



ENVIRONMENTAL IMPACT STATEMENT

NORTH RYDE STATION PRECINCT, M2 SITE, STATE SIGNIFICANT DEVELOPMENT



JULY 2014

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Glossary

Council	City of Ryde Council
CLM Act	Contaminated Land Management Act 1997
NRSP DCP	North Ryde Station Precinct Development Control Plan 2013
DGRs	Director General's Requirements
P&E	NSW Planning and Environment
ECRL	Epping to Chatswood Rail Link
EEC	Ecologically Endangered Community
EIS	Environmental Impact Statement
EP&A Act	Environmental Planning and Assessment Act 1979
EP&A Regulation	Environmental Planning and Assessment Regulation 2000
EPBC Act	Commonwealth Environment Protection Biodiversity Conservation Act 1999
ESD	Ecologically Sustainable Development
RLEP	Ryde Local Environmental Plan 2010
LGA	Local Government Area
MPC	Macquarie Park Corridor
NSW Government	State government for NSW
NRSP	North Ryde Station Precinct
Public Land	Proposed open space, public reserve and road dedication lots
ISEPP	State Environmental Planning Policy (Infrastructure) 2007
SEPP (BASIX)	State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004
SEPP 55	State Environmental Planning Policy 55 (Remediation of Land)
SEPP 64	State Environmental Planning Policy 64 (Advertising and Signage)
SEPP 65	State Environmental Planning Policy 65 (Design Quality of Residential Flat Building)
SRD SEPP	State Environmental Planning Policy (State and Regional Development) 2011
SSD	State Significant Development
SSS	State Significant Site
TOD	Transit Oriented Development
TSC Act	NSW Threatened Species Conservation Act 1997
WSUD	Water Sensitive Urban Design
WIK	Work In Kind
VMP	Vegetation Management Plan
VPA	Voluntary Planning Agreement

Signed Declaration

SUBMISSION OF ENVIRONMENTAL IMPACT STATEMENT

Prepared in accordance with Schedule 2 of the *Environmental Planning and Assessment Regulation 2000*.

Environmental Assessment prepared by:

Names:	Murray Donaldson (Associate Director) <i>Bachelor of Town Planning (Hons) UNSW, Master of Environmental Management Macquarie University</i>
	Sarah Houston (Senior Consultant): <i>MSc City Planning and Regeneration, BA Geography, University of Glasgow</i>
Address:	Urbis Pty Ltd Level 23, Darling Park Tower 2, 201 Sussex Street Sydney NSW 2000
In respect of:	North Ryde Station Precinct (High Density Residential and Mixed Use Sub-Precincts) Stage 1 Preliminary Works State Significant Development.

Applicant and Land Details:

Applicant:	UrbanGrowth NSW (Reference: Simeon McGovern)
Applicant Address:	Level 14, 60 Station Street, Parramatta NSW 2150 PO Box 237, Parramatta NSW 2124
Land to be Redeveloped:	The High Density Residential and Mixed Use Sub-Precincts (also known as the 'M2 Site') of the North Ryde Station Precinct, being land bound by Epping Road, Delhi Road and the M2 Motorway at North Ryde and legally described as Lot 101 in DP 1131776 and part Lot 2 in DP 528488 and Lot 7 in DP1046090
Lot and DP:	Lot 101 in DP 1131776 and part Lot 2 in DP 528488 and Lot 7 in DP1046090
Project:	North Ryde Station Precinct (High Density Residential and Mixed Use Sub-Precincts) State Significant Development.

Declaration:

I certify that the contents of the Environmental Impact Assessment to the best of my knowledge, has been prepared as follows:

- In accordance with the requirements of the Schedule 2 of *Environmental Planning and Assessment Regulation 2000*; and *State Environmental Planning Policy (State and Regional Development) 2011*.
- The information contained in this report is true in all material particulars and is not misleading.

Name	Murray Donaldson, Associate Director	Sarah Houston, Senior Consultant
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Signature:



Date: 24 July 2014

24 July 2014

Executive Summary

OVERVIEW

This Environmental Impact Statement (EIS) has been prepared in support of a Staged Development Application for State Significant Development pursuant to Division 4.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). This application seeks approval for a Concept Proposal for subdivision and GFA allocation and Section 83B(3)(b) Works including site preparation, subdivision, civil works and public domain works on land known as the M2 Site within the North Ryde Station Precinct (NRSP).

The NRSP comprises approximately 13.99 hectares of largely government-owned land centred on the North Ryde Railway Station. The NRSP is located in close proximity to the Epping to Chatswood Railway Line (ECRL), which is a high quality underground rail link connecting the Macquarie Park area to the Metropolitan CityRail network.

The Urban Activation Precinct (UAP) program was announced as part of the 2012-13 NSW State Budget and applies to significant areas with re-development potential. The NSW Government endorsed the NRSP including the M2 site, the North Ryde Station sites, OSL and RMS owned lands as one of eight UAPs on 17 October 2012 signifying its potential for precinct-wide renewal and redevelopment for mixed uses in an important strategic location.

A rezoning process to establish specific planning controls for the precinct, by amending Ryde Local Environmental Plan 2010 and preparing a precinct specific development control plan to guide future development, was undertaken as part of the UAP process. Following an extensive consultation and assessment process, the NRSP was rezoned in September 2013 and the North Ryde Station Precinct Development Control Plan 2013 was subsequently adopted.

Director General Requirements (DGRs) for the project (SSD_5093) were issued on 19 May 2014. A copy of the DGRs is included at **Appendix A**.

PROJECT OBJECTIVES

The key objectives of the proposal are:

- Realise the planning potential of the M2 site and to deliver UrbanGrowth NSW's commitments with regard to related infrastructure as identified in the Finalisation Report.
- Early establishment of public domain areas and delivery of key infrastructure to remove barriers to future development of lots.
- Development of a series of new and expanded public open space areas which existing and future residents will utilise, providing for both active and passive recreation within the precinct.
- Provide appropriate pedestrian/cyclist connectivity and increase connectivity of the M2 site with:
 - The North Ryde Station to integrate access to public transport usage for future residents of the site.
 - The land (and existing/future development) immediately to the west. This will be achieved by connecting internal roads on the M2 site.
- Allocate the maximum achievable GFA for each development superlot to realise the maximum gross floor space provided for by the Finalisation Report.
- Provide the following key aspects:
 - Linked open space network with active edges and open space areas that maximise solar access but also provide shade.

- Shared spaces where pedestrians are prioritised.
- Connected pedestrian and cycle networks.
- Accommodate the need for a future community facility based upon existing supply of services in the area and the demographic profile of the current and future population.

PROPOSAL

In summary, staged development consent is sought for under Section 83(1) of the EP&A Act:

- A Concept Proposal for development of Lot 101 DP 1131776 (the M2 Site) in stages as described in the Concept Proposal described below.
- Section 83B(3)(b) Works as described in Section 3.2.2.

Concept Proposal

The Concept Proposal seeks consent for:

- Subdivision of the site into 13 development lots, 4 public open space lots, and 2 public road lots as shown on the draft Subdivision Plan B1505-B1612-Overall-B prepared by Project Surveyors.
- Allocation of maximum gross floor area on the development lots of 238,919sqm as described in following table with the buildings to be the subject of subsequent detailed applications for consent.

PROPOSED LOT DESCRIPTION	MAXIMUM GFA ALLOCATION
Lot 104	51,836
Lot 105	21,684
Lot 107	4,332
Lot 201	42,949
Lot 202	25,626
Lot 203	28,468
Lot 204	15,764
Lot 205	29,210
Lot 206	5,413
Lot 207	6,883
Lot 208	6,754
TOTAL	238,919

- Allocation of maximum gross floor area on the public open space Lot 103 of 2,500sqm for a community facility building which is to be the subject of a subsequent development application for consent.

In accordance with Section 83B(3)(a) of the EP&A Act, consent will be sought separately to erect and use buildings and ancillary development on the development lots and the community facility on Lot 103.

Section 83B(3)(B) Works

Under Section 83B(3)(b) of the *Environmental Planning and Assessment Act 1979*, development consent is sought for the following development ("**Section 83B(3)(b) Works**"), without the need for a further development consent, as follows:

- Subdivision of the site into 13 development lots, 4 public open space lots, and 2 public road lots as shown on the draft Subdivision Plans B1505-B1612-Overall-A prepared by Project Surveyors (refer **Appendix C**).
- Staging of the above subdivision in the following manner:

STAGE	DEVELOPMENT IN THE STAGE
Stage 1	All Stage 1 works listed below.
Stage 2	2A. The subdivision shown in the draft Subdivision Plans B1505-B1612-Plan 3-A prepared by Project Surveyors (refer Appendix C) 2B. All other works listed below.
Stage 3	Creation of Lot 201
Stage 4	Creation of Lot 202
Stage 5	Creation of Lot 203
Stage 6	Creation of Lot 204
Stage 7	Creation of Lot 205
Stage 8	Creation of Lot 206
Stage 9	Creation of Lot 207
Stage 10	Creation of Lot 208

Despite the staging described above, it is proposed that Stage 1 must be carried out first followed by Stage 2. Stages 3 to 10 both inclusive may be carried out in any order and any combination of stages 3 to 10 both inclusive may be combined or carried out simultaneously.

The works forming Stage 1 and referred to in the right hand column of the Table above are:

- Site preparation works:
 - Demolition, site clearing and vegetation removal.
 - Remediation works.
 - Bulk earth works including site regrading, box-out of roads and removal of surplus fill material.
 - Temporary stormwater detention.
 - Sedimentation and erosion controls.

- Rehabilitation of riparian zone along the Porters Creek within the Northern Bushland Park.

The works forming part of Stage 2 and numbered “2B” and referred to in the right hand column of the Table above are:

- Public Land works associated with roads and intersections:
 - Signalised intersection of Waterloo Road and Wicks Road including pedestrian crossing.
 - Extension of Waterloo Road through the M2 Site to Epping Road to create a Spine Road.
 - A left-in intersection for the M2 Site on Epping Road.
- Public Land construction and upgrade to pedestrian pathway and cycleway networks, including:
 - Shared pedestrian and cycle bridge across Delhi Road to the North Ryde Station. The colour of the bridge is to be resolved during detailed design.
 - Shared ways for pedestrian and cycleway connectivity along the Spine Road and around the central open space from Wicks Road to the pedestrian/cycle bridge.
- Establishment of open space on the Public Land open space lots.
- The enabling works for the subsequent construction of a community facility building.
- Drainage and Water Sensitive Urban Design (WSUD) on the Public Land.
- Public domain works on the Public Land.
- Location of signage on the pedestrian bridge on the Public Land

The project also includes the following associated works:

- Delhi Road footpath connection and landscape works to the site frontage.
- Epping Road footpath upgrade and landscape works to the site frontage.
- Wicks Road footpath upgrade and landscape works to the site frontage and intersection upgrade works.
- Water main from the M2 Site, under Epping Road and along Ryrie Street to connect to Cox’s Road.
- Sewer main from the Wicks and Waterloo Roads intersection along Wicks Road.
- An electricity feeder main from Macquarie Park substation along Waterloo Road into the M2 Site.
- Electricity feeder main/s from Top Ryde substation along a number of local roads into the M2 Site.

KEY ISSUES

The environmental, social and economic impacts of the proposal have been assessed as part of the EIS. The proposed works will establish the subdivision, allocated GFA, open space areas, and key infrastructure to enable the future development of the site. This will facilitate future development on the site, provide residential, commercial and community uses on the site which will provide employment and contribute to provision of housing to meet local demand.

The potential environmental impacts have been identified as follows:

- Traffic.

- Biodiversity.
- Visual impact.
- Heritage.
- Archaeology.
- Hydrology and Flooding.
- Construction impacts related to noise, air quality, water quality, soil and erosion, groundwater, waste and traffic.

These issues align with the DGRs. The potential environmental impacts are considered to be either positive or able to be mitigated through the adoption of appropriate management measures.

A summary of environmental impact assessment recommendations and the adopted response is given in **Section 9**.

CONCLUSION

This EIS has been prepared to assess the Concept Proposal for subdivision and GFA allocation and Section 83B(3)(b) Works including site preparation, subdivision and civil works and public domain works on land known as the M2 Site within the NRSP. It is justified to proceed with this proposal for the following reasons:

- The proposal demonstrates consistency with the relevant environmental planning instruments including strategic planning policy, State and local planning legislation, regulation and policies. The proposal also fully addresses the issues identified in the DGRs.
- The proposal will result in minimal environmental impacts, all of which can be mitigated through the recommendations detailed in **Section 9** of this report.
- The proposed works will enable future residential, retail and commercial development at the site and will result in positive economic impacts through the provision of direct and indirect employment (during both construction and operation).
- The Section 83B(3)(b) Works will establish public domain areas and enable delivery of key infrastructure to remove barriers to future development of lots.
- The proposed will provide certainty for future development by allocating the maximum achievable GFA for each development superlot to realise the maximum floor space provided for by the Finalisation Report.
- The site is considered as suitable for the proposed works given its location in the MPC and will result in public benefit through the provision of the following:
 - Recreation and pedestrian / cycle connectivity throughout the site which links with key transport and access nodes. These will provide significant pedestrian and cycleway upgrades and new links to improve connectivity to North Ryde Station and the MPC.
 - Development of a series of linked public open space areas, providing for both active and passive recreation.
 - Provision of a spine road linking Epping Road to Wicks Road and providing the main vehicular connection through the site.
 - Allows for future connectivity with the land (mainly of a commercial nature) immediately to the west. This will be achieved by connecting internal roads on the M2 site.

- A shared pedestrian and cycle bridge sited at the southern end of the M2 site connecting the site with North Ryde Station.
- A future community facility is accommodated which will respond to the needs of the area and the demographic profile of the current and future population.

Given the merits of the proposal and the ability to realise the planning potential of the M2 site as identified in the Finalisation Report, it is requested that the Minister approve the proposal subject to the mitigation measures outlined in this report.

