart Civil (refer to **Appendix Z**) to assess the impacts of the proposed development on sedimentation, erosion, stormwater drainage, groundwater and flooding. The Soil and Water Management Plan also identifies relevant mitigation measures and strategies for managing soil and water during construction and for the life of the development.

Bulk Excavation

The extent of excavation is identified within the Soil and Water Management Plan at **Appendix Z**. It is proposed to excavate within the area that has been enclosed by a diaphragm wall (south of Wolli Creek Railway Station) for two basement levels. Within the northern section, the proposed basement level is RL -1.0m AHD, and excavation would extend down to RL -1.2m AHD. At the southern section, the proposed basement level is RL -3.7m AHD, and the excavation level would be approximately RL -3.9m AHD.

The proposed basement for the buildings north of the railway station will have a floor level of RL 2.0m AHD, and an estimated bulk excavation level of RL 1.8m AHD. Part of the existing earth bund currently protecting the northern part of the railway station will need to be removed for the basement excavation to the north of the station, requiring alternative means at this time to maintain flood protection to the Railway precinct.

For the balance of the area to the south of the Wolli Creek Railway Station, the proposed basement level is RL 1.8m AHD, and the excavation level is estimated at RL 1.6m AHD.

All bore holes indicate that no Potential Acid Sulphate Soils (PASS) will be encountered during the excavation of the proposed basement levels. However, it is expected that PASS will be encountered when drilling for piers, thereby requiring acid sulphate soil recommendations (below). Assessment of the potential impact of excavation near the rail corridor is addressed at Section 6.27 below.

Sediment and Erosion Control

Preliminary Erosion and Sediment Control Plans have been prepared as part of the Soil and Water Management Report (refer to **Appendix Z**). Soil control measures will include:

- Stabilisation of soil batters;
- Truck shaker and grid and truck wheel wash;
- Sediment fences; and
- Removal of soil from stormwater before discharge.

Dust Control

Dust may be generated on site as a result of excavation activity. Dust control measures will be undertaken in accordance with the recommendations of the Soil and Water Management Plan (**Appendix Z**). Detailed Erosion and Sediment Control Plans will form part of the suite of Construction Management documents prior to the commencement of works for each stage.

Stormwater Drainage

The proposed stormwater drainage network is identified within the Soil and Water Management Plan (**Appendix Z**). The impact of climate change on the drainage network has been analysed through the testing of rainfall intensity increases of 10%, 20% and 30% relative to the current design rainfall intensity. The results of this analysis indicate:

- The existing system has sufficient capacity for a 20% increase in current rainfall intensities without increased surcharge;
- The system is essentially unaffected by sea level rise; and
- The peak overflow of the system occurs in Magdalene Terrace, at the intersection with Arncliffe Street. The overflow will potentially increase the extent of flooding which already occurs in this area, but the effect on flood levels will be minimal.

The area immediately surrounding Wolli Creek Railway Station will not drain into the main stormwater drainage system. Stormwater runoff immediately to the north and south of the Wolli Creek Railway Station is currently collected and pumped directly to Cooks River by a gravity pipeline and pumping station, respectively. Both these systems will be maintained, however, the gravity pipeline may clash with the proposed basement of building structures. This would require protection and / or relocation of the pipeline at the detailed Project Application stage.

The opportunities for Water Sensitive Urban Design measures on this development are constrained due to the extent of suspended podium structures. However it is proposed that they be incorporated wherever possible and other Ecologically Sustainable Development initiatives be explored as part of future Project Applications.

Water Quality Controls including Gross Pollutant Traps (GPTs) are described conceptually in the Smart Civil Report.

Dewatering

Borehole records indicate that all bulk excavation will be above the existing water table levels. Accordingly, lowering of the water table by pumping out groundwater will not be required during construction. The only dewatering requirements will be to manage minor seepage into drilled piers. The basements will be built above long term water tables even allowing for a water table rise in response to the predicted sea level rise of 0.4m by 2050.

The subsoil drainage system including the basement pump out system will be designed to reduce the water table levels in the area immediately adjacent to the building to reduce hydrostatic pressures within the design parameters of the structure. The dewatering will have no impact on long-term water table levels.

Recommendations

The recommendations of the Soil and Water Management Plan are:

- alternative means will need to be provided to maintain the level of flood protection to the Railway Precinct before any section of the existing bund is removed;
- all surplus excavated material will be removed from the site. No filling will be placed in the zone between the northern perimeter of the northern buildings and Cooks River, as this would have an impact on flood levels in the region;
- an Acid Sulphate Soils Management Plan will be prepared before starting excavation on site;
- the design of the stormwater system for this site has and will be based on relevant national design guidelines, Australian Standard Codes of Practice, the standards of Rockdale City Council, and accepted engineering practice, including the following measures:
 - runoff from buildings will generally be designed in accordance with AS 3500.3 National Plumbing and Drainage Code Part 3 – Stormwater Drainage;
 - overall site runoff and stormwater management will generally be designed in accordance with the Institution of Engineers, Australian publication “Australian Rainfall and Runoff (1987 Edition), Volumes 1 and 2;
- the protection and /or relocation of gravity pipeline to the north of the Railway Station will be addressed in a detailed Project Application;
- the dewatering requirements to mitigate minor seepage flows into drilled piers will be addressed in the future Project Applications; and
- Sediment, Erosion and Dust Control measures will be undertaken in accordance with the Soil and Water Management Plan, with detailed plans prepared prior to the commencement of works for each stage.

These recommendations have been incorporated into the draft Statement of Commitments within Section 7.

6.25 Structural Adequacy

A Structural Report was prepared by Robert Bird Group in relation to the structural methodology expected to be adopted within the Concept Plan (refer to **Appendix P**).

Structural Systems and Building Foundations

Structural methodology is expected to adopt generally conventional methods, and will be described by the contractor who is engaged to build the development and will be documented further in the relevant Project Applications.

The vertical elements of the building foundations will sit on pile caps and piles, with piles extending down to bedrock. No vertical building load is intended to be transferred to the railway corridor.

Retention Systems

Temporary and permanent retention systems for basement excavations will be required at locations indicated within diagrams within **Appendix P**. These retention systems will be designed in accordance with:

- *'Development Near Rail Corridors and Busy Roads – Interim Guidelines'*, in particular Section 6 – Excavation, earthworks and other construction related issues; and
- *'Brief for review of geotechnical and structural design for developments adjacent to or above rail corridor for external third party works performed under the NSW State Environmental Planning Policy (Infrastructure) 2007'*.

The overall basement design and excavation has been planned in order to minimise or eliminate the need to install any anchors or similar temporary structures providing excavation stability, within Railcorp easement or across Railcorp boundaries.

Details of specific retention structures will be provided within the future Project Applications to demonstrate compliance with the aforementioned guidelines.

Rail Safety Measures

Details of derailment protection measures, track monitoring requirements and a Rail Safety Plan will be submitted to Railcorp prior to the issue of a construction certificate of relevant stages adjacent to the rail line. These requirements of the Structural Report are included in the draft Statement of Commitments at Section 7.

6.26 Geotechnical

The Coffey Geotechnics Groundwater Impacts Report (**Appendix Q**) identifies that the proposed Concept Plan will have no adverse impacts of a geotechnical nature upon structures within the rail corridors provided good practice for basement excavation, basement shoring, and service trenching are employed.