1 Introduction

1.1 OVERVIEW

This Environmental Impact Statement (EIS) has been prepared in support of a Staged Development Application for State Significant Development pursuant to Division 4.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). This application seeks approval for a Concept Proposal for subdivision and GFA allocation and Section 83B(3)(b) Works including site preparation, subdivision, civil works and public domain works on land known as the M2 Site within the North Ryde Station Precinct (NRSP).

The Section 83B(3)(b) Works will ensure the upfront delivery of public open space including parks and plazas and establish site access and an internal road network. The works will enable the future development of high density residential and mixed use sub-precincts to encourage greater station usage and to improve connectivity around the North Ryde Station.

In summary, the Staged Development Application for State Significant Development (SSD_5093) seeks consent for:

- A Concept Proposal for development of Lot 101 DP 1131776 (the M2 Site) in stages:
 - Subdivision of the M2 Site and Lot 7 in DP 1046090.
 - Allocation of maximum gross floor area on the development lots of 238,919sqm with the buildings to be the subject of subsequent detailed applications for consent.
 - Allocation of maximum gross floor area on the public open space Lot 103 of 2,500sqm for a community facility building which is to be the subject of a subsequent development application.
- Section 83B(3)(b) works including:
 - Site preparation works
 - Subdivision of the M2 site and Lot 7 in DP 1046090
 - Public Land works associated with roads and intersections
 - Public Land construction and upgrade to pedestrian pathway and cycleway networks
 - Establishment of areas of open space
 - Drainage and Water Sensitive Urban Design (WSUD) on the Public Land
 - Public domain works on the Public Land
 - Location of signage on the pedestrian bridge on the Public Land
 - Footpath upgrade and landscape works
 - Utilities and services infrastructure

The proposal has been informed through an extensive master planning process to guide development on the site and the proposed works. This is documented in the Urban Design Report prepared by Bates Smart and provided in **Appendix D** which:

- Identifies the proposed open space, public domain areas and pedestrian/cycle linkages and describes the proposed landscaping scheme.
- Forms the basis of the Concept Proposal including the proposed allocation of GFA.

This EIS has been prepared by Urbis on behalf of the proponent, UrbanGrowth NSW. Director General's Requirements (DGRs) for the project were issued on 19 May 2014 which identifies issues to be addressed in the preparation of the EIS.

This EIS has been prepared in accordance with Schedule 2 of the *State Environmental Planning Policy (State and Regional Development) 2011* and the DGRs. The EIS provides the following sections:

- **The Site:** Provides a description of the M2 Site, the North Ryde Station Precinct lands and the local and wider regional context. This section also outlines the constraints and opportunities identified for development of the Precinct.
- **The Proposal:** Provides the project objectives and a description of the proposed works.
- **Justification and Assessment of Alternatives:** Details the justification for the proposed Section 83B(3)(b) Works which will facilitate the future development of the M2 site and consideration of alternatives.
- **Consultation:** Details the consultation process undertaken to date and the specific consultation undertaken as a part of this application.
- **Planning Framework Assessment:** Provides a detailed review of the proposal against the commonwealth, state and local planning framework including an assessment of statutory and strategic planning considerations.
- **Environmental Assessment:** Details an in-depth assessment of the existing environment and the potential impacts for each of the key criteria in the DGRs.
- **Construction Environmental Management:** Details the specific considerations for the development of a Construction Environmental Management Plan.
- **Recommendations and Mitigation Measures:** Provides a consolidated list of recommendations and mitigation measures based on the technical studies undertaken as part of this application.
- **Conclusion:** Provides a summary of the impact assessment with concluding comments.

The proposal is supported by specialist consultant reports provided in the appendices of this report, together with plans detailing the proposed works. These technical studies were undertaken to assess specific potential environmental impacts. This submission consists of this EIS and supporting documentation (**Appendices A to W**).

1.2 BACKGROUND

The NRSP comprises approximately 13.99 hectares of largely government-owned land centred on the North Ryde Railway Station. The NRSP is located in close proximity to the Epping to Chatswood Railway Line (ECRL), which is a high quality underground rail link connecting the Macquarie Park area to the Metropolitan CityRail network.

The Urban Activation Precinct (UAP) program was announced as part of the 2012-13 NSW State Budget and applies to significant areas with re-development potential. The NSW Government endorsed the NRSP including the M2 site, the North Ryde Station sites, OSL and RMS owned lands as one of eight UAPs on 17 October 2012 signifying its potential for precinct-wide renewal and redevelopment for mixed uses in an important strategic location.

A rezoning process to establish specific planning controls for the precinct, by amending Ryde Local Environmental Plan 2010 and preparing a precinct specific development control plan to guide future development was undertaken as part of the UAP process.

The Finalisation Report prepared by Department of Planning and Infrastructure (DPI) dated July 2013 formed the basis of its endorsement of the rezoning application. The Finalisation Report provides a summary response to submissions received during the public exhibition period and recommended

changes to the rezoning prior to gazettal. Most notably, the Finalisation Report included commitments by UrbanGrowth NSW relating to delivery of infrastructure including:

- Specification of a total of 14,300sqm open space across the M2 Site.
- Provision of a community centre of 2,500sqm.
- Delivery of a shared pedestrian and cycle bridge linking the M2 Site to the North Ryde Station.

Following an extensive consultation and assessment process, the NRSP was rezoned in September 2013 and the North Ryde Station Precinct Development Control Plan 2013 was subsequently adopted.

1.3 APPROVALS CONTEXT

State Environmental Planning Policy (State and Regional Development) 2011 (SRD SEPP) was gazetted on 1 October 2011, identifying various types of development and particular sites upon which certain development is considered to be 'State Significant Development'. The NRSP lands are identified in Part 12 of Schedule 2 of SRD SEPP. Schedule 2 of the SRD SEPP states:

Development on land identified as being within the North Ryde Station Precinct Site on the State Significant Development Sites Map if the development is for the purposes of:

- (a) a principal subdivision establishing major lots or public domain areas, or*
- (b) the creation of new roadways and associated works.*

The Staged Development Application for State Significant Development seeks consent for the principal subdivision of the M2 site, a key land parcel within the NRSP, to create development superlots, internal roads and public domain areas. These works are in accordance with Schedule 2 of SRD SEPP and are referred to as Section 83B(3)(b) Works.

Civil works including site preparation, infrastructure upgrades, construction of utilities and allocation of GFA to each lot fall outside of the Schedule 2 description of State Significant Development. This includes works that are outside the statutory precinct boundary but associated with the State Significant Development. Clause 8(2) of the SRD SEPP provides that where a development that is the subject of one Development Application comprises development that is only partly State Significant Development, the remainder of the development is also declared to be State Significant Development. Accordingly, all works proposed in this application are declared 'State Significant Development'.

This EIS has been prepared in accordance with the following:

- Part 4.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).
- Schedule 2, Part 3 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation).
- Schedule 2, Part 12 of the SRD SEPP.
- The DGRs issued pursuant to Section 75E of the EP&A Act.

1.4 DIRECTOR GENERAL'S REQUIREMENTS

The DGRs were issued on 19 May 2014. A copy of the DGRs is included at **Appendix A. Table 1** below summarises the requirements and identifies where responses to each of the DGRs are addressed in this report.

TABLE 1 – SSD_5093 DIRECTOR GENERAL REQUIREMENTS

REQUIREMENTS	REFERENCE
General Requirements	
The Environmental Impact Statement (EIS) must meet the minimum requirements in Schedule 2 of the <i>Environmental Planning and Assessment Regulation 2000</i>, specifically form specifications in clause 6 and content specifications in clause 7. The EIS must also satisfy the general requirements set out in 1 to 3 below.	Section 6.4.1
1. Description of works	
Proposed works associated with the proposed development should be outlined, that may include:	
Establishment of development superlots, with the draft plans of subdivision identifying all covenants, easements and notations for each proposed land title and, if relevant, how the subdivision is to be staged	Section 3.2 Section 3.3 Appendix C
Allocation of gross floor space to the proposed development superlots.	Section 3.2 Section 3.3 Appendix D Appendix E
Construction of primary roads and key intersections.	Section 3.3 Appendix D Appendix F
Construction and provision of key pedestrian and cycle connections, including a pedestrian bridge over Delhi Road to the North Ryde Station.	Section 3.3 Appendix G
Public domain works to establish open space lots.	Section 3.3 Appendix F
Construction of drainage, utility and other enabling infrastructure.	Section 3.3 Appendix F Appendix H
Future ownership and management arrangements for the proposed infrastructure, as relevant	Section 3.3
2. Ecologically Sustainable Development (ESD)	
Detail how ESD principles (as defined in clause 7() of Schedule 2 of the Environmental Planning and Assessment Regulation 2000) will be incorporated in the design, construction and ongoing operation phases of the development.	Section 7.12 Appendix P
3. Capital investment value	
Provide a report from a quantity surveyor identifying the capital investment value for the proposal.	Appendix B
Key Issues: The EIS must address the key issues set out in I to 13 below	
1. Relevant Legislation	Section 6.2

REQUIREMENTS	REFERENCE
The EIS must address the objects and relevant statutory requirements set out in the: ▪ Environmental Planning and Assessment Act 1979 ▪ Environmental Planning and Assessment Regulation 2000 ▪ Roads Act 1993 ▪ Water Act 1912 ▪ Water Management Act 2000	Section 6.3 Section 6.4
2. Environmental Planning Instruments (EPIs) Address the relevant statutory provisions applying to the site contained within all relevant EPIs, including: ▪ <i>Ryde local environmental plan 2010</i> ▪ <i>State Environmental Planning Policy (State And Regional Development) 2011</i> ▪ <i>State Environmental Planning Policy 55 - Remediation of Land</i> ▪ <i>State Environmental Planning Policy (Infrastructure) 2007</i> This should include the following matters <i>Permissibility</i> Detail the nature and extent of any prohibitions that apply to the development. <i>Development Standards</i> Identify the development standards applying to the site. Justify any development standards not being met.	Section 6.4
3. Policies, Guidelines and Planning Agreements Address and demonstrate how the development promotes or is consistent with the relevant provisions, objectives and controls of relevant policies, guidelines and planning agreements, including: ▪ <i>Metropolitan Plan for Sydney 2036</i> ▪ <i>Draft Metropolitan Plan for Sydney</i> ▪ <i>Draft Inner North Subregional Strategy</i> ▪ <i>Draft Centre Design Guidelines</i> (Department of Planning) ▪ <i>North Ryde Station Precinct Development Control Plan 2013</i> (NRSP DCP 2013) including other relevant policies that apply to development in the precinct identified within Tables 1 and 2 of the DCP.	Section 6.1 Section 6.5 Section 6.6

REQUIREMENTS	REFERENCE
4. Earthworks - Provide a detailed survey showing existing and proposed levels, and proposed quantities of cut and fill necessary for the proposed works. If relevant: - Provide details, including cross sections, of any excavation works that are either above or within 25 metres of the rail corridor. - Provide details on the fill including types of materials and their source. - Provide details of the disposal location of excess cut and proposed means of transportation.	Appendix F
5. Urban design - Provide plan(s) and supporting documentation identifying the proposed open space, public domain areas and pedestrian/cycle linkages. - Provide plan(s) and supporting documentation identifying the proposed distribution of gross floor area. - Outline any visual impacts of the proposal on surrounding areas and how these impacts will be mitigated, with particular regard to the pedestrian and cycle link between the North Ryde Station and the Mixed Use Sub-Precinct and its visual impact on the Macquarie Park Cemetery and Crematorium.	Appendix D Appendix E Section 7.4
6. Transport and accessibility - Provide details of the proposed roads, pedestrian/cycle routes and intersection upgrades in accordance with section 3.2 Circulation Networks and Figure 4 of the NRSP DCP 2013. - Demonstrate that the proposed works provide clear, safe and high amenity pedestrian and cycle linkages to key destination points such as North Ryde Rail Station and Waterloo Road. - Demonstrate that all proposed roads satisfy the street dimensions and designs set out in section 4.1 of the NRSP DCP 2013. - Provide for adequate road side collection points for all superlots accessible by Council's waste vehicles. - Demonstrate how future access points identified in Figure 4 of the NRSP DCP 2013 and within the development site, will be connected or preserved. - Provide details of the proposed access and parking provisions associated with the application, including compliance with the relevant Australian Standards. - Demonstrate that the road and pedestrian/cycle route designs provide for safe and effective movement and adequate capacity, having regard to modelling and site investigations carried out for the North Ryde Rail Station urban activation precinct. - Provide details of the pedestrian/cyclist link between the North Ryde Rail Station and the Mixed Use Sub-Precinct in accordance with section 4.3 of the NRSP DCP 2013.	Appendix I Section 7.2

REQUIREMENTS	REFERENCE
- Identify any existing and proposed public transport facilities to be delivered or upgraded under section 3.3 of the NRSP DCP 2013 as relevant to works proposed for the High Density Residential and Mixed Use Sub-Precincts. - Identify bicycle parking areas as relevant to works proposed for the High Density Residential and Mixed Use Sub-Precincts. - Demonstrate provision of emergency access from the site to the M2 in accordance with section 3.2(3) of the NRSP DCP 2013.	
7. Biodiversity - Provide a biodiversity assessment of any potential impacts on Bundara Reserve, with particular regard to its Sydney Turpentine Ironbark Forest vegetation community which is listed as critically endangered under the Environmental Protection and Biodiversity Conservation Act 1999 and endangered under the Threatened Species Conservation Act 1995. - Provide a biodiversity assessment of any potential impacts on the Lane Cove River National Park particularly those areas within the Porters Creek catchment downstream of the site. - Biodiversity assessments should be prepared in accordance with the Guidelines for developments adjoining land and water managed by the Department of Environmental Climate Change and Water (June 2010), if relevant. - Provide a vegetation management plan in accordance with section 8.6 of the NRSP DCP 2013. - Provide an arborist report in accordance with section 8.6 of the NRSP DCP 2013. - Provide a street tree plan in accordance with section 4.5 of the NRSP DCP 2013.	Appendix K Appendix L Section 7.3
8. Water Quality - Demonstrate that water discharged from the site will not adversely impact on the watercourses, riparian corridors and groundwater dependent ecosystems located in the vicinity of the Mixed Use and High Residential Density Sub-Precincts as a result of the proposed development, with particular regard to Porters Creek and Lane Cove River. - Prepare an integrated Water Management Plan in accordance with section 4.4 of the NRSP DCP 2013.	Appendix H Section 7.9
9. Heritage - Identify and assess any impacts of the proposal on the bricked domed well or cistern located within the Mixed Use Sub-Precinct in accordance with section 8.9 of the NRSP DCP 2013. - If the proposal will potentially impact on this item a report is to be provided that details the arrangements for archaeological monitoring, including consultation with the City of Ryde Council.	Appendix R Appendix S Section 7.6 Section 7.7
10. Flooding Demonstrate that the development is compatible with the flood hazard of the land, and identify any impacts of the proposed development on flood behaviour.	Section 7.9 Appendix H