However, Coffey Geotechnics recommends that a geotechnical professional reviews the basement design and undertakes site observations to confirm construction methods for basement excavation and trenching will have no adverse impact on the rail corridor at future Project Application stages.

This recommendation is reflected under 'excavation near rail corridors' within the draft Statement of Commitments at Section 7.

6.27 Hazard Management and Mitigation

Flooding

Assessment of existing conditions

A flood assessment was prepared for the site, and the Concept Plan, by Parsons Brinckerhoff (PB) (refer to **Appendix F**). The flood assessment draws on the Cooks River Flood Study co-authored by Parsons Brinckerhoff and prepared for Rockdale Council.

The flood assessment addresses climate change considerations, drainage and flooding, flood risk and flooding near rail corridors, as required by the Director General. The results provided are based on pre-development conditions at Discovery Point, as modelled in the previous Cooks River Flood Study (PB + MWH, 2009) and has considered the Discovery Point development within the analysis.

The previous model has been extended to include the 200 year ARI flood scenario (nominated by Rockdale City Council as the design flood standard for the Discovery Point site) and includes updated climate change predictions based on more recent advice from DECCW in the *NSW Sea Level Rise Policy Statement* (DECCW, Oct 2009), as well as advice provided in the *NSW Floodplain Development Manual* (DIPNR, 2005) and the *Floodplain Risk Management Guideline: Practical Consideration of Climate Change* (DECC, 2007).

The scenarios modelled were 'pre-development' but the impact of the Concept Plan was also considered in PBs assessment. The results indicated that the Concept Plan development encroached only slightly into the flood plain of the 100 year ARI event (part of the building envelope for Building 9) and therefore the impact of the proposed development on flood storage of the 100 year ARI event would be minimal.

Furthermore, PB's additional modelling scenarios (for 200 year ARI flood event and increased rainfall) found there will be no significant change in flood levels or distribution of flood waters as a result of the proposed development. The proposed development will result in some loss of floodplain storage, but is considered minimal for the 200 year ARI event and will not cause any significant impact on the 200 year ARI flood levels. The removal of the flood storage may impact localised flood levels but can be managed by maintaining the current set back from the river bank, and through the maintenance of overland flow paths from the upstream catchment.

The flood assessment indicates the proposed 2.5 metre freeboard incorporated into the Concept Plan is predicted above the Probable Maximum Flood (PMF) levels, and predicted climate change flood levels, which provides protection from any future changes to the Cooks River flood regime.

The use of the 2.5 metre freeboard has been included as a draft Statement of Commitment in Section 7.

The results also indicate that the development will not adversely affect the Wolli Creek Railway Station, due to development immediately surrounding the station being higher than predicted flood levels for all modelled flood events.

Sea Level Rise and Climate Change

The flood assessment by PB (refer to **Appendix F**) refers to the impact of increased precipitation and sea level rise on predicted flood levels on the site by modelling a 10%, 20% and 30% rainfall increase and sea level rise of 40cm and 90cm in accordance with DECCW's *NSW Sea Level Rise Policy Statement*. As discussed above, PB concludes that the proposed 2.5 metre freeboard incorporated into the Concept Plan will place the development levels above the predicted climate change flood levels modelled in the flood assessment and will therefore provide protection from any future changes to the Cooks River flooding regime.

The impact of increased precipitation caused by climate change on the stormwater drainage network has been assessed below.

Groundwater

Coffey Geotechnics Pty Ltd were engaged to prepare a report to assess the groundwater impacts associated with the Concept Plan (refer to **Appendix Q**).

Impact on existing groundwater conditions

As noted in the site analysis at Section 2, groundwater in the area is shallow with groundwater levels of approximately RL + 1.15m AHD in the northern precinct and RL + 1.5m AHD in the southern precinct. The basement Finished Floor Levels (FFLs) are RL + 1.8m AHD for the southern precinct and RL 1.8 to 2.0m AHD for the northern precinct. The common basements at these levels will be the lowest within Building 1b and Buildings 3 to 14.

As such the basements for these buildings are located above current groundwater levels. The lowest level for Buildings 1c and 2 will be at -3.7m AHD and will be protected against groundwater ingress by the extension of the diaphragm wall constructed as part of the Verge project (constructed). The report concludes that the construction of the basements and diaphragm wall are not anticipated to have a measurable influence on groundwater levels and will therefore have no impact on registered groundwater bores, the closest being one kilometre from the site.

Sea Level Rise and Climate Change

The report considers separately the impact of climate change (including sea level rise and changes in precipitation) on groundwater levels from groundwater changes as a result of the development. For the Discovery Point development the conditions for 2050 were assessed as this corresponds with the project design life.

In the absence of mitigating measures, it is anticipated that the groundwater levels would rise approximately equal to sea level rise of 0.4m by 2050.

Changes in precipitation

As the projected rainfall is expected to be lower annual rainfall than current circumstances, the rate of rainfall infiltration recharge to the groundwater system is expected to decline. It is expected the decrease in groundwater infiltration will counteract the groundwater level rise associated with sea level rise. As such whilst long term water tables would rise by approximately the same height as sea level rise, this increase would be reduced slightly with increased distance from Cook's River in response to predicted reduced annual rainfall.

The impervious structures associated with the buildings and paved surfaces proposed within the Concept Plan will reduce the rate of rainfall infiltration but this is not expected to have a major influence on groundwater levels as infiltration outside the development area is a more dominant influence on groundwater levels.

The assessment concludes that changes in precipitation associated with future climate change would not result in an increase in groundwater levels at the site.

Overall, the assessment concludes that the basements will be constructed above long term water table levels, even allowing for the water table rise in response to the predicted sea level rise by 0.4m by 2050. As such the proposed basements and any potential impacts on groundwater are considered suitable under existing and climate change scenarios.

It is recommended that the impacts of the groundwater rise as a result of the one in one hundred year flood event are to be taken into account in the detailed design of the basement slabs and walls. The monitoring of groundwater levels during construction are also recommended to check design parameters. These recommendations have been incorporated into the draft Statement of Commitments at Section 7.

Electrolysis

An Electrolysis Report has been prepared by Cathodic Protection Services in relation to the Concept Plan (refer to **Appendix O**). Subject to the specific recommendations within the Electrolysis Report, the potential electrolysis hazards from any stray traction current from the railway lines and electrical substation/switch room to the north of the station will be eliminated.

Compliance with the requirements of the Electrolysis Report will be included within the relevant Project Application, as identified within the draft Statement of Commitments at Section 7.

Excavation near the Rail Corridor

The Groundwater Report prepared by Coffey Geotechnics Pty Ltd (**Appendix Q**) also assessed the impacts of excavation within 25 metres of the rail corridor, as consistent with the *Development near Rail Corridors and Busy Roads – Interim Guidelines*.

Buildings 6, 11, 13 and 14 will involve basement excavation within 25 metres of the rail corridor. Foundation excavations for these buildings will not involve significant areas of excavation below 1.5m AHD, but it may involve excavation of more than 2 metres below existing ground levels. In addition, trenches for services and/or drainage installation may involve more than 2 metres of excavation within 25 metres of the rail corridor.

Coffey Geotechnics conclude that all excavations will be well above the rail level, but recommend that a geotechnical professional review basement and service trench shoring or excavation design and observe excavations within 25 metres of the rail corridor. This recommendation has been reflected within the draft Statement of Commitments at Section 7.

Contamination and Remediation

A Contamination Report has been prepared by Coffey Environments (**Appendix M**) to determine the suitability of site for the proposed Concept Plan.

Background Information

The site has been subject to a number of environmental investigations, remediation and validations due to previously contaminating land uses associated with former ownership/occupations including tram depot and maintenance, projection of asphalt products, other small industry uses, and the historical reclamation of low lying land.

The Contamination Report refers to previous site audits that have been completed on-site, as follows:

- Jewell 2002 which covered former State Rail Authority land in the western portion of the site;
- Eisman 2005 which covered the parcel of land occupied by the Greenbank and Verge Buildings. This audit is outside of the boundaries of the Part 3A Concept Plan authorisation; and
- Eisman 2006 which covered the remainder of the site including the open space areas in the north eastern portion.

Coffey Environments note that the boundaries of the lands signed off by the Jewell 2002 and Eisman 2006 audits coincide with the boundary of the land addressed by the Concept Plan.

These previous site audit statements determined that the land was suitable for high density residential, commercial office/retail, associated pavements, roadways and open space use. The Jewell review, whilst noting the presence of residual contamination, did not require a management plan for future management of the residual contamination. The Eisman review was accompanied by a Site Management Plan for residual contamination (MPL Group 2006).

The previous site assessments note that groundwater below the site is contaminated and is likely to be encountered during excavation below the water table (Jewell 2002). As a result, dewatering and/or disposal of the contaminated groundwater may be required during excavation.

The Jewell 2002 and Eisman 2006 assessments recommend restrictions on groundwater use to avoid harm to human health and specifically, Eisman 2006 recommends that groundwater will not be used for any purpose unless it is demonstrated (to the satisfaction of a NSW site auditor) that it is suitable for its intended purpose.

Proposed Concept Plan

Coffey Environments has compared the Concept Plan with the previously approved Master Plan. The footprint of the fully sealed (tanked) basement level within the Concept Plan is similar in extent to that proposed in the approved Master Plan. The basement level around the railway line has been slightly amended, in comparison to that within the approved Master Plan. However, other hard stand areas, such as pedestrian access, plazas and transport interchange are proposed in this area and the residual soils would not be accessible. Therefore, the land uses signed off by Jewell 2002 and Eisman 2006 are generally consistent with the land uses proposed in the Concept Plan.

The main change to the proposed basement level is the introduction of the new neighbourhood park to the south of the site. The footprint of the first basement level does not extend beneath the new neighbourhood park and a deep soil zone is shown in this area. From a contamination perspective, a park is considered to be a more sensitive land use than those 'signed off' by Jewell 2002 and Eisman 2006. However, it is proposed to place 2.0 to 2.5 metres of fill material above the existing ground levels to construct the park, which would form a cap over any residual contamination (if any) in the area of the proposed neighbourhood park. The use of an appropriate capping system in the neighbourhood park would make the site suitable for the proposed open space land use, and therefore the site is suitable for the Concept Plan under the requirements of SEPP 55.

The Contamination Report recommends:

- The implementation of the recommendations of the site auditors, which include:
 - groundwater shall not be extracted for any purpose other than dewatering to permit excavation construction. If dewatering is carried out to permit excavation or construction then a license under section 43(d) of the Protection of the environment operations Act 1997 shall be obtained from the EPA in respect of discharge of the dewatering flows;
 - compliance with Site Management Plan (MPL 2006a) in light of residual contamination remaining on the site;
 - groundwater should not be used for any purpose unless it is demonstrated that the groundwater is suitable for the intended purpose, to the satisfaction of a NSW site auditor;
- the fill material for the neighbourhood park is to be sourced from virgin excavated material or material validated suitable for open space land uses in accordance with relevant guidelines. If it were proposed to use soils sourced from the site these would need to be validated to confirm they are of suitable quality;
- the validation of materials imported to the site for the proposed land use (such as construction of temporary roads, site filling, etc.) or the removal of these materials from the site prior to completion of the development;
- maintenance of a clean fill cap in the neighbourhood park should be incorporated into the Site Management Plan (MPL Group 2006), approved by Eisman in 2006;
- implementation of the SMP(s) while residual contamination remains on site. The responsibility for implementation should lie with the owner(s) of the areas requiring management. The responsibility for implementation of the SMP(s) should pass to future owners of the areas to be managed, should these be divested;
- should detailed planning at the Project Application stage reveal further areas of accessible soils, these areas may require further assessment / mitigation measures within the relevant Project Application; and

- review of construction activities and implementation of environmental/contamination management measures implemented during development to assess whether potential contamination of the site has occurred during development.

These recommendations have been included in the draft Statement of Commitments at Section 7. Overall, Coffey concludes based on the above that the site is suitable and that the requirements of SEPP 55 and the DGRs are met for the proposed Concept Plan.

Acid Sulphate Soils

These recommendations have been included within the draft Statement of Commitments at Section 7.

6.28 Aviation Approval

An Aeronautical Impact Analysis was prepared by The Ambidji Group (refer to **Appendix L**) in relation to the Concept Plan. The Ambidji Group identifies that:

- The proposed Concept Plan includes varying building heights with a maximum of 79.65AHD. Nine of the proposed building envelopes will infringe the Sydney Airport Inner Horizontal Surface (IHS) of 51m AHD, with a maximum penetration of 28.65 metres;
- The two tallest buildings are at a height and location that requires consideration of any impact on Sydney Airport Radar coverage;
- All buildings are clear of the PANS OPS surfaces for Sydney airport;
- It should be noted that the site is in an area where planning approvals exist for developments that are similar in height and exceed the IHS. Importantly, several of the proposed buildings are sited where current approvals exist and the Concept Plan seeks minor variation in the context of the IHS to existing approvals; and
- The proposed development does not have a direct impact on other factors assessed by Ambidji.

Under the Airports (Penetration of Airspace) Regulations 1996, approval is required from the Department of Infrastructure, Transport, Regional Development and Local Government (DITRD LG), for the building height penetrations into the IHS. Approval was granted by DITRD LG on 15 June 2010 for building height penetrations, following an application made in February 2010, but due to minor modification to likely floor to floor heights and increased height tolerances for rooftop gardens, equipment and the like within the proposed envelopes, the proposed development has been re-referred back to DITRD LG for assessment.

The Ambidji Group considers there to be no impediment for DITRD LG to approve the Concept Plan, subject to examination of the application by SACL, CASA and Airservices Australia, and makes the following conclusions regarding the Concept Plan:

- the height penetration of 28.65m into the IHS is unlikely to impact on aeronautical procedures at Sydney Airport;
- the heights do not penetrate any PANS OPS surface;
- the heights do not infringe the Sydney VOR/DME clearance plane or the ILS facility clearance planes;
- it will not impact on Contingency Procedures;
- it does infringe the radar clearance plan and Airservices Australia may need to undertake further assessments as to the cumulative effect of high rise buildings on radar coverage. As a result, a condition of approval (by Airservices Australia) may include potential provision for Wide Area Multilateration air traffic surveillance and monitoring equipment on the rooftop of the building.