REQUIREMENTS	REFERENCE
▪ Demonstrate provision of an alternate site access to the High Density Residential Sub-Precinct for emergency vehicles, in accordance with section 8.2(1) of the NRSP DCP 2013. ▪ Demonstrate that the design of the road connecting the High Density Residential Sub-Precinct with Wicks Road will accommodate future flood mitigation works that seek to relieve existing flooding impacts on Wicks Road, in accordance with section 8.2(2) of the NRSP DCP 2013.	
11. Geotechnical and contamination ▪ Demonstrate the suitability of the land for the proposed development having regard to contamination and the site's geotechnical characteristics including erosion potential, salinity and the presence of potential and actual acid sulphate soils. ▪ Outline measures to avoid, manage or mitigate adverse geotechnical or contamination impacts in accordance with relevant guidelines.	Section 7.10 Appendix M Section 7.11 Appendix N Section 6.4.4
12. Utilities & services ▪ Identify any utilities and services that currently pass through or service the site including those that are, or will become, redundant. ▪ Identify all existing easements and any encumbrances on title that will be affected by the proposed subdivision. ▪ Provide details of the required utilities and services, and any augmentation that may be required to support the proposed development, and their future maintenance needs. ▪ Identify how the proposed infrastructure design will accommodate efficient provision of other urban infrastructure (e.g. street lighting).	Section 7.14
13. Construction and operational impacts ▪ Provide an assessment of construction and operational impacts and identify appropriate mitigation measures in accordance with relevant guidelines. This should include (but not be limited to) the following matters: – Construction traffic impacts, including an estimation of truck movements expected during the construction phase – Measures to manage, where appropriate, accessibility, amenity and safety of public transport use, walking and cycling, and emergency vehicle access during construction works – Construction noise – Air quality – Water quality – Soil and erosion – Groundwater impact – Impacts on groundwater dependent ecosystems and	Section 8 Section 9

REQUIREMENTS	REFERENCE
– Waste	
Plans and Documents	
The EIS must include all relevant plans, architectural drawings, diagrams and relevant documentation required under Schedule 1 of the <i>Environmental Planning and Assessment Regulation 2000</i> . Provide these as part of the EIS rather than as separate documents.	Appendix B – U Section 6.3.1
Consultation	
During the preparation of the EIS, you must consult with the relevant local, State or Commonwealth Government authorities, service providers, community groups and affected landowners. In particular you must consult with: <i>a) Government agencies and organisations</i> ▪ City of Ryde ▪ Transport for NSW (including Roads and Maritime Services, State Transit Authority and Sydney Trains) ▪ Office of Environment and Heritage ▪ Environment Protection Authority ▪ NSW Office of Water ▪ Emergency services agencies ▪ All relevant utility providers <i>b) Adjoining Landowners</i> ▪ Consultation with adjoining landowners is to be undertaken to discuss and address, where appropriate, the impact of the proposal <i>c) Public</i> ▪ An appropriate level of consultation is to be carried out with the general public. The EIS must describe the consultation process and the issues raised, and identify where the design of the development has been amended in response to these issues. Where amendments have not been made to address an issue, an explanation should be provided.	Section 5

2 The Site

2.1 LOCAL CONTEXT

2.1.1 NORTH RYDE STATION PRECINCT

The NRSP comprises three land parcels situated within the City of Ryde Local Government Area (LGA), at the southern end of the Macquarie Park Corridor (MPC). The NRSP comprises a total land area of 12.22ha adjacent to the M2 Motorway, Epping Road and Delhi Road.

The MPC is a predominantly commercial area that lies between the M2 Motorway and Epping Road, North Ryde (refer to **Figure 1**). The geographical scale of the MPC is similar to the CBD and the distance from Macquarie University to the eastern most part of the Precinct is similar to the distance between Circular Quay and Central Station.

The NRSP lands include:

- M2 site
- Station Site North
- Station Site South

UrbanGrowth NSW is the main landholder within the NRSP.

2.1.2 THE SUBJECT SITE

The M2 site is the largest land piece within the North Ryde Station Precinct having a total site area of 91,530sqm. The M2 Site is owned by UrbanGrowth NSW and is bounded by the M2 Motorway to the east, Epping Road to the south west, Delhi Road to the south and by Wicks Road to the north. Access to the site for construction of the ECRL was established via a construction access point from the M2 on ramp and an access driveway from Wicks Road.

The site is currently being utilised by Leighton and the Epping to Thornleigh Third Track Alliance as the site compound associated with the M2 Hills Motorway upgrade and the Epping to Thornleigh rail track works. The land generally slopes down to the north, towards Wicks Road. The northern portion of the site contains remnant bushland and a small creek known as Porters Creek.

The land uses immediately surrounding the M2 Site include:

- **South:** Bundara Reserve is opposite Delhi Road. Low density residential uses consisting primarily of single storey detached dwellings are also situated further to the south.
- **East:** The Macquarie Park Crematorium and Cemetery are located beyond Delhi Ryde along with the Riverside Corporate Park which is a continuation of the MPC consisting primarily of large floor plate multi storey commercial buildings.
- **West:** The built form in the area is a mix of modern medium rise, large floor plate commercial buildings, some vacant sites and older small scale commercial buildings.
- **North:** Predominately commercial land uses that form part of the MPC.

A number of arterial roads bordering the M2 site influence effective pedestrian and bicycle movements to the North Ryde Station and constrain site access. These roads include:

- The M2 Motorway which forms the eastern boundary of the site.
- Epping Road which forms the southern western boundary of the site.

- Delhi Road which borders the site to the south.

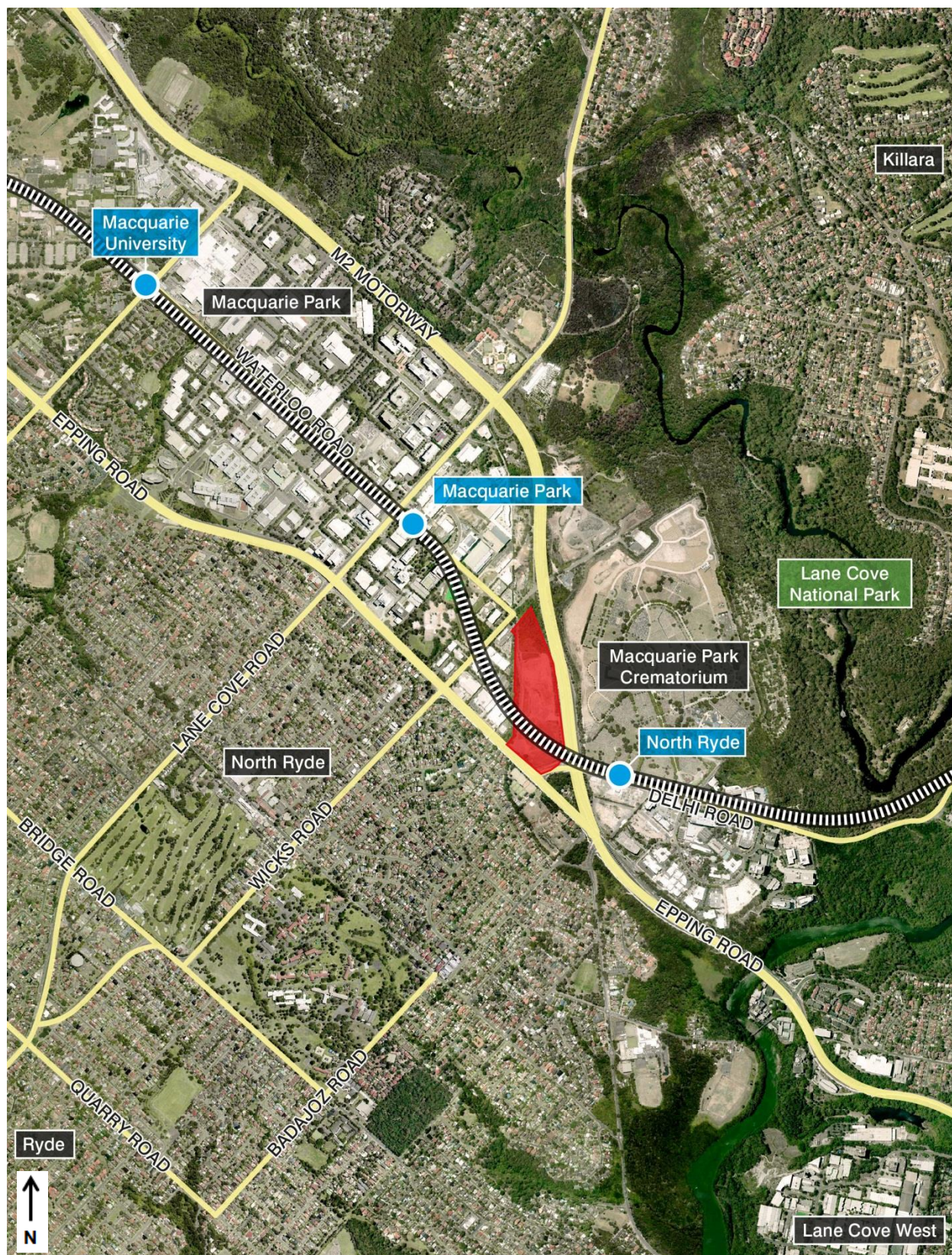
The legal description of the subject site is provided in **Table 2** below.

TABLE 2 – SUMMARY OF SUBJECT SITE

SITE NAME	OWNERSHIP	LOT/DP
M2 Site	UrbanGrowth NSW	Lot 101 DP 1131776
Part Lot 2 in DP 528488	Calardu North Ryde Pty Ltd	Part Lot 2 in DP 528488
Lot 7 in DP 1046090	Bright Harvester Pty Limited	Lot 7 in DP 1046090

The portion of land immediately adjoining the M2 site to the west which is bound by Epping Road and known as Lot 2 in DP 528488 will be utilised to accommodate access into the site. The portion of land immediately adjoining the M2 Site to the north west bound by Wicks Road and known as Lot 7 in DP1046090 will be used to accommodate access to the site. This is described further in Section 3.

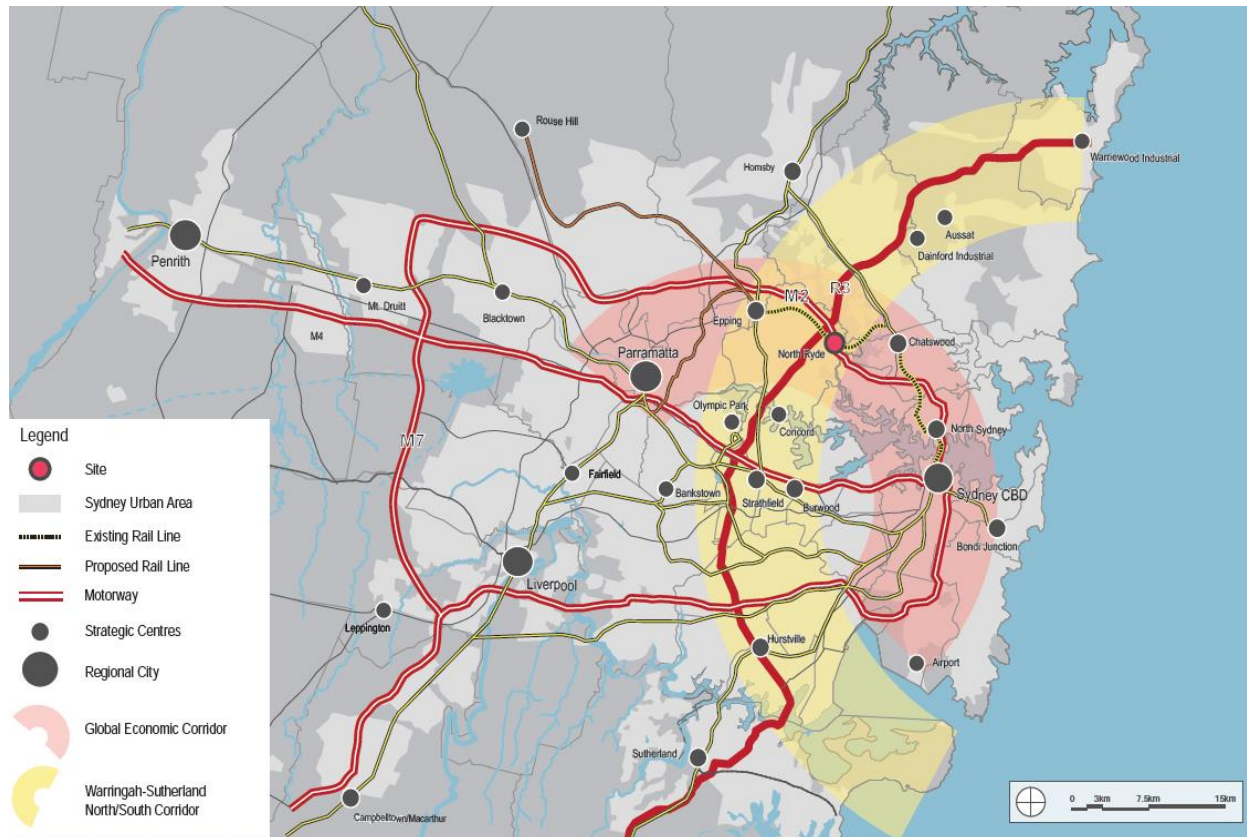
FIGURE 1 – NORTH RYDE STATION PRECINCT, M2 SITE - LOCAL CONTEXT



2.2 REGIONAL CONTEXT

The MPC is situated at the north western end of the 'Global Economic Corridor' within the Central Subregion as defined in the *Draft Metropolitan Strategy for Sydney to 2031* (Draft Metro Strategy). The Corridor is an area of global economic activity stretching from Port Botany and Sydney Airport, through the Sydney Central Business District (CBD), North Sydney and St Leonards to Macquarie Park and Parramatta (refer to **Figure 2**). This region accounts for the majority of Sydney's globally oriented commercial businesses and over 10% of the National Gross Domestic Product.