The following recommendations are made by The Ambidji Group:

- Subsequent to any approval granted for the Concept Plan, an additional approval will need to be sought for cranes (temporary obstructions) required during construction;
- if required as a condition of approval by DITRDLG, obstacle lighting of the buildings that penetrate the OSL will be provided; and
- if required as a condition of approval by DITRDLG, reasonable access to, and accommodation on, a building rooftop area will be provided to Airservices Australia for the installation, operation and maintenance of air traffic surveillance equipment to overcome any loss of radar coverage.

As noted above, initial approval for the Bates Smart Concept Plan was recently received following an application in February 2010 (**Appendix L**). Due to minor modifications to the Concept Plan envelopes since this time, the current Concept Plans have been referred for re-approval.

The final requirements from DITRDLG will be incorporated into the Statement of Commitments after being formally received.

6.29 Construction and Waste Management

Temporary Construction Access During Staging

Construction access to the site will be off Magdalene Terrace. Construction access to the proposed buildings south of the railway station is currently available via the temporary driveway used for construction of the 'Verge' building.

Upon the completion of the podiums of Buildings 4 and 5 Spark Lane will be graded, providing construction access to building works north of the railway station.

Hoardings will be placed around the site along the interface with Brodie Spark Drive and Magdalene Terrace to limit site access and provide protection to pedestrians. Construction access to the buildings north of the railway station will be via the completed Spark Lane.

Vehicular (including bus) and pedestrian access to the railway station will be maintained via the existing access, from a temporary cul-de-sac off Magdalene Terrace, until the construction of Buildings 4 and 5 (refer to **Figures 50, 51, 52, 53 and 54** for bus access staging plan). At which time, access to the railway station will be available via Brodie Spark Drive. With the grading of Spark Lane (after the construction of the podium levels of Buildings 4 and 5), vehicular and pedestrian access will be restored to the railway station along the western edge of the site.

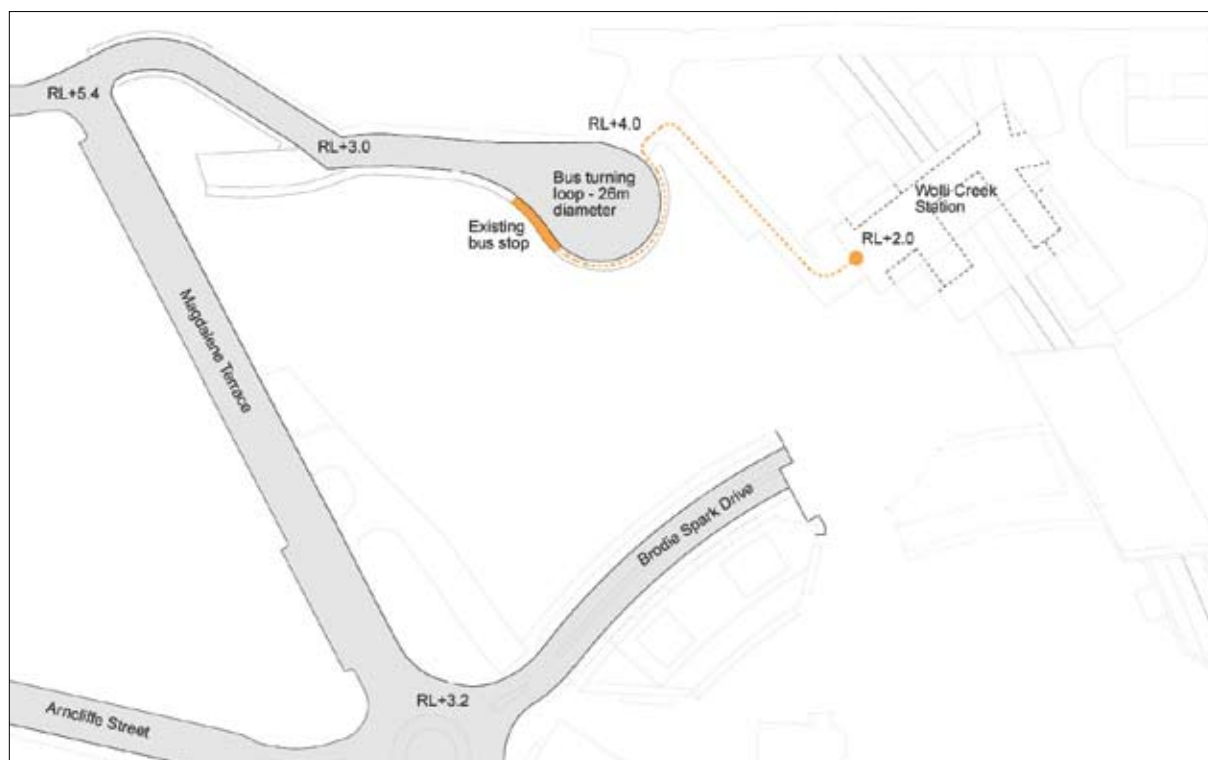


Figure 50 – Stage 1 Bus access staging plan
Source: *Bates Smart*



Figure 51 – Stage 2 Bus access staging plan
Source: *Bates Smart*

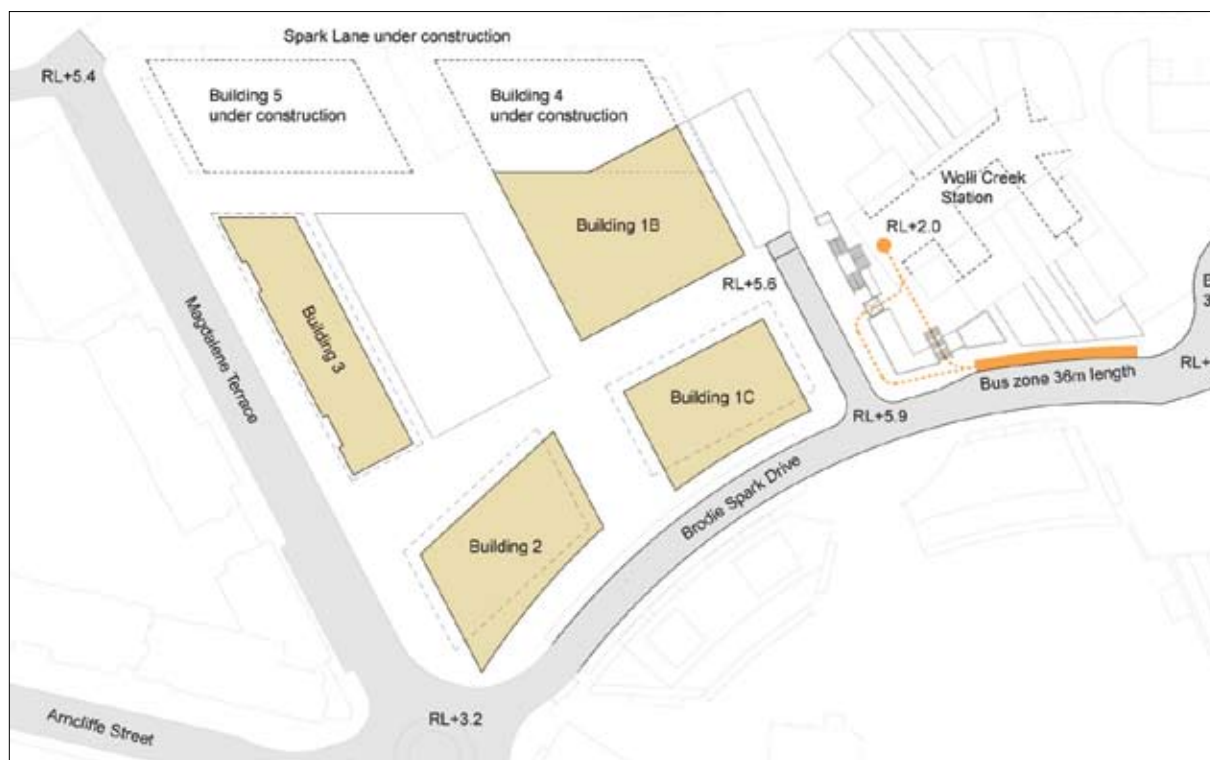


Figure 52 – Stage 3 Bus access staging plan
Source: *Bates Smart*



Figure 53 – Stage 4 Bus access staging plan
Source: *Bates Smart*

Construction Management Plans

A comprehensive suite of Construction Management Plans will be prepared prior to the issue of a Construction Certificate for each future Project Application stage, including:

- Construction Management Plan;
- Construction Traffic Management Plan;
- Erosion and Sediment Control Plan;
- Waste Management Plan; and
- Dust Control Plan.

The preparation of these plans is included in the draft Statement of Commitments at Section 7.

7.0 Draft Statement of Commitments

In accordance with the Director-General's Environmental Assessment Requirements, the proponent is required to include a Draft Statement of Commitments in respect of environmental management and mitigation measures on the site. The table included in this section sets out commitments made by the proponent to manage and mitigate potential impacts arising from the project and subsequent stages.

Subject	Commitments	Approved by Whom	Timing
Approved Project	Development on the site will be implemented in accordance with the Concept Plan drawings for approval entitled 'Discovery Point Concept Plan' prepared by Bates Smart Architects and dated June 2010.	Department of Planning	No timing. General Statement of Commitment
Approved Floor Space	The total floor area of the development shall generally be in accordance with the approved Concept Plan and shall not exceed 132,000m ² . The development shall contain a minimum 9,000m ² non-residential land uses and a maximum 123,000m ² residential GFA. Approval is granted for an area of above ground car parking equivalent to a maximum of 14,000m ² GFA.	Department of Planning	No timing. General Statement of Commitment
Development Staging Plan	An updated Development Staging Plan will be submitted with each subsequent Project Application. The Staging Plan will address: - Total GFA approved and outstanding balance. - Any minor revisions from the Concept Plan approval or previous staging plan.	Minister for Planning or delegate	Addressed as part of the relevant Project Applications
Apartment Mix	Approval is granted for an overall apartment mix across the site of: - Maximum 50% studios and one bedroom apartments; - Minimum 40% two bedroom apartments; - Minimum 10% three+ bedroom apartments. This mix applies to the overall site and therefore individual Project Applications are not required to comply with this requirement and should respond to individual building location and market conditions.	Minister for Planning or delegate	No timing. General Statement of Commitment
	Should market conditions change, an updated demand analysis may be submitted with relevant Project Applications outlining the take up of apartments to date and setting out the rationale for a revised unit mix on the site.	Minister for Planning or delegate	Addressed as part of the relevant Project Applications
	An updated schedule of units provided to date and anticipated mix of uses in remaining future stages will be provided with each subsequent Project Applications.	Minister for Planning or delegate	Addressed as part of the relevant Project Applications
Apartment Sizes	Approval is granted for minimum apartment sizes as follows: - Minimum 40m ² for studio apartments; - Minimum 50m ² for 1 bedroom apartments; - Minimum 70m ² for 2 bedroom apartments; - Minimum 100m ² for 3+ bedroom apartments. Minor variations to the set of apartment sizes will be considered where a better outcome can be demonstrated in relation to apartment efficiency, functionality, amenity and outlook.	Department of Planning	No timing

Subject	Commitments	Approved by Whom	Timing
Public/Retail/ Commercial Parking Charges	<p>The maximum charges for parking within the public/retail/commercial car park between 6am and 6pm are to be as follows:</p> <ul style="list-style-type: none"> - Less than 3 hours Free - More than 3 hours Market rates. <p>The maximum parking fee per 24 hour period will be \$35. Charges may be increased over time in accordance with CPI charges with amounts being rounded up to the nearest full dollar value.</p>	Department of Planning	No timing
Parking Rates	<p>Parking rates to be utilised across the development in subsequent Project Applications of:</p> <ul style="list-style-type: none"> - Maximum 1 space per studio and one bedroom units; - Minimum 1 space and maximum of 2 spaces per two bedroom units; - 2 spaces per three+ bedroom units; - Minimum 1 visitor space per 20 residential units; - Minimum 1 space per 50m² of non-residential GFA (commercial); - Minimum 1 space per 35m² of non-residential GFA (retail). 	Department of Planning	No timing
Road Access and Traffic	<p>The following road access and traffic recommendations will be implemented:</p> <ul style="list-style-type: none"> - The cost of all street works within the Discovery Point site, including the provision of roads, footpaths, services, traffic management, traffic and parking signage, landscaping, lighting and street furniture within the development and where it connects to adjacent roads shall be provided by the developer at no cost to Council or the Roads and Traffic Authority. - Emergency vehicle access will be designed in accordance with the New South Wales Fire Brigades Code of Practice. - The detailed design of access points will comply with the design criteria of AS2890.1 and 2890.2. 	Department of Planning	No timing. General Statement of Commitment
Flooding and Sea Level Rise	<p>In accordance with the Flooding Assessment Report (June 2010), the following will be implemented:</p> <ul style="list-style-type: none"> - a 2.5 metre freeboard will be incorporated into the design of each building to ensure floor levels are above PMF levels and climate change flood levels. 	Department of Planning	No timing. General Statement of Commitment
European Heritage	<p>In accordance with the Statement of European Heritage Impact (dated May 2010), the following recommendations will be implemented:</p> <ul style="list-style-type: none"> - no signage or advertising is permitted on the inner arc of buildings defining the curtilage to the heritage precinct; and - as part of the future Project Applications for Building 6 and 7, the detailed building design including materials and finishes, and articulation of the building form is to ensure that the new buildings are sympathetic to the heritage items, their curtilage and the heritage arc along Brodie Spark Drive. 	Department of Planning	No timing. General Statement of Commitment Addressed as part of the relevant Project Applications