FIGURE 2 – NORTH RYDE STATION PRECINCT - REGIONAL CONTEXT



The main transport links include the following:

- ECRL which provides rail connectivity to the CBD as well as links to the greater Metropolitan Area including the Northern Railway Line, which services suburbs north of Chatswood to Hornsby and Berowra.
- M2 Motorway providing access to the CBD to the south and Hills district to the northwest.
- Metroad 3 (Mona Vale Road– King Georges Road including Ryde Road, Lane Cove Road, Church Street), the main Metropolitan north-south road route linking the Northern Beaches to the St George region.

2.3 CONSTRAINTS AND OPPORTUNITIES

Extensive site analysis has been undertaken as part of the rezoning application and the master planning process undertaken to guide future development of the M2 site and wider NRSP lands. With regard to the Concept Proposal and Section 83B(3)(b) Works, the key constraints and opportunities are identified in **Table 3**.

TABLE 3 – CONSTRAINTS AND OPPORTUNITIES

SITE	CONSTRAINTS	OPPORTUNITIES
M2 Site	▪ Limited vehicular access to the site. ▪ Flood prone, riparian corridor in north of site. ▪ Level change and stormwater runoff management. ▪ A heritage well/cistern located on the site. ▪ Integration with adjacent land uses. ▪ Allocation of roads within the North Ryde Station Precinct DCP. ▪ ECRL tunnel located beneath the central portion of the site where excavation is limited. ▪ Poor adjoining pedestrian environment.	▪ The site has access to a series of existing open spaces and parks in Blenheim Park, Bundara Reserve, Kywung Reserve and Porters Park accommodating active and passive recreation. ▪ Bushland views of Lane Cove River and National Park to the north and Sydney CBD to south-east. ▪ Proximity to both Macquarie Park and North Ryde Stations. ▪ Potential to connect to MPC. ▪ Access to wider green network. ▪ Exposure on Epping Road and Delhi Road frontage. ▪ Established vegetated area in the north of the site. ▪ Through site links via proposed pedestrian bridge.

The proposed development has been designed to respond to these opportunities and constraints and the detailed specialist advice which has explored these factors further.

3 The Proposal

3.1 OBJECTIVES OF THE DEVELOPMENT

The proposed development aims to accelerate the development of the North Ryde Station Precinct to ensure the release of development parcels for housing supply. The vision for the site includes the following:

- Realise the planning potential of the M2 site and to deliver UrbanGrowth NSW's commitments with regard to related infrastructure as identified in the Finalisation Report.
- Creating a vibrant new residential neighbourhood with a permeable network of streets and courtyards.
- Connecting the proposed Bushland Reserve and Central Parks with a Community Linear Park to form a linked network of open space.
- Providing residential amenity for a large number of buildings and a defined pedestrian and cycle route to the station through the Community Linear Park.
- Providing traditional urban typologies of perimeter and slab blocks which are separated by pedestrian friendly Mews Roads to create a legible urban form that will support a high quality residential lifestyle.

Specifically, the proposed development has the following objectives:

- Early establishment of public domain areas and delivery of key infrastructure to remove barriers to future development of lots.
- Development of a series of new and expanded public open space areas which existing and future residents will utilise, providing for both active and passive recreation within the precinct.
- Provide appropriate pedestrian/cyclist connectivity and increase connectivity of the M2 site with:
 - The North Ryde Station to integrate access to public transport usage for future residents of site.
 - The land (and existing/future development) immediately to the west. This will be achieved by connecting internal roads on the M2 site.
- Allocate the maximum achievable GFA for each development superlot to realise the maximum gross floor space provided for by the Finalisation Report.
- Provide the following key aspects:
 - Linked open space network with active edges and open space areas that maximise solar access but also provide shade.
 - Shared spaces where pedestrians are prioritised.
 - Connected pedestrian and cycle networks.
- Accommodate the need for a future community facility based upon existing supply of services in the area and the demographic profile of the current and future population.

3.2 SUMMARY OF THE PROPOSED DEVELOPMENT

In summary, staged development consent is sought for:

- A Concept Proposal for development of the M2 site in stages as described in the Concept Proposal described below; and
- Section 83B(3)(b) Works as described in Section 3.2.2.

3.2.1 CONCEPT PROPOSAL

The Concept Proposal seeks consent for:

- Subdivision of the site into 13 development lots, 4 public open space lots, and 2 public road lots as shown on the draft Subdivision Plan B1505-B1612-Overall-B prepared by Project Surveyors (refer **Appendix C**).
- Allocation of maximum gross floor area on the development lots of 238,919sqm as described in **Table 4** with the buildings to be the subject of subsequent detailed applications for consent.
- Allocation of maximum gross floor area on the public open space Lot 103 of 2,500sqm for a community facility building which is to be the subject of a subsequent development application for consent.

TABLE 4 – PROPOSED GFA ALLOCATION

PROPOSED LOT DESCRIPTION	MAXIMUM GFA ALLOCATION (SQM)
Development Lot 104	51,836
Development Lot 105	21,684
Development Lot 107	4,332
Development Lot 201	42,949
Development Lot 202	25,626
Development Lot 203	28,468
Development Lot 204	15,764
Development Lot 205	29,210
Development Lot 206	5,413
Development Lot 207	6,883
Development Lot 208	6,754
TOTAL	238,919

It is proposed that, in accordance with Section 83B(3)(a) of the *Environmental Planning and Assessment Act 1979*, consent will be sought separately to erect and use buildings and ancillary development on the development lots and the community facility on Lot 103.

3.2.2 SECTION 83B(3)(B) WORKS

Under Section 83B(3)(b) of the *Environmental Planning and Assessment Act 1979*, development consent is sought for the following development ("**Section 83B(3)(b) Works**"), without the need for a further development consent, as follows:

- Subdivision of the site into 13 development lots, 4 public open space lots, and 2 public road lots as shown on the draft Subdivision Plans B1505-B1612-Plan 3-A prepared by Project Surveyors (refer **Appendix C**).
- Staging of the above subdivision in the following manner:

TABLE 5 – PROPOSED SUBDIVISION STAGING

STAGE	DEVELOPMENT IN THE STAGE
Stage 1	All works listed in Section 3.2.3 below.
Stage 2	2A. The subdivision shown in the draft Subdivision Plans B1505-B1612-Plan 3 A prepared by Project Surveyors (refer Appendix C) 2B. All works listed in Section 3.2.4 below.
Stage 3	Creation of Lot 201
Stage 4	Creation of Lot 202
Stage 5	Creation of Lot 203
Stage 6	Creation of Lot 204
Stage 7	Creation of Lot 205
Stage 8	Creation of Lot 206
Stage 9	Creation of Lot 207
Stage 10	Creation of Lot 208

Despite the staging described above, it is proposed that Stage 1 must be carried out first followed by Stage 2. Stages 3 to 10 both inclusive may be carried out in any order and any combination of stages 3 to 10 both inclusive may be combined or carried out simultaneously.

3.2.3 LIST OF WORKS FORMING STAGE 1

The works forming part of Stage 1 and referred in the right hand column of **Table 5** are:

- Site preparation works:
 - Demolition, site clearing and vegetation removal.
 - Remediation works.
 - Bulk earth works including site regrading, box-out of roads and removal of surplus fill material.
 - Temporary stormwater detention.
 - Sedimentation and erosion controls.

- Rehabilitation of riparian zone along the Porters Creek within the Northern Bushland Park.

3.2.4 LIST OF WORKS FORMING PART OF STAGE 2

The works forming part of Stage 2 and numbered “2B” and referred to in the right hand column of **Table 5** are:

- Public Land works associated with roads and intersections:
 - Signalised intersection of Waterloo Road and Wicks Road including pedestrian crossing.
 - Extension of Waterloo Road through the M2 Site to Epping Road to create a Spine Road.
 - A left-in intersection for the M2 Site on Epping Road.
- Public Land construction and upgrade to pedestrian pathway and cycleway networks, including:
 - Pedestrian/cycle bridge across Delhi Road to the North Ryde Station. The colour of the bridge is to be resolved during detailed design.
 - Shared ways for pedestrian and cycleway connectivity along the Spine Road and around the central open space from Wicks Road to the pedestrian/cycle bridge.
- Establishment of the following areas of open space on the Public Land open space lots:
 - Northern Bushland Park.
 - Community Linear Park.
 - Central public open space.
 - Plaza space.
- The enabling works for the subsequent construction of a community facility building.
- Drainage and Water Sensitive Urban Design (WSUD) works on the Public Land, including:
 - Stormwater drainage and water quality infrastructure.
 - Porters Creek culvert.
 - Rehabilitation of riparian zone along the Porters Creek within the Northern Bushland Park.
- Public domain works on the Public Land, including:
 - Civil works, trenching in road corridors with provision of utility infrastructure for electricity, gas, potable water, sewer and telecommunications.
 - Open space embellishment.
 - Street planting and installation of furniture.
 - Street lighting along all new roads.
 - Public art installation.
- Location of signage on the pedestrian bridge on the Public Land

The project also includes the following associated works:

- Delhi Road footpath connection and landscape works to the site frontage.
- Epping Road footpath upgrade and landscape works to the site frontage.
- Wicks Road footpath upgrade and landscape works to the site frontage, intersection upgrade and stormwater and drainage augmentation works at the Wicks/Waterloo road intersection.
- Water main from the M2 Site, under Epping Road and along Ryrie Street to connect to Cox's Road.
- Sewer main from the Wicks and Waterloo Roads intersection along Wicks Road.
- An electricity feeder main from Macquarie Park substation along Waterloo Road into the M2 Site.
- Electricity feeder main/s from Top Ryde substation along a number of local roads into the M2 Site.

The Section 83B(3)(b) works listed in Table 5 are proposed to be undertaken in two stages, with separate Construction Certificates for:

- Stage 1 Construction Certificate –Site preparation works; and
- Stage 2 Construction Certificate - Civil and public domain works

3.3 REFERENCE DRAWINGS

This section lists the Draft Plans of Subdivision, Urban Design and Landscape Plans and Civil Plans referred to in the preparation of the EIS for which consent is sought.

3.3.1 DRAFT PLANS OF SUBDIVISION

DRAWING NUMBER	DRAWING TITLE	DATE
DRAFT SUBDIVISION PLANS prepared by Project Surveyors		
B1505-B1612-Overall -A	Plan of Subdivision of Lot 10 in DP (Plan 2)	23/05/2014
B1505-B1612-PLAN3-A	Plan of Subdivision of Lot 10 in DP (Plan 2)	23/05/2014

3.3.2 URBAN DESIGN AND LANDSCAPE DRAWINGS

DRAWING NUMBER	DRAWING TITLE	DATE
DA1 EXISTING CONDITIONS & LOCATION PLANS prepared by Bates Smart		
DA1-001 B	Cover Sheet / Location Plan NTS	26.05.2014
DA1-002 B	Site Analysis 1:2000	26.05.2014
DA1-003 B	GFA - Allocation Plan 1:1000	26.05.2014
DA3 PUBLIC DOMAIN PLANS prepared by Aspect		
DA3-001 C	Site Plan 1:1000	26.05.2014
DA3-002 C	Public Domain Plan - North 1:500	26.05.2014

DA3-003 C	Public Domain Plan - South 1:500	26.05.2014
DA3-004 C	Street Tree Master Plan & Planting Strategy 1:1000	26.05.2014
DA4 KEY PUBLIC SPACE PLAN prepared by Aspect		
DA4-001 C	Key Public Space Plan & Section - Bushland Reserve 1:250	26.05.2014
DA4-002 C	Key Public Space Plan & Section - Community Park 1:250	26.05.2014
DA4-003 C	Key Public Space Plan & Section - Central Park 1:250	26.05.2014
DA4-004C	Key Public Space Plan - Community Plaza 1:250	26.05.2014
DA5 STREET TYPOLOGY PLANS AND SECTIONS prepared by Aspect		
DA5-001 C	Street Typologies 1:100	26.05.2014
DA5-002 C	Street Typologies 1:100	26.05.2014

3.3.3 CIVIL DRAWINGS

DRAWING NUMBER	DRAWING TITLE	DATE
CIVIL PLANS prepared by Robert Bird Group		
GENERAL		
C-0-0-00	Cover Sheet	27.05.14
C-0-0-02	Civil Details Plan Sheet 1 of 2	27.05.14
C-0-0-03	Civil Details Plan Sheet 2 of 2	27.05.14
C-0-0-04	Aerial Image and Site Layout	27.05.14
C-0-0-05	Survey Plan Sheet 1 of 2	27.05.14
C-0-0-06	Survey Plan Sheet 2 of 2	27.05.14
EROSION AND SEDIMENT CONTROL		
C-0-1-00	Erosion and Sediment Control Plan Stage 1 Works	27.05.14
C-0-1-01	Erosion and Sediment Control Plan Stage 2 Works	27.05.14
C-0-1-10	Erosion and Sediment Control Notes and Details	27.05.14
BULK EARTHWORKS		
C-0-2-00	Bulk Earthworks Sheet 1 of 2	27.05.14
C-0-2-01	Bulk Earthworks Sheet 2 of 2	27.05.14
C-0-2-20	Bulk Earthworks Cross Sections Sheet 1 of 2	27.05.14

C-0-2-21	Bulk Earthworks Cross Sections Sheet 2 of 2	27.05.14
ROADWORKS		
C-0-3-00	General Arrangement Plan Sheet 1 of 2	27.05.14
C-0-3-01	General Arrangement Plan Sheet 2 of 2	27.05.14
C-0-3-15	Typical Sections Plan Sheet 1 of 2	27.05.14
C-0-3-16	Typical Sections Plan Sheet 2 of 2	27.05.14
C-0-3-20	Spine Street Longitudinal Section Sheet 1 of 2	27.05.14
C-0-3-21	Spine Street Longitudinal Section Sheet 2 of 2	27.05.14
C-0-3-22	Spine Street Cross Sections Sheet 1 of 2	27.05.14
C-0-3-23	Spine Street Cross Sections Sheet 2 of 2	27.05.14
C-0-3-24	Park, Plaza and Retail Street Longitudinal Section Sheet 1 of 2	27.05.14
C-0-3-25	Park, Plaza and Retail Street Longitudinal Section Sheet 2 of 2	27.05.14
C-0-3-26	Park, Plaza and Retail Street Cross Sections	27.05.14
C-0-3-40	Swept Path Analysis Plan Sheet 1 of 2	27.05.14
C-0-3-41	Swept Path Analysis Plan Sheet 2 of 2	27.05.14
PAVEMENT		
C-0-4-00	Pavement Layout Plan Sheet 1 of 2	27.05.14
C-0-4-01	Pavement Layout Plan Sheet 2 of 2	27.05.14
C-0-4-10	Pavement Details Plan	27.05.14
SIGNS AND LINEMARKING		
C-0-5-00	Signs And Line Marking Plan Sheet 1 of 2	27.05.14
C-0-5-01	Signs And Line Marking Plan Sheet 2 of 2	27.05.14
STORMWATER		
C-0-6-00	Stormwater Layout Plan Sheet 1 of 2	27.05.14
C-0-6-01	Stormwater Layout Plan Sheet 2 of 2	27.05.14
C-0-6-10	Stormwater Details Sheet	27.05.14
C-0-6-11	Porters Creek Culvert Upgrade Details	27.05.14
C-0-6-12	Pit Schedule	27.05.14
C-0-6-50	Stormwater Catchment Plan Sheet 1 of 2	27.05.14

C-0-6-51	Stormwater Catchment Plan Sheet 2 of 2	27.05.14
SERVICES		
C-0-9-01	Combined Services Plan Sheet 1 of 2	27.05.14
C-0-9-02	Combined Services Plan Sheet 2 of 2	27.05.14
M2 SITE EXTERNAL INTERSECTION WORKS		
C-1-3-00	Wicks and Waterloo Road General Arrangement Plan	27.05.14
C-1-3-01	Epping Road Deceleration Lane	27.05.14
C-1-3-20	Wicks Road Longitudinal Section	22.05.14
C-1-3-21	Wicks Road Cross Sections Sheet 1 of 2	22.05.14
C-1-3-22	Wicks Road Cross Sections Sheet 2 of 2	22.05.14
C-1-3-40	Wicks and Waterloo Road Swept Path Analysis Plan	22.05.14
C-1-4-00	Pavement Layout Plan	22.05.14
C-1-4-10	Pavement Details Plan	22.05.14
C-1-5-00	Wicks and Waterloo Signs and Line Marking Plan	22.05.14
C-1-5-01	Epping Road Deceleration Lane Signs and Line Marking Plan	22.05.14
C-1-6-00	Wicks and Waterloo Road Stormwater Management Plan	27.05.14

3.4 DETAILED DESCRIPTION OF THE PROPOSAL

3.4.1 SUBDIVISION

The proposed draft plans of subdivision are provided in **Appendix C**. The overall subdivision of the site that creates 19 lots is summarised in **Table 6**.

TABLE 6 – PROPOSED LOT DESCRIPTION AND LOT AREA

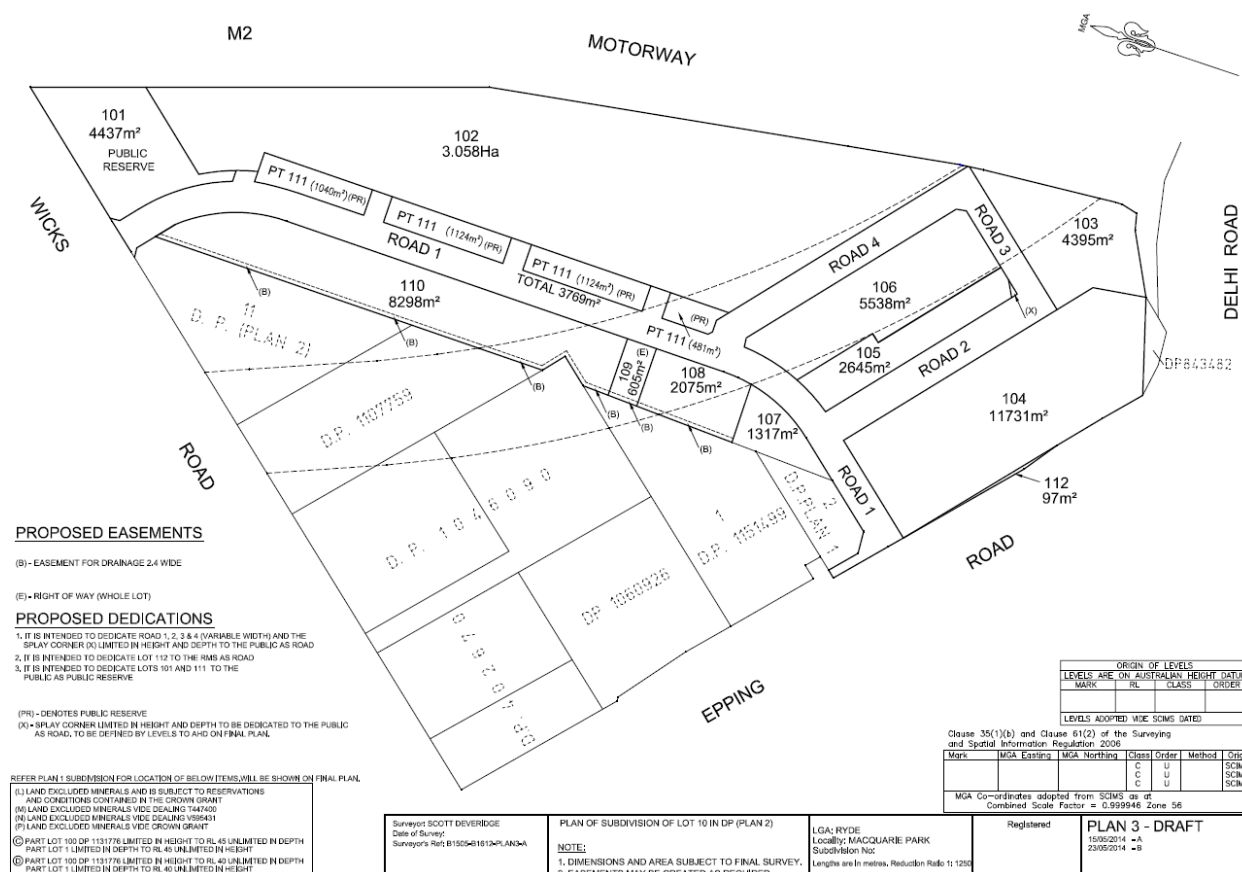
PROPOSED LOT DESCRIPTION	LOT AREA	ALLOCATION
Lot 101	4,437sqm	Open Space Dedication Lot
Lot 103	4,395sqm	Open Space Dedication Lot
Lot 104	11,731sqm	Development Lot
Lot 105	2,645sqm	Development Lot
Lot 106	5,538sqm	Open Space Dedication Lot
Lot 107	1,317sqm	Development Lot
Lot 108	2,075sqm	Development Lot
Lot 109	605sqm	Development Lot
Part Lot 111	1,040sqm	Open Space Dedication Lot
Part Lot 111	1,124sqm	Open Space Dedication Lot
Part Lot 111	1,124sqm	Open Space Dedication Lot
Part Lot 111	481sqm	Open Space Dedication Lot
Lot 112	97sqm	Road Dedication Lot
Lot 201	6,275sqm	Development Lot
Lot 202	6,395sqm	Development Lot
Lot 203	7,764sqm	Development Lot
Lot 204	6,767sqm	Development Lot
Lot 205	3,380sqm	Development Lot
Lot 206	2,507sqm	Development Lot
Lot 207	2,656sqm	Development Lot
Lot 208	3,135sqm	Development Lot
Road 1 - 4	3,769sqm	Road Dedication Lot
TOTAL	64,629sqm	

FIGURE 3 – OVERALL DRAFT PLAN OF SUBDIVISION



- 24 THE PROPOSAL

FIGURE 4 – THIRD DRAFT PLAN OF SUBDIVISION



3.4.2 GFA ALLOCATION

Staged development consent is sought for allocation of maximum gross floor area on the development lots of 238,919sqm as described in **Table 4** with the buildings to be the subject of the subsequent detailed applications for consent.

- The overall maximum GFA available for development across the M2 site is 238,919sqm (consistent with the Finalisation Report).
- GFA that occurs from the development for the purposes of community facilities, retail premises or child care centre on the Lot 103 public open space, which Council will own and operate, will not be calculated towards the maximum GFA .

3.4.3 COMMUNITY FACILITY

This development application for State Significant Development seeks consent under Clause 83B(1) of the EP& A Act for the concept to erect and use the indoor sports and recreation centre (defined as a “community facility” under RLEP 2010) on proposed Public Reserve Dedication Lot 103. The area of the community facility is to be 2500m² Gross Floor Area (GFA).

A level by level description of the proposed indoor sports and recreation centre is as follows:

Basement Level

- Car and bicycle parking
- Change facilities and amenities

Ground Floor Level

- One multiple-purpose court with dimensions of 35m by 21m
- Retail space (café)
- Reception
- Gymnasium
- Storage to support the proposed use
- Community meeting space designed for flexible use

First Floor Level

- Centre management office space
- Community meeting space designed for flexible use

It is proposed that, in accordance with Section 83B(3)(a) of the *Environmental Planning and Assessment Act 1979*, consent will be sought separately to erect and use indoor sports and recreation centre.

3.4.4 SITE PREPARATION WORKS

The proposed site preparation works include:

- Site clearing and demolition of redundant structures and utilities.
- Remove vegetation and unsuitable material for disposal at an appropriate disposal facility or by redistribution on site. Stockpiling of materials deemed suitable for reuse i.e. milled pavements for reuse as fill material.
- Remove temporary site offices occupied by Leighton Contractors for the M2 upgrade works.
- Demolition of the existing site access road and culvert to facilitate the proposed construction of the roads and stormwater drainage.

3.4.5 EARTHWORKS

The earthworks proposal is intended to provide a suitably graded site for future development, whilst minimising the quantum of excess material which will be required to be removed from site and the cost of disposing of waste materials. Preliminary cut and fill analysis has been undertaken for the proposed earthworks and is shown in the Civil Work Plans provided in **Appendix F**.

The earthworks volumes are as follows:

- Cut: 55,850 m³
- Fill: 22,200 m³
- Difference (net cut): 33,650 m³

This excludes bulking of material during excavation or double handling of materials to export Virgin Excavated Natural Material from under the road and public reserves.

The erosion and sediment control measures will be implemented as documented in the Civil Design Report (**Appendix F**) for bulk earthworks and removal of excess cut material and construction of roads and public domain works.

3.4.6 ROADS AND INTERSECTION

The proposed new roads are designed to provide key access points to the existing road networks and provide appropriate internal circulation within the future development of the precinct.

- Spine Road will be the main road corridor through the site which links Epping and Wicks Roads
- Mews Roads will provide access from Spine Road a number of the development superlots.
- Park Street provides for the continuation of the shared path from the Spine Road/Community Linear Park through to Plaza Street and through to the shared pedestrian and cycle bridge.
- Plaza Street provides the transition between the Central Park and the Mixed-Use Precinct, and the Plaza.
- Retail Street runs through the centre of the Mixed-Use Precinct, and is designed to provide for outdoor cafes/restaurants.

The intersection upgrades proposed are as follows:

- Upgrade of the intersection of Wicks Road and Waterloo Road and Spine Road (signalisation, marking and new Spine Road approach). This requires a 4m by 4m splay on the north western corner of the property at 119-127 Wicks Road, Macquarie Park (Lot 7 in Deposited Plan 1046090) to be dedicated as a public road.
- Construction of a deceleration lane for vehicle access from Epping Road into the Spine Road. In order to achieve the required length of the proposed deceleration lane and horizontal curve into the Spine Road entry, encroachment onto adjoining Lot 2 in DP 528488 is required.

3.4.7 LANDSCAPING AND OPEN SPACE

The proposed landscaping and public domain works are outlined below and illustrated in **Appendix E**.

Public domain and open space includes:

- Northern Bushland Park – Small timber deck entry and elevated timber boardwalk includes gathering spaces.
- Community Linear Park – Pockets of parkland 15.5m wide over four lot portions. A defined pedestrian and cycle route to North Ryde Station which includes passive and active recreation area, retail dining areas, turfed area, planting and park path.
- Central Open Space – Includes raised timber deck for stage events, BBQ and gathering zone, play space, passive edge under shade and mid-block connection to the proposed Retail Street.
- Plaza and Community Facility – Providing access to the bridge includes an open plaza environment for flexible use and custom timber plaza seating.