Subject	Commitments	Approved by Whom	Timing
Non-Indigenous Archaeology	<p>In accordance with the Non-Indigenous Archaeological Investigation (dated June 2010), the following recommendations will be implemented:</p> <ul style="list-style-type: none"> - The management of the potential archaeological remains of the Gardener's Cottage and Pine House should be in line with the approved Archaeological Management Plan which covered Area 6 (Casey and Lowe 2002). As such, the likely location of these buildings should be determined through triangulation of historic plans and any remains be recorded in detail using archaeological excavation, detailed planning and GIS survey and mapping; and - Should substantial intact archaeological deposits or features not identified in the Archaeological Assessment be discovered, work must cease in the affected area(s) and the Heritage Office contacted for advice. Additional assessment and approval may be required prior to works continuing in the affected area(s) based on the nature of the discovery. 	Department of Planning	No timing. General Statement of Commitment
Indigenous Heritage	<p>In accordance with the Indigenous Heritage Assessment (dated June 2010), the following recommendations will be implemented:</p> <ul style="list-style-type: none"> - As part of the construction works for land identified as Zone 2 (having moderate potential) in the south-western portion of the study area, a test excavation programme should be carried out on the land prior to commencement of works to ascertain whether intact archaeological material is present; - Further archaeological investigation will be required in the Zone 2 area to the east of St Magdalen's Chapel if subsurface deposits are to be impacted by proposed works; - Aboriginal archaeological excavation should be co-ordinated with any proposed investigation of non-Indigenous material, since intact Aboriginal archaeological deposits will be below any possibly historic materials; - A section 90 Aboriginal Heritage Impact Permit (AHIP) is not required to impact Aboriginal heritage under the Part 3A provisions. DECCW and the Department of Planning should be consulted regarding the approach being advocated before commencement of any proposed archaeological works; and - A representative of the Metropolitan Local Aboriginal Land Council (MLALC) may wish to be present to monitor topsoil removal and ground disturbance works; - If human skeletal material is found, all works must cease immediately and the NSW Police Department and DECCW must be informed. Works cannot recommence until the Police Department is satisfied that the bones do not relate to a recent crime. Then, DECCW will have to grant a section 90 AHIP for removal of the Aboriginal bones. This must be done in consultation with the Aboriginal community; and - MLALC may wish to have Care and Control of the archaeological material retrieved by this salvage excavation. This will need to be negotiated by them, DECCW and the Australian Museum. 	Department of Planning	During construction.

Subject	Commitments	Approved by Whom	Timing
Soil and Water Management	<p>In accordance with the Soil and Water Management Plan (dated June 2010) the following recommendations will be implemented:</p> <ul style="list-style-type: none"> - an Acid Sulphate Soils Management Plan will be prepared before starting excavation on site; - alternative means will need to be provided to maintain the level of flood protection to the Railway Precinct before any section of the existing bund is removed; - all surplus excavated material will be removed from the site. No filling will be placed in the zone between the northern perimeter of the northern buildings and Cooks River, as this would have an impact on flood levels in the region; - the design of the stormwater system for this site has and will be based on relevant national design guidelines, Australian Standard Codes of Practice, the standards of Rockdale City Council, and accepted engineering practice, including the following measures: <ul style="list-style-type: none"> - runoff from buildings will generally be designed in accordance with AS 3500.3 National Plumbing and Drainage Code Part 3 – Stormwater Drainage; - overall site runoff and stormwater management will generally be designed in accordance with the Institution of Engineers, Australian publication “Australian Rainfall and Runoff (1987 Edition), Volumes 1 and 2; - the protection and /or relocation of gravity pipeline to the north of the Railway Station will be addressed in a detailed Project Application; - the dewatering requirements to mitigate minor seepage flows into drilled piers will be addressed in the future Project Applications; and - Sediment, Erosion and Dust Control measures will be undertaken in accordance with the Soil and Water Management Plan, with detailed plans prepared prior to the commencement of works for each stage. 	The relevant consent authority at the relevant stage	With the relevant Project Application
Contamination	<p>The following recommendations of the Contamination Report (dated June 2010) will be implemented:</p> <ul style="list-style-type: none"> - The implementation of the recommendations of the site auditors, which include: <ul style="list-style-type: none"> - groundwater shall not be extracted for any purpose other than dewatering to permit excavation construction. If dewatering is carried out to permit excavation or construction then a license under section 43(d) of the Protection of the environment operations Act 1997 shall be obtained from the EPA in respect of discharge of the dewatering flows; - compliance with Site Management Plan (MPL 2006a) in light of residual contamination remaining on the site; - groundwater should not be used for any purpose unless it is demonstrated that the groundwater is suitable for the intended purpose, to the satisfaction of a NSW site auditor; 	PCA	Prior to works commencing for each stage

Subject	Commitments	Approved by Whom	Timing
Contamination	<ul style="list-style-type: none"> - the fill material for the neighbourhood park is to be sourced from virgin excavated material or material validated suitable for open space land uses in accordance with relevant guidelines. If it were proposed to use soils sourced from the site these would need to be validated to confirm they are of suitable quality; - the validation of materials imported to the site for the proposed land use (such as construction of temporary roads, site filling, etc.) or the removal of these materials from the site prior to completion of the development; - maintenance of a clean fill cap in the neighbourhood park should be incorporated into the Site Management Plan (MPL Group 2006), approved by Eisman in 2006; - implementation of the SMP(s) while residual contamination remains on site. The responsibility for implementation should lie with the owner(s) of the areas requiring management. The responsibility for implementation of the SMP(s) should pass to future owners of the areas to be managed, should these be divested; - should detailed planning at the Project Application stage reveal further areas of accessible soils, these areas may require further assessment / mitigation measures within the relevant Project Application; and - review of construction activities and implementation of environmental/contamination management measures implemented during development to assess whether potential contamination of the site has occurred during development. 	PCA	Prior to works commencing for each stage
Landscaping	<p>Detailed documentation and specifications are to be prepared for all landscape works and public space improvements.</p> <p>Detailed consideration of green roofs will be undertaken in subsequent project applications.</p> <p>The landscaping is to be designed so that the view corridor between Tempe House and Cooks River is maintained.</p>	The relevant consent authority at the relevant stage	With the relevant Project Application
Acoustic, Noise and Vibration	<p>The following recommendations of the Acoustic and Vibration Assessment dated June 2010 will be implemented:</p> <ul style="list-style-type: none"> - The selection and extent of specific glazing solutions will be developed at the relevant detailed project application stage to mitigate road traffic noise - Laminated and/or secondary glazing will be explored to control aircraft noise in certain locations and will be detailed in the relevant Project Applications. - Detailed consideration of required rail regenerated noise mitigation measures will be detailed for Buildings 6, 7, 11, 13, 14 (or parts thereof). - It is likely that Buildings 6, 13 and 14 (or parts thereof) will require vibration isolation from the rail line. It is also possible that vibration isolation may be required for parts of Buildings 7 and 11. Buildings adjacent to the Illawarra Line will not require these amelioration measures. 	The relevant consent authority at the relevant stage	With the relevant Project Application

Subject	Commitments	Approved by Whom	Timing
Acoustic, Noise and Vibration	<ul style="list-style-type: none"> - Project specific noise criteria will be reviewed at the Project Application stages to take into account potential shielding from the built environment. The potential for mechanical noise associated with the development will be controlled by common engineering methods and will be further assessed at the individual project application stage. - The internal acoustic isolation requirements must, at a minimum, comply with those of the BCA. Internal noise levels will also comply with the Road and Rail Noise Assessment Criteria within the design criteria contained within the <i>Development Near Rail Corridors and Busy Roads – Interim Guideline</i>. - A detailed assessment of aircraft, road traffic and rail traffic, including regenerated structure borne noise, will be required at the relevant project application stages against the criteria cited in the Concept Plan acoustic report. 	The relevant consent authority at the relevant stage	With the relevant Project Application
Wind	<p>The following recommendations of the Wind Report dated June 2010 will be implemented :</p> <ul style="list-style-type: none"> - the shielding of the anticipated outdoor cafe (dining) area located in the northern forecourt area of Building 7 with perimeter landscaping (or alternative vertical windbreak elements) and awnings or canopies adjacent to building corners; and - the wind mitigation treatments for each building will be refined to ensure that wind comfort conditions recommended in the Concept Plan assessment area achieved. 	The relevant consent authority at the relevant stage	With the relevant Project Application
Environmentally Sustainable Development	<p>The following recommendations of the ESD Report dated June 2010 will be implemented:</p> <ul style="list-style-type: none"> - Environmental management mitigation is to be addressed utilising the ISO 14001 framework for all head contractors in the proposed development; The residential component of the Concept Plan is to comply with BASIX categories of thermal comfort, energy and water; and - The commercial building is to target a NABERS energy Base Building rating of 4.5 stars. <p>Detailed sustainability measures to be considered in the Project Application stages will have reference to the detailed ESD considerations within the Concept Plan ESD Strategy. (Appendix Y).</p>	The relevant consent authority at the relevant stage	With the relevant Project Application
Infrastructure and Services	Future development on the site will include upgrades to energy, water, sewer and telecommunications infrastructure in accordance with service provider authority requirements.	The relevant consent authority at the relevant stage	With the relevant Project Application
Crime Prevention through Environmental Design (CPTED)	A Safety Management Strategy will be prepared and provide guidelines for the application of CPTED principles and Safer by Design best practice models.	The relevant consent authority at the relevant stage	Addressed as part of each Project Applications
Public Art	A public art strategy for the whole site will be prepared.	The relevant consent authority at the relevant stage	The strategy will be submitted with the first Project Application

Subject	Commitments	Approved by Whom	Timing
Accessibility	<p>Project Applications will be subject to design review by an accredited Access Consultant and will comply with the relevant statutory and regulatory guidelines, including:</p> <ul style="list-style-type: none"> - Federal <i>Disability Discrimination Act 1992</i> (DDA) - Draft DDA Premises Standards - Building Code of Australia (BCA) Part D3 - AS 1428.1-2009 - Design for Access and Mobility - AS 1428.4 - (Tactile Ground Surface Indicators) - AS 1735.12 - (Lift facilities for persons with disabilities) - AS 2890.6 – (Car parking) <p>The detailed project application stage for each building will address:</p> <ul style="list-style-type: none"> - 10% adaptable units ; - 1 adaptable unit car bay for each adaptable unit; - an accessible toilet with every bank of male and female toilets in retail and commercial area. The accessible toilet to have internal dimensions in accordance with AS1428.1:2008; and - retail accessible car bays will be 2% of total retail car bays and commercial accessible car bays will be 1% of total commercial car bays. 	The relevant consent authority at the relevant stage	Addressed as part of each Project Applications
Waste	Allowance will be made for the future collection of waste by waste contractors in accordance with all relevant regulatory requirements.	Council	During construction
Structural	<p>Temporary and permanent retention systems for basement excavations will be required at locations indicated within diagrams within the PRD Structural Report (June 2010). These retention systems will be designed in accordance with <i>'Development Near Rail Corridors and Busy Roads – Interim Guidelines'</i>.</p> <p>Details of derailment protection measures, track monitoring requirements and a Rail Safety Plan will be submitted to Railcorp prior to the issue of a construction certificate.</p>	The relevant consent authority at the relevant stage	Addressed as part of each Project Applications
Electrolysis	Compliance with the measures recommended within the Electrolysis Analysis prepared by Cathodic Protection Services will be demonstrated in the relevant Project Applications.	The relevant consent authority at the relevant stage	Addressed as part of each Project Applications
Groundwater	The impacts of the groundwater rise as a result of the one in one hundred year flood event are to be taken into account in the detailed design of the basement slabs and walls.	The relevant consent authority at the relevant stage	Addressed as part of each Project Applications
	The monitoring of groundwater levels during construction are also recommended to check design parameters.	The relevant consent authority at the relevant stage	During construction
Excavation near rail corridors	A geotechnical professional will be commissioned to review basement and service trench shoring or excavation design and observe excavations within 25 metres of the rail corridor.	The relevant consent authority at the relevant stage	Addressed as part of each Project Applications

Subject	Commitments	Approved by Whom	Timing
Construction, Waste and Traffic Impacts	<p>The following Management Plans will be prepared and approved prior to works commencing for each stage:</p> <ul style="list-style-type: none"> - Construction Management Plan - Construction Traffic Management Plan - Erosion and Sediment Control Plan - Waste Management Plan - Dust Control Plan. 	Relevant Certifier Authority	Prior to issue of relevant CC's for each stage
Developer Contributions – Open Space	<ol style="list-style-type: none"> 1. The Proponent shall provide the following open space identified on Figure 1 of Appendix K for use by the general public: <ol style="list-style-type: none"> a) Discovery Point Park; b) Neighbourhood Park; c) Waterfront Park; and d) Station Park. <p><i>Note: These items will be in lieu of Section 94 Contributions for open space in future project and development applications.</i></p> 2. If Council chooses to accept dedication of the open space areas nominated in 1 above, the Proponent shall enter into arrangements for the transfer of such land to Rockdale Council. The land would be transferred to Council at no cost to Council. Arrangements for the transfer of land identified above is to occur upon completion of embellishment works to each park. 3. In the event that Council is unwilling to accept the dedication of land referred to above, a positive covenant will be placed on the title of that land to allow public access to be provided. 	Minister for Planning	No timing. General Statement of Commitment
Developer Contributions – Roads	<ol style="list-style-type: none"> 1. The Proponent shall provide the following roads identified on Figure 1 of Appendix K for use by the general public: <ol style="list-style-type: none"> a) Spark Lane between Magdalene Terrace and Discovery Point Place; b) Discovery Point Place between Spark Lane and Brodie Spark Drive; c) Brodie Spark Drive between the intersection with Arncliffe Street and Magdalene Terrace and Waterfront Park; and d) Chisholm Street between Brodie Spark Drive and Spark Lane. 2. The Proponent shall provide a Bus and Taxi Bay on Discovery Point Place adjacent to Wolli Creek Railway Station. <p><i>Note: The items provided in accordance with 1 and 2 above will be in lieu of Section 94 Contributions for roads in all future project and development applications.</i></p> <ol style="list-style-type: none"> 3. If Council chooses to accept dedication of the roads and bus and taxi bay nominated in 1 and 2 above, the Proponent shall enter into arrangements for the transfer of such land to Rockdale Council. The land would be transferred to Council at no cost to Council. Arrangement for the transfer of land identified above is to occur upon completion of each road. 	Minister for Planning	No timing. General Statement of Commitment.