Landscaping embellishment and public art includes:

- Open space embellishment.
- Street planting and installation of furniture.
- Street lighting along all new roads.
- Public open space and recreational areas within the Northern Bushland Park, Central Open Space and plaza area and at the northern and southern extent of the Community Linear Park.
- Landscaping and public domain treatment to the proposed streets including:

- Spine Road: WSUD tree pits with mass planting and canopy trees and planting on the verge. Shared cycle/ pedestrian path provided at the northern end of Spine Road.
- Retail Street: Carriageway paved in small format granite pavers, WSUD tree pits with mass planting and canopy trees and street planting in grated pits.
- Park Street: Shared pedestrian footpath/ cycle path paved in large format dark grey granite pavers, asphalt carriageway and WSUD tree pits with mass planting and canopy trees.
- Plaza Street: Carriageway paved in small format granite pavers, Plaza and footpath paved in decorative patterned granite pavers and street tree planting in grated tree pits.

3.4.8 PEDESTRIAN AND CYCLE INFRASTRUCTURE

High quality pedestrian and cycle links are proposed to create a connected and accessible place. Key pedestrian and cycle access initiatives proposed include:

- Spine Road, Linear Park, Park Street, Central Park, Plaza Street and Plaza will provide for shared paths/environments from Wicks Road through to the shared pedestrian and cycle bridge.
- Provision of a pedestrian footpath along the northern side of Epping Road, connecting the relocated Epping Road (north) bus stop and Epping Road pedestrian overpass to the Spine Road, and then along Epping Road to Delhi Road.
- Provision of a new/upgraded pedestrian path along the eastern side of Wicks Road from Spine Road south to the end of the road widening and drainage works proposed for the Wicks Road and Waterloo Road and Spine Road intersection.
- Streets are designed with a footpath on both sides of the street, generally 3 m wide.
- Streets are designed to discourage high vehicle speeds.
- Footpaths and cycleways are incorporated into the design of parks.

The key pedestrian and cycle infrastructure proposed is the bridge which will provide universal access between the M2 plaza and Delhi Road with access to the North Ryde Station. The pedestrian bridge will be a truss style with safety screens and balustrades. The bridge will also accommodate shade canopy and seating at the midpoint.

Concept design plans of the proposed shared pedestrian and cycle bridge are included in **Appendix G**.

3.4.9 DRAINAGE

Drainage and Water Sensitive Urban Design (WSUD) on the Public Land is described in the Stormwater Management Plan provided in **Appendix H**. The proposed drainage works include:

A major/minor storm drainage philosophy has been adopted for the M2 Site. Lot generated flows will pass through WSUD treatment devices in order to meet the project water quality objectives. Design of lot WSUD will be by future lot developers in accordance with Ryde Development Control Plan 2010 and project requirements

Stormwater runoff will be directed to streetscape bio-retention and inground treatment devices. The site discharge point is proposed to be at the northern end of Spine Road, downstream of the proposed culvert upgrade into Porters Creek.

Upgrade of the stormwater drainage system on both sides of Waterloo Road is proposed to provide safe egress for emergency vehicles from the Site. The upgrade consists of:

- Local re-grading of Wicks Road to remove the local low point west of the Waterloo Road intersection.

- Upgrading the existing 2.7m diameter stormwater culvert which runs under the existing access road to the M2 site.
- 3.3m kerb inlet pits on both sides of Waterloo Road.
- 0.9m and 1.2m pipes to convey stormwater.
- Replacing the existing stormwater outfall from Wicks Road to a discharge point downstream of the culvert under the Spine Road.

3.4.10 SIGNAGE

The proposed development seeks approval for the location of future advertising in signage zones located on both the northern and southern sides of the pedestrian and cycle bridge.

The proposed location of signage zones are shown on the bridge plans provided in **Appendix G**. The proposal does not seek approval for the actual signage content. Signage content will be subject to a separate approval as necessary.

3.4.11 UTILITIES

The proposed utilities to service the site are described in **Table 7**.

TABLE 7 – PROPOSED UTILITIES

UTILITY	PROPOSED WORKS
Power	Supply to the M2 site substations is proposed to be from two different Ausgrid substations: ▪ Macquarie Park Zone substation, Waterloo Road – One (1) High Voltage Feeder/Cable - For early site establishment works and street lighting, eventually becoming the backup supply to the substations located within the M2 site. ▪ Top Ryde Zone Substation, Corner of Gardener Avenue and Buffalo Road – Three (3) High Voltage feeders/cables - Permanent supply to the substations within the M2 site. The installation of High Voltage (HV) feeder from the Macquarie Park Zone Substation would be along the following route: ▪ Waterloo Road ▪ M2 site main spine road ▪ HV cables to terminate at the intersection of the M2 site main spine road and Epping Road. ▪ Refer to sketch on following page. The installation of the HV Feeders from the Top Ryde Zone Substation would be along the following route: ▪ Gardeners Avenue ▪ Quarry Road ▪ Badajoz Road ▪ Coxs Road ▪ Blenheim Road

UTILITY	PROPOSED WORKS
	▪ Epping Road
Sewer	▪ Duplicate the existing reticulation mains in Wicks Rd, providing a DN375 sewer for the proposed development. ▪ Lead-in sewer is proposed between the West Lane Cove Sub-Main and the Wicks Rd site entry, at the northern end of the site.
Water	▪ A single purpose principal bulk supply main, minimum size DN300, is required to service the property via the Epping Rd entry. ▪ Lead-in water main is proposed between the existing DN750 water main in Coxs Rd and the Epping Rd site entry, at the southern end of the site.

3.4.12 FUTURE OWNERSHIP AND MANAGEMENT ARRANGEMENTS

The public roads lots and Lot 111 for the Community Linear Park, will be created and registered as part of the first stage of subdivision, proposed under 83B(3)(b) of the EP&A Act. These lots are proposed to be retained by UrbanGrowth NSW for a period of 12 months prior to dedication to Council. An agreement will be established whereby UrbanGrowth NSW maintains these lots for a period of two years following dedication to Council.

The physical works to the Central Park and Plaza and shared pedestrian and cycle bridge will be undertaken during this 12 month period after registration of the first subdivision stage.

The timing of constructing the indoor sports and recreation centre and the dedication of Lot 103 to the City of Ryde is described in Section 6.6.2.1 of the EIS.

4 Justification and Assessment of Alternatives

The principal purpose of the Section 83B(3)(b) Works is to facilitate the redevelopment of the precinct in line with the principles established in the Rezoning Study and NRSP DCP. Of critical importance to this is that the project evolves as a successful transit orientated development which necessitates the right balance of density and amenity, investor interest and adequate take up of public transport options.

The SSD as proposed under this application offers the following key benefits to the existing and future community:

- Development of a series of new and expanded public open space areas, providing for both active and passive recreation within the precinct. The early establishment of these areas will allow for existing residents to take advantage of the spaces throughout the full life of the project.
- Necessary infrastructure is to be provided to the site, either through the augmentation of existing utilities and services or provision of new infrastructure.
- Early delivery of key enabling infrastructure providing greater certainty and lower risk for future developers and investors.
- Upfront delivery of key internal road networks and external, but related, intersection upgrades to improve connectivity and accessibility.
- Delivery of pedestrian bridge to encourage public transport use at the outset of the project.
- Vehicle access to the site will be provided through new internal streets and upgrading of intersections with surrounding streets.
- The site is to be remediated to a standard suitable for the proposed future land uses.
- Subdivision and rehabilitation of land in the northern part of the M2 site which contains a riparian corridor. In order to best secure the rehabilitation works to this area of land, a VMP has been prepared and submitted with this application at **Appendix K**.
- Future delivery of a community facility which would be vested in Council and which would provide for the needs of the existing and future community. This will be subject to a separate development application.

The potential of the NRSP for precinct-wide renewal and redevelopment for mixed uses in an important strategic location was recognised by the NSW government through the UAP process. As a key site within the NRSP, the M2 site has been identified for redevelopment and is intended to be subdivided and released to the market for mixed uses purposes. This application facilitates the timely development of the NRSP to ensure the successful development of the UAP. Other alternatives would not achieve this outcome and would compromise the following:

- The extensive master planning design process responding to the various constraints and opportunities presented by each of the land parcels.
- The protection and preservation of significant vegetation.
- Appropriately addressing the geotechnical constraints of the ECRL and associated rail infrastructure.
- The staging of development of land and works across the site to reflect projected market demand and take up and minimising potential construction impacts on early releases within the precinct.

Overall, Section 83B(3)(b) Works subject of the application are considered to represent orderly and economic development of the precinct in line with established project objectives and the principles of ecologically sustainable development.

5 Consultation

An extensive consultation process has been undertaken and incorporated in the broader NRSP rezoning process. Further consultation relating to the M2 site State Significant Development has been undertaken in accordance with the DGRs and summarised as follows:

- Development of project website managed by UrbanGrowth NSW website and web team
- Development of a community information newsletter
- Targeted Key Stakeholder briefings were identified and carried out:
 - City of Ryde Council – 3 February 2014, 19 March 2014, 29 April 2014, 12 May 2014
 - The Hon. Victor Dominello – briefing held 30 May 2014 (facilitated by Urbis and attended by Urban Growth)
 - The Hon. Anthony Roberts – briefing held 30 May 2014 (facilitated by Urbis and attended by Urban Growth)
 - The Hon. John Alexander – briefing held 23 May 2014 (facilitated and attended by Urbis and Urban Growth)
 - Macquarie Cemetery Trust – briefing held 28 May 2014 (facilitated and attended by Urbis and Urban Growth)
 - Bike North – briefing held 27 May 2014 (facilitated and attended by Urbis and Urban Growth)
 - Ryde Macquarie Park Chamber of Commerce – briefing held 21 May 2014 (facilitated and attended by Urbis and Urban Growth)
 - Ryde Hunters Hill Flora and Fauna Society – briefing held 21 May 2014 (facilitated and attended by Urbis and Urban Growth)

A summary of the issues raised and the response to these is documented in **Table 8** below.

TABLE 8 – SUMMARY OF CONSULTATION AND RESPONSE TO ISSUES

STAKEHOLDER	ISSUE RAISED	RESPONSE
Jemena (24 May, 30 April and 28 April 2014)	Relocation of gas main.	Proposed provision of utilities to service the site is discussed in Section 7.14 .
	Supply of gas to the site.	
Transport for NSW (21 May, 20 February)	Regional transport contributions.	Consideration of Regional transport contributions are set out in Section 6.6.2 .
	VPA framework.	The proposed VPA framework is set out in Section 6.6.2 .
	Wicks/Waterloo intersection.	Public Land works associated with roads and intersections including the signalised intersection of Waterloo Road and Wicks Road and pedestrian crossing are proposed as part of the Section 83B(3)(b) Works.
Ausgrid	Lead in power infrastructure.	Proposed provision of utilities including power to service the

STAKEHOLDER	ISSUE RAISED	RESPONSE
(20 May, 13 March, 18 February 2014)		site is discussed in Section 7.14 .
City of Ryde Council (12 May and 29 April, 19 March, 3 February 2014)	Section 94 Contributions and credits.	Section 6.6.2 provides: Commitments to Infrastructure Provisions as Documented in the Finalisation Report. Regional Transport Commitments to Infrastructure Provisions as Documented in the Finalisation Report and UrbanGrowth NSW Letter to DPI Dated 23 July 2013. Preferred VPA framework. Proposed offsets From Ryde Section 94 Developer Contributions Plan.
	Flooding and OSD.	Flooding and OSD is discussed in Section 7.9 and in the Stormwater Management Plan provided in Appendix H .
	Proposed internal roads.	The proposed internal road layout is assessed in the Traffic and Transport Impact Assessment provided in Appendix I .
	Proposed open space and needs assessment.	The proposed open space is provided in accordance with the commitments specified in the Finalisation Report. A Community Needs Assessment assessing the requirements for a community facility is provided in Appendix T .
	Community facility.	The detailed design of the community facility will be the subject of a development application to the City of Ryde Council. The design is to be prepared in accordance with the following documentation submitted with this application: Subdivision Plan. Community Needs Assessment. Draft Facilities Brief. This is detailed further in Section 6.6.2.1.
RMS (5 May, 21 May, 11 April, 20 February 2014)	External road upgrades.	The need for external road upgrades has been assessed in the Traffic and Transport Impact Assessment (Appendix I) and discussed in Section 7.2 .
	Property acquisition.	A portion of land immediately adjoining the M2 site to the west which is bound by Epping Road and known as Lot 2 in DP 528488 will be utilised to accommodate access into the site. A portion of land immediately adjoining the M2 site to the north west bound by Wicks Road and known as Lot 7 in DP1046090 will be used to accommodate access to the site. Consultation and arrangements to facilitate these works

STAKEHOLDER	ISSUE RAISED	RESPONSE
		have been undertaken in this regard.
Sydney Water (24 March, 21 February 2014)	Lead in water and sewer infrastructure.	Proposed lead in infrastructure is discussed in Section 3 and Section 7.14 .
Ryde Hunters Hill Flora and Fauna Society (RHHFFS)	Ensure previous comments (through rezoning process) are considered.	Consultation for the Section 83B(3)(b) Works is undertaken in accordance with the DGRs with all comments considered as detailed in this table.
	Current drainage issues should be resolved and not exacerbated.	The Stormwater Management Plan provided in Appendix H provides an assessment of the current drainage arrangement and provides appropriate stormwater management to ensure that no impacts are associated with the proposed Section 83B(3)(b) Works.
	Protection of Bundarra Reserve, surrounding bushland and melaleuca wetland.	Tree removal is discussed in Section 6.4.5 . An Ecological Impact Assessment is provided in Appendix J and concludes the following:
	Protection of existing flora (especially turpentine tree on corner of M2/Delhi Rd).	The M2 site is located in a highly urbanized area and on land that has few ecological values due to past disturbance. The proposal will impact on 0.75 ha of Sandstone Ridgetop Woodland which is potential habitat for threatened fauna including bats, birds and one frog species. These impacts are unlikely to be significant at a local or regional scale and will be mitigated via implementation of a CEMP and Vegetation Management Plan.
Ryde Macquarie Park Chamber of Commerce	New pedestrian bridge design should be sympathetic to surrounding landscape.	The bridge alignment is designed to integrate with the surrounding vegetation and not result in any adverse visual impacts. A visual assessment of the shared pedestrian and cycle bridge is provided in Section 7.4 and a Bridge Design Report is located at Appendix G .
	Construction traffic plan of management required.	An assessment of the impact of construction traffic and necessary mitigation measures has been provided in the Traffic and Transport Impact Assessment provided in Appendix I and discussed in Section 7.2 .
	Traffic congestion at surrounding intersections already at capacity – will development of this Precinct exacerbate it.	Assessment of traffic generation and necessary mitigation measures have been included in the Traffic and Transport Impact Assessment provided in Appendix I and discussed in Section 7.2 .
	There is a lack of active open space in the community – is there potential for this development to	The proposed open space is provided in accordance with the commitments specified in the Finalisation Report.

STAKEHOLDER	ISSUE RAISED	RESPONSE
	provide new facilities.	
	Emergency Vehicle Access must be ensured	With the flood drainage works proposed at the northern end of the site, the Wicks Road / Waterloo Road intersection can be used for emergency vehicle access.
	Overflow parking is an issue on the roads surrounding precinct - will development of this Precinct exacerbate this.	The provision of on-street parking remains essentially unchanged from that envisaged by the NRSP DCP, however, the proposal increases total off-street parking requirements for the M2 site to some 2,770 spaces. Notwithstanding, the increase in required parking does not result in an increase in daily or peak period traffic generation.
	Ensure transport, traffic, cycling and pedestrian connectivity with surrounding networks.	A Parking Management Strategy is provided in Appendix I .
Northern Metropolitan Cemeteries Trust	Trust concerned about impact on current operations due to increased traffic and parking pressure generated by new development	As detailed above.
	Congestion build up in Cemetery related to inadequacy of Plassey Road/Delhi Road intersection	Appropriate traffic modelling has been undertaken and documented in the Traffic and Transport Impact Assessment provided in Appendix I .
	A regional transport assessment required to consider cumulative development impacts on top of current traffic congestion issues	
	Pedestrian connections from North Ryde Station to Cemetery indirect. Better pedestrian connections related to new development could be considered	Road profile amendments specifically respond to the Community Linear Park adjacent to the Spine Road, which will accommodate significant pedestrian and cycle infrastructure. Further, the SSDA road network meets the objectives of the NRSP DCP in regard to vehicular, servicing, pedestrian and cycle accessibility and efficiency of movement.
	Parking overflow from surrounding commercial development requires better parking management system in surrounding area.	A Parking Management Strategy is provided in Appendix I .
John Alexander MP	Traffic congestion at surrounding intersections already at capacity – will development of this Precinct exacerbate it?	The future road network requirements have been assessed for the 2031 future scenario with base traffic growth and other planned major developments and the proposed works. The Traffic and Transport Impact Assessment provided in Appendix I conclude that the traffic conditions further to the

STAKEHOLDER	ISSUE RAISED	RESPONSE
		SSDA are inherently supportable.
	Capacity of new spine road to handle increased residential traffic (inter development) and concern that it may become a “rat-run” for local traffic	The adequacy of the internal road system including the Spine Road is considered in the Traffic and Transport Impact Assessment provided in Appendix I .
	Support for stormwater flow improvements at Wicks Rd	The replacement of the existing stormwater outfall from Wicks Road which discharges into Porters Creek upstream of the existing site access road is proposed as part of the stormwater management works discussed in Appendix H .
	Query regarding car parking provision rates given reduced commercial land use component	The provision of on-street parking remains essentially unchanged from that envisaged by the NRSP DCP, however, the proposal increases total off-street parking requirements for the M2 site to some 2,770 spaces.
North Ryde-Bike North	Ensure site connects with regional cycleway network	Continuous pedestrian and cycle paths between Wicks Road and the shared pedestrian and cycle bridge are provided. The SSDA will provide essential pedestrian and cycle infrastructure across the M2 site, and specifically the key links to North Ryde Rail Station, Macquarie Rail Station and high frequency bus services in Epping Road.
	Integrating development with existing communities south of Epping Rd (pedestrian and cycling connectivity)	
	Explore opportunities for bicycle hub (lockers, showers, bike servicing) preferably on the station site	The provision of passenger set down and cycle parking facilities is to be provided in Station Street as part of the Station Site North enabling infrastructure works included in a separate application.
	Seek to involve Bike North in detailed design for pedestrian/cycle bridge and connections to regional cycle network	The design of the shared pedestrian and cycle bridge is documented in the plans provided in Appendix G . The bridge has been designed to include appropriate width to accommodate both uses and cycle safety barriers.

6 Planning Framework Assessment

6.1 STRATEGIC PLANNING POLICY

6.1.1 METROPOLITAN PLAN FOR SYDNEY AND DRAFT INNER NORTH SUBREGIONAL STRATEGY

The proposal is consistent with the actions of the *Metropolitan Plan for Sydney 2036 (Metro Strategy)* and the *Inner North Subregion Draft Sub-Regional Strategy (Draft INSS)*. Specifically, the Draft INSS aims to ensure that adequate land is available and appropriately located to sustainably accommodate the projected housing and employment needs of the region's population over the next 25 years.

Key actions within the Metro Strategy and Draft INSS that would be achieved by the NRSP are identified in **Table 9** below.

TABLE 9 – SUMMARY AND REVIEW OF METRO STRATEGY AND DRAFT INSS ACTIONS

ACTION	ASSESSMENT
SYDNEY METROPOLITAN STRATEGY	
A1 Provide suitable commercial and employment lands in strategic areas	The NRSP is located within the MPC. The M2 site is currently not developed but offers a unique opportunity to provide a mix of appropriate land uses, particularly residential, in close proximity to North Ryde Station. The works form the first stage of the M2 site's development.
B1 Provide places and locations for all types of economic activity and employment across the Sydney Region	The development of the M2 site will introduce a range of land uses that will activate North Ryde Station and surrounding lands. The future development of the site forms a logical extension to existing development in the MPC and the Riverside Business Park. The precinct is also located within the 'Global Economic Corridor'. Therefore it is considered to be of major significance for employment and economic activity. The SSDA would facilitate development of the M2 site providing the necessary subdivision pattern and infrastructure to ensure the various benefits of the site are realised.
B4 Concentrate activities near public transport	The NRSP includes the North Ryde Station which forms part of the ECRL. The proposed Section 83B(3)(b) Works include a pedestrian and cycle bridge which will connect the M2 site to the North Ryde Station and encourage public transport use.
C2 Plan for a housing mix near jobs transport and services	The Section 83B(3)(b) Works will facilitate the future development of the precinct for a range of uses including residential, commercial, retail, community uses and public open space.
C5 Improve the quality of new development and urban renewal	The NRSP aims to include appropriate sustainability measures and design excellence to enhance the quality of the ultimate redevelopment. The project is one of the largest urban renewal projects in NSW and the SSDA forms the first step.
INNER NORTH SUBREGION DRAFT SUBREGIONAL STRATEGY	
A3.2 Integration of employment and housing markets	Development of the NRSP aims to integrate a variety of appropriate land uses, including residential, retail and commercial development in proximity to North Ryde Station. The works subject of the SSDA will facilitate the ultimate redevelopment of the Site for this purpose.
B2 Increase densities in	The NRSP promotes higher densities to promote activation of North Ryde Station.

ACTION	ASSESSMENT
centres whilst improving liveability	The proposal aims to create liveable and active communities with a high degree of amenity including open space and solar access. The SSDA includes a variety of public domain and infrastructure works which will ensure that residents benefit from the connectivity and amenity which is essential to create a sustainable and liveable community.
B4 Concentrate activities near public transport	The SSDA includes the pedestrian connections necessary to link the M2 site to the Station, including significant investment in a pedestrian and cycle bridge across Delhi Road to maximise accessibility for existing and future residents.
C1.2 Apply sustainability criteria for new development	The proposal would meet relevant sustainability measures which would be incorporated at various stages of the development. Further detail on the Sustainability Strategy for the project is provided at Section 7.12 of this report.
C1.3 Plan for increased housing capacity targets in existing areas across metropolitan region.	The SSDA will provide the essential infrastructure, services and public domain works to allow for the future development of the NRSP to realise these strategic residential and employment benefits.
C2 Plan for a housing mix near jobs, transport and services	The works subject of the SSDA constitute the first stage in the broader development of the M2 site which will include a mix of housing, retail and employment lands in close proximity to a rail transport node and existing infrastructure and services.

6.1.2 DRAFT METROPOLITAN PLAN FOR SYDNEY 2031

The *Draft Metropolitan Strategy for Sydney to 2031* supports ongoing housing growth through urban renewal particularly around other centres located on the Strategic Transit Network.

The Site is located within the identified Global Economic Corridor, one of nine 'city shapers' which will accommodate areas for transformative urban renewal and regeneration. These areas will be supported by enhanced accessibility and connectivity through new infrastructure and improved transport services to provide higher intensity housing and employment.

This SSDA is entirely consistent with the objectives of the Draft Strategy.

6.1.3 DRAFT CENTRES DESIGN GUIDELINES (DEPARTMENT OF PLANNING)

The Draft Centres Design Guidelines provides urban design principles to support the design, urban renewal and growth of centres. The Draft Centres Design Guidelines are not development standards and are intended to support decision makers in preparing planning controls as well as being a useful resource for the development industry and local communities.

There are a number of key features which are common to good centres:

- Opportunities for people to work, shop, be entertained and access essential services.
- Offer an interesting mix of these activities.
- Good public transport service which is well linked to other centres and nearby residential areas.
- Easy to move around, especially on foot, but also to cycle or drive around.

Table 10 below provides an analysis of how the project meets the intent of the Draft Centres Design Guidelines.

TABLE 10 – REVIEW OF DRAFT CENTRE DESIGN GUIDELINES

ASPECT	RESPONSE
Environment	
Preserving nature and natural corridors	- Creates district neighbourhoods around a number of parks. - Retain and protect existing native vegetation where possible.
Adapting to climate change	Appropriate stormwater management and urban water run-off with flood mitigation measures, and other WSUD principles.
Urban Structure	
Walkable centres	- Allows for connectivity within and between sites in the NRSP. - Creation of integrated open space and public domain spaces encouraging their use for recreation and pedestrian or bicycle connectivity. - Creates stimulating and attractive routes to encourage repeated use. - Provides a variety of path types and roads to increase choice and enrich the urban experience. - Supports walking, cycling and public transport access.
Street Connectivity	- Provision of pedestrian and cycle bridge to increase connectivity between the M2 site and the North Ryde Station. - Significant pedestrian and cycleway upgrades and new links to improve connectivity to the North Ryde Station and the MPC.
Major Roads	Development of a new legible road system.
Main Street	Connect local streets directly to major roads.
Local Streets	Providing tree and vegetation planting within setbacks along new roads to reduce visual impact.
Lanes	- Generous footpath widths for greater pedestrian volumes. - Provision of streets which support sustainable transport such as cycle lanes, buses and walking.
Views, vistas and focal points	The site is not on the water but it looks out to and is linked to significant vegetation associated with Lane Cove National Park. The Section 83B(3)(b) Works include regeneration of the bushland setting in the site.
Activity	
Parks and squares	Parks and squares linked by green streets. Creates distinct neighbourhoods around a number of parks. Local parks within a 3–5 minute walk from existing and new residences. Provides good amenity for visitors to the site, including well-designed street furniture,

ASPECT	RESPONSE
	shaded areas and good lighting. Incorporating appropriate landscaping in open space areas.
Safety and crime prevention	Easily maintained public domain to ensure it is kept attractive and user friendly. Spaces that are well looked after can encourage ongoing activity and foster community respect and pride in the centre.
Street Elements	
Universal Design	▪ Defining the existing and future character and identity of the place, taking account of all attributes including its built form character. ▪ Establishing appropriate development controls. ▪ Integrating a centre with its surrounding natural context.
Traffic Calming	▪ Includes traffic calming measures and prevents a 'rat-run' effect. ▪ Proposed traffic intersection upgrades.
Footpath Widths	▪ Providing appropriate pedestrian paths and links to allow for comfortable pedestrian
Street Trees	▪ Landscaping and street planting on some sites.
Water Sensitive Urban Design	▪ WSUD approach has been adopted including environmental and water quality objectives and lot-based stormwater management objectives. ▪ Rehabilitation of riparian zone in northern section of the site. ▪ Protection of exposed soils via seeding / planting.
Transport, Access and Servicing	
Vehicle Access And Loading Areas	▪ Works associated with roads and intersections.
Cycle Lanes	▪ Improvements to pedestrian and cycle infrastructure external to the site.
Bus Lanes	▪ Good linkages provided to express bus services on Epping Road.
On-Street Parking	▪ Streets to accommodate on-street parking.

6.2 APPLICABLE ACTS

6.2.1 COMMONWEALTH ENVIRONMENT PROTECTION BIODIVERSITY CONSERVATION ACT 1999 (EPBC ACT)

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

Matters of national environmental significant identified in the EPBC Act are:

- World Heritage Properties
- National heritage properties
- Ramsar Wetlands
- Nationally threatened species and communities
- Migratory species protected under international agreements
- The Commonwealth marine environment
- Nuclear actions

The M2 site does not contains any vegetation which is identified as threatened species under the EPBC Act. An Ecological Impact Assessment prepared by EcoLogical Australia considering the relevant provisions of the EPBC Act is provided in **Appendix J**.