Subject	Commitments	Approved by Whom	Timing
Developer Contributions – Roads	4. In the event that Council is unwilling to accept the dedication of land referred to above, a positive covenant will be placed on the title of that land to allow public access to be provided.	Minister for Planning	No timing. General Statement of Commitment.
Developer Contributions – Streetscape Works	1. The Proponent will provide all streetscape works throughout the development site including public plazas, footpaths, turf, public seating, bike racks, paving, tree planting, drainage and irrigation, banner poles, directional signage and lighting, public plaza and access to Wolli Creek Railway Station. <i>Note: These works are recognised as material public benefits and will be provided in lieu of payment of monetary contributions for town centre and streetscape improvements generated under Rockdale Section 94 Contributions Plan for all subsequent project and development applications.</i>	Minister for Planning	No timing. General Statement of Commitment.
Developer Contributions – Pedestrian and Cycle Facilities	1. The Proponent will construct dedicated cycleways within the Discovery Point site. The cycleways will be constructed along the length of Brodie Spark Drive from the intersection with Arncliffe Street and Magdalene Terrace to the Cooks River foreshore and from Princes Highway through Discovery Point Park and Waterfront Park to the northern corner of the site. 2. The Proponent will construct all pedestrian footpaths throughout the site. <i>Note: The cycleway and pedestrian footpaths will be constructed in lieu of the payment of any monetary contributions for pedestrian and cycleway facilities generated under Rockdale Section 94 Contributions Plan for all subsequent project and development applications.</i>	Minister for Planning	No timing. General Statement of Commitment.
Developer Contributions – Flood Mitigation and Stormwater Facilities	1. The Proponent will provide flood mitigation and stormwater facilities within the development site. <i>Note: These works are recognised as material public benefits and will be provided in lieu of payment of monetary contributions for flood mitigation and stormwater facilities generated under Rockdale Section 94 Contributions Plan for all subsequent project and development applications.</i>	Minister for Planning	No timing. General Statement of Commitment.
Developer Contributions – Administration and Management	1. The Proponent will administer and manage the provision of services and facilities described in the Developer Contributions section of the Statement of Commitments. This will include making arrangements for the transfer of roads and open space to Rockdale Council or in the event that Council is unwilling to accept the dedication of land for roads and open space placing a positive covenant on the title of that land to allow public access to be provided. <i>Note: These services will be provided in lieu of payment of monetary contributions for administration and management for all future project and development applications.</i>	Minister for Planning	No timing. General Statement of Commitment.
Developer Contributions – Community Facilities	1. The developer will pay monetary contributions for community facilities in accordance with the contribution rates for community facilities in the Wolli Creek Redevelopment Area under Rockdale Section 94 Contributions Plan.	Minister for Planning	No timing. General Statement of Commitment.

8.0 Conclusion and Project Justification

Commitment to Superior Urban Design and Built Form

The proposed Concept Plan is the result of a commitment by the co-venture partners Australand and Landom to deliver a high quality development on the site. The proposed Concept Plan sensitively progresses the approved Master Plan for the site to a development that will ensure that a superior, realisable and more sustainable outcome can be achieved.

By way of demonstration as to how strong the commitment is to deliver such a development, the proponent embarked on the process of a Voluntary Design Competition to develop up-to-date schemes and design solutions for the site.

The winning Bates Smart Architects' scheme provides an improved urban design outcome for the site and the most appropriate residential building envelopes. The indicative floor layouts have been prepared that respond better to market conditions, enhance the viability of staging the site, provide flexibility for future designers, allow design excellence in subsequent stages and provide superior amenity in terms of achieving SEPP 65 design principles.

The Concept Plan will deliver a greater quantum and quality of public domain on the site. The quality and amenity of the public domain will be enhanced by the new neighbourhood park, new Waterfront Park, new Station Park, pedestrian and through-site links and as a result of the variety of spaces proposed. The public domain will still remain accessible to the surrounding Wolli Creek community and the Concept Plan will indeed enhance the current public access provided to the station and Discovery Point Park.

Suitability of the Site

The development of higher density residential built form across the site has been envisaged for some time, since rezoning of the site and the granting of a Master Plan consent (500/01) by Rockdale Council in 2001. Two stages of the development have been completed and a third is under construction.

The progression of the Master Plan to the proposed Concept Plan is in response to regional trends regarding market interest for retail and office development on the site. The Concept Plan was also driven by a desire to improve the urban design quality of the site, improve flexibility for future design excellence in staging the site and in response to concerns about unique site constraints such as the viability of providing basement car parks within the constraints of existing acid sulphate soils and groundwater conditions.

The size of the site and access to infrastructure continues to provide an opportunity to provide a significant range of housing opportunities with superior urban design, diversity and amenity, within a mixed use development that has excellent access to public transport and amenities.

Fulfilment of Strategic Objectives

This environmental assessment demonstrates that the Concept Plan will guide future development of the site so as to be consistent with regional strategic objectives. It shall help meet anticipated sub-regional housing targets in a built form that better responds to market conditions and levels of amenity demanded by purchasers.

Discussion in this report and appended specialist consultant reports demonstrates that the Concept Plan is consistent with the relevant provisions of the State Plan, the Sydney Metropolitan Strategy and the State Environmental Planning Policies applying to the site.

Amelioration of Impact

Specialist studies accompanying this report are of a level of detail to demonstrate the suitability of the site for the Concept Plan. The studies demonstrate that future development is capable of being implemented without resulting in adverse environmental impacts. Subsequent Project Applications on the site will be subject to further environmental assessment to identify issues that may arise as the result of more detailed designs. Such issues may then be addressed in order to ameliorate impacts.

The key environmental assessment issues identified on the site relate to compliance with relevant Acts, Environmental Planning Instruments and guidelines, urban design and built form, internal residential amenity, solar access and overshadowing, economic and social impacts, flooding, heritage (Aboriginal and European), view analysis, traffic and transport, wind impact, noise and vibration, environmentally sustainable development, soil and water management, structural adequacy, geotechnical, hazard management and mitigation, aviation impact and construction and waste management. It is considered that any proposed impacts of the Concept Plan will be effectively mitigated by the draft Statement of Commitments, which supplements the findings of the Environmental Assessment.

Compliance with Sustainability and Design Objectives

Detailed compliance with SEPP 65 and the BASIX scheme will be subject to the assessment of subsequent Project Applications. An analysis of the Concept Plan concludes that the building envelopes are generally consistent with the 10 design quality principles of SEPP 65.

A preliminary analysis of indicative floor plans for the development reveals some variations to the Residential Flat Design Code (RFDC) “rules of thumb” for some buildings. Where such variations occur, the environmental assessment has provided greater detail to demonstrate that in future Project Applications the amenity of the development would not be compromised and that an inability to achieve some of the rules of thumb is generally related to the context of the site.

Approval at the Concept Plan stage for these variations is sought to ensure a degree of certainty for Project Applications moving forward.

Expert opinion has been sought on measures through which the energy efficiency of the proposal may be maximised. The Concept Plan has been assessed for its fulfilment of sustainability objectives and strategies. The assessment concludes that the plan directly implements desirable sustainability strategies and also allows for the subsequent implementation of more detailed strategies in the future development of the site.

Recommendation

The Concept Plan raises no adverse environmental impacts that cannot be effectively managed via the Statement of Commitments.

Given the justification for the proposal, its fulfilment of strategic objectives and the matters discussed in this report, we have no hesitation in recommending the Concept Plan for approval.