6.2.2 ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979 (EP&A ACT)

The EP&A Act is the main environment and planning legislation that applies to development in NSW. The EP&A Act establishes the process by which any development is to be considered for approval by the relevant consent authority.

Objectives of the EP&A Act

The objects of the EP&A Act provide a policy framework against which the proposal can be considered. An assessment of the proposed development against the objectives of the EP&A Act is provided in **Table 11**.

TABLE 11 – OBJECTIVES OF THE EP&A ACT

OBJECTIVES	RESPONSE
(a)(i) encourage the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment.	The proposal responds to the existing condition of the M2 site. Specialist studies have been carried out in relation to contamination, ecological, archaeological, stormwater and geotechnical features of the sites. The proposed works address the outcomes of these studies and proposes mitigation measures to properly manage all identified impacts. Additionally, the proposal seeks to subdivide the land, provide appropriate open space provisions and preliminary works to facilitate developed in an orderly manner.
(a)(ii) encourage the promotion and co-ordination of the orderly and economic	This application relates to Section 83B(3)(b) Works which will establish the public domain, superlot subdivision and infrastructure on the site to

OBJECTIVES	RESPONSE
use and development of land.	prepare for and accommodate future development.
(a)(iii) encourage the protection, provision and co-ordination of communication and utility services.	The proposal has been designed to provide appropriate communications and utility services. This is discussed further in Section 3.4.11.
(a)(iv) encourage the provision of land for public purposes.	This application will provide for public domain spaces for the benefit of the existing and future local community.
(a)(v) encourage the provision and co-ordination of community services and facilities.	The development of community services is not proposed under the Section 83B(3)(b) Works, however lots have been identified which will accommodate future community infrastructure. This application also proposes subdivision to create public open space lots and public road lots for dedication.
(a)(vi) encourage the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats.	The proposal will have minimal impacts on the native plant and animal species and ecological communities. Section 7.3 provides a full assessment in this regard.
(a)(vii) encourage ecologically sustainable development.	The principles of ecologically sustainable development have been considered as part of this proposal. Further details are provided in Section 7.12 .
(a)(viii) encourage the provision and maintenance of affordable housing.	The proposal does not involve affordable housing but will not impede its provision.
(b) promote the sharing of the responsibility for environmental planning between the different levels of government in the State, and	Future development applications will require consent from City of Ryde Council, Joint Regional Planning Panel or the Planning Assessment Commission. This final level of determination will require a thorough level of assessment to be undertaken. In addition, consultation on each future Development Application across the site will be required with Council and all levels of Government.
(c) provide increased opportunity for public involvement and participation in environmental planning and assessment.	The proposal will be placed on exhibition for public comments in accordance with the requirements of the <i>Environmental Planning and Assessment Regulation 2000</i> .

Division 4.1

Division 4.1 of the EP&A Act relates to 'State Significant Development'. Clause 89C of Division 4.1 specifies development that is State Significant Development and provides the following:

89C (2) A State environmental planning policy may declare any development, or any class or description of development, to be State significant development

Schedule 2 of the SRD SEPP 2011 declares certain development within the NRSP as State Significant Development and the approvals pathway for subdivision, public domain and infrastructure works forming part of the NRSP and forms the subject of this EIS.

In accordance with Division 4.1:

- This EIS has been prepared including consultation requirements with respect to government agencies in accordance with the DGRs (refer **Section 5**).
- Responses to submissions made on the application will be provided during the assessment period.
- A specific assessment of the proposal against Section 79C of the EP&A Act is provided in **Section 10**.

6.2.3 THREATENED SPECIES CONSERVATION ACT 1995 (TSC ACT)

The TSC Act aims to protect the critical habitat of those threatened species, populations and ecological communities that are endangered, and ensure that any action affecting threatened species, populations and ecological communities is properly assessed. An assessment of the impacts of the proposal on species, populations and ecological communities listed under Schedules 1 and 2 of the TSC Act is provided in the Ecological Impact Assessment.

The following key threatening processes are considered relevant to the proposal:

- Alteration to the natural flow regimes of rivers, streams, floodplains & wetlands (TSC Act).
- Clearing of native vegetation.
- Competition and grazing by the feral European rabbit.
- Infection of native plants by *Phytophthora cinnamomi*.
- Invasion of native plant communities by exotic perennial grasses.
- Loss of hollow-bearing trees.
- Predation by feral cats.
- Predation by the European Red Fox.
- Removal of dead wood and dead trees.

An assessment of the proposal against these processes is provided in the Ecological Assessment prepared by EcoLogical Australia and discussed further in **Section 7.3**.

6.2.4 HERITAGE ACT 1977 (HERITAGE ACT)

The Heritage Act promotes identification and conservation of the State's heritage. The Heritage Act also establishes the circumstances under which a proposal would be referred to the Heritage Council of NSW for separate approval. The M2 site is not listed on the State Heritage Register of NSW under the Heritage Act.

The M2 site has previously been significantly disturbed. A non-indigenous heritage item (well/cistern) has been identified on the M2 site. Assessment found that the Heritage Office did not require a Section 140 permit under the provisions of the Heritage Act. This is discussed further in **Section 7.7**.

6.2.5 CONTAMINATED LAND MANAGEMENT ACT 1997 (CLM ACT)

The CLM Act is the primary act under which contaminated land is regulated by the Department of Environment, Climate Change and Water (DECCW).

A Contamination Assessment and subsequent Remediation Action Plan has been prepared by Douglas Partners (refer **Appendix N** and **Appendix O**) and the extent of contamination on the site is discussed further in relation to *State Environmental Planning Policy 55 (Remediation of Land)* in **Section 7.11**.

6.2.6 ROADS ACT 1993

The Roads Act seeks to regulate the carrying out of various activities on public roads. Section 138 relates to works and structures and states the following:

(1) A person must not:

- (a) erect a structure or carry out a work in, on or over a public road, or*
 - (b) dig up or disturb the surface of a public road, or*
 - (c) remove or interfere with a structure, work or tree on a public road, or*
 - (d) pump water into a public road from any land adjoining the road, or*
 - (e) connect a road (whether public or private) to a classified road,*
- otherwise than with the consent of the appropriate roads authority*

Approval under the Roads Act 1993 is required for the proposed road works and traffic signal installation that are external to the M2 site. Section 138 approvals will be obtained from Roads and Maritime Services and Council prior to works taking place.

6.2.7 WATER ACT 1912

The Water Act 1912 aims to provide sustainable and integrated management of water sources. Approval under the Water Act is not required as part of this application.

6.2.8 WATER MANAGEMENT ACT 2000

'Controlled activities' are proposed within 40m of Porters Creek on waterfront land. These activities are associated within the clearing of vegetation, revegetation, road construction, stormwater drainage works and open space passive recreation walkways.

Under Section 89J(g) of the EP&A Act, a controlled activity approval under Section 91 of the Water Management Act 2000 for these activities does not require authorisation from the NSW Office of Water, as the proposal is being assessed as State Significant Development.

6.3 THE REGULATIONS

6.3.1 ENVIRONMENTAL PLANNING AND ASSESSMENT REGULATION 2000 (THE REGULATION)

The Regulation aims to provide the detailed provisions of how the EP&A Act applies to proposals. Part 7, Schedule 2 of the Regulation outlines the requirements for the preparation of an EIS, including those accompanying a Development Application for State Significant Development.

In accordance with Clause 6 of the Regulations, the following is provided:

TABLE 12 – CLAUSE 6 FORM REQUIREMENTS

REQUIREMENT	REFERENCE
▪ Name, address and professional qualifications of the person by whom the statement is prepared, ▪ Name and address of the responsible person, ▪ Address of the land:	Signed Declaration at the commencement of the EIS

REQUIREMENT	REFERENCE
Description of the development, activity or infrastructure to which the statement relates	Section 3
An assessment by the person by whom the statement is prepared of the environmental impact of the development, activity or infrastructure to which the statement relates, dealing with the matters referred to in this Schedule	Section 7
▪ A declaration by the person by whom the statement is prepared to the effect that: – The statement has been prepared in accordance with this Schedule, and – The statement contains all available information that is relevant to the environmental assessment of the development, activity or infrastructure to which the statement relates, and – That the information contained in the statement is neither false nor misleading.	Signed Declaration at the commencement of the EIS

The EIS has also been prepared in accordance with these requirements as shown in **Table 13**.

TABLE 13 – CLAUSE 7 ENVIRONMENTAL IMPACT STATEMENT CONTENT REQUIREMENTS

REQUIREMENT	SECTION
1) An environmental impact statement must also include each of the following:	
(a) a summary of the environmental impact statement,	Executive Summary
(b) a statement of the objectives of the development, activity or infrastructure,	Section 3.1
(c) an analysis of any feasible alternatives to the carrying out of the development, activity or infrastructure, having regard to its objectives, including the consequences of not carrying out the development, activity or infrastructure,	Section 4
(d) an analysis of the development, activity or infrastructure, including: (i) a full description of the development, activity or infrastructure, and (ii) a general description of the environment likely to be affected by the development, activity or infrastructure, together with a detailed description of those aspects of the environment that are likely to be significantly affected, and (iii) the likely impact on the environment of the development, activity or infrastructure, and (iv) a full description of the measures proposed to mitigate any adverse effects of the development, activity or infrastructure on the environment, and (v) a list of any approvals that must be obtained under any other Act or law before the development, activity or infrastructure may lawfully be carried out,	Section 2 Section 3 Section 7 Section 9 Section 6.2
(e) a compilation (in a single section of the environmental impact statement) of the measures referred to in item (d) (iv),	Section 9
(f) the reasons justifying the carrying out of the development, activity or infrastructure in the manner proposed, having regard to biophysical, economic and	Section 4

REQUIREMENT	SECTION
social considerations, including the principles of ecologically sustainable development set out in subclause (4).	

6.4 ENVIRONMENTAL PLANNING INSTRUMENTS

6.4.1 STATE ENVIRONMENTAL PLANNING POLICY (STATE AND REGIONAL DEVELOPMENT) 2011 (SRD SEPP)

The SRD SEPP was gazetted on 1 October 2011 and declares certain development to be State Significant Development (SSD) and State Significant Infrastructure (SSI).

Clause 8 of the SRD SEPP states the following:

Declaration of State significant development: Section 89C

(1) Development is declared to be State significant development for the purposes of the Act if:

(a) the development on the land concerned is, by the operation of an environmental planning instrument, not permissible without development consent under Part 4 of the Act

(b) the development is specified in Schedule 1 or 2.

Schedules 1 and 2 of the SRD SEPP list general classes of SSD and identified SSD sites which are subject to the associated provisions of Part 4 of the EP&A Act.

The NRSP is listed in Schedule 2, Part 12 of the SRD SEPP with development for the purposes of subdivision, public domain and infrastructure works being identified as SSD as follows:

12 Development at North Ryde Station Precinct Site

Development on land identified as being within the North Ryde Station Precinct Site on the State Significant Development Sites Map if the development is for the purposes of:

(a) a principal subdivision establishing major lots or public domain areas, or

(b) the creation of new roadways and associated works.

The SSD process requires lodgement of an application under Part 4 of the Act including the preparation of an EIS and the consent authority is the Minister for Planning.

This EIS has been prepared in accordance DGRs dated 19 May 2014 and Schedule 2, Part 3 of the EP&A Regulation.

6.4.2 STATE ENVIRONMENTAL PLANNING POLICY (INFRASTRUCTURE) 2007 (ISEPP)

The ISEPP provides consistent planning regimes with improved regulatory certainty for provision of infrastructure and services across NSW, along with providing for consultation with relevant public authorities during the assessment process.

The proposed development involves the establishment of a number of new intersections, North Ryde Station access improvements and new streets. A Traffic Impact Assessment (refer **Appendix I**) has been prepared to address issues relating to access and traffic impacts of the proposed development. This is discussed further in **Section 7.2**.

6.4.3 STATE ENVIRONMENTAL PLANNING POLICY 64 SIGNAGE AND ADVERTISING (SEPP 64)

SEPP 64 applies to all signage, which can be displayed with or without development consent under an environmental planning instrument and is visible from any public place or public reserve.

In accordance with Part 2 of the SEPP, the compliance of the proposal with the objectives of the policy and the assessment criteria in Schedule 1 needs to be assessed.

The proposed development includes two signage zones on the pedestrian and cycle bridge. The details of signage within these zones will be the subject of a separate assessment. Further details on the signage content will be provided prior to display.

An assessment of the proposed signage panels against the SEPP 64 objectives and assessment criteria has been undertaken and is included in **Appendix U**, which demonstrates the proposed signage can be approved under Clause 8 of SEPP 64.

6.4.4 STATE ENVIRONMENTAL PLANNING POLICY 55 (REMEDIATION OF LAND) (SEPP 55)

SEPP 55 aims to provide a State-wide planning approach to the remediation of contaminated land, and in particular, promotes the remediation of contaminated land for the purpose of reducing risk of harm to human health or the environment. Clause 8 of SEPP 55 states that category 1 remediation works should not be carried out except with the consent of the consent authority.

In accordance with the requirements of SEPP55, a Phase 1 Contamination Assessment has been prepared by Douglas Partners to assess the earthworks associated with the proposed roads, infrastructure and public domain areas. The Phase 1 Contamination Assessment identified low levels of contamination on the site.

A Remediation Action Plan (RAP) has consequently been prepared by Douglas Partners and provided in **Appendix O**. Due to the current use of the site, intrusive investigations recommended in the Phase 1 Contamination Assessment report could not be completed prior to preparing the RAP. Accordingly, the RAP is a generic RAP which outlines the work potentially required to remediate the M2 site to a standard suitable for future development.

The report concludes that it is considered likely that the M2 site can be rendered suitable for the proposed development.

The outcomes of the Contamination Assessment are discussed further in **Section 7.11**.

6.4.5 RYDE LOCAL ENVIRONMENTAL PLAN 2010 (RLEP)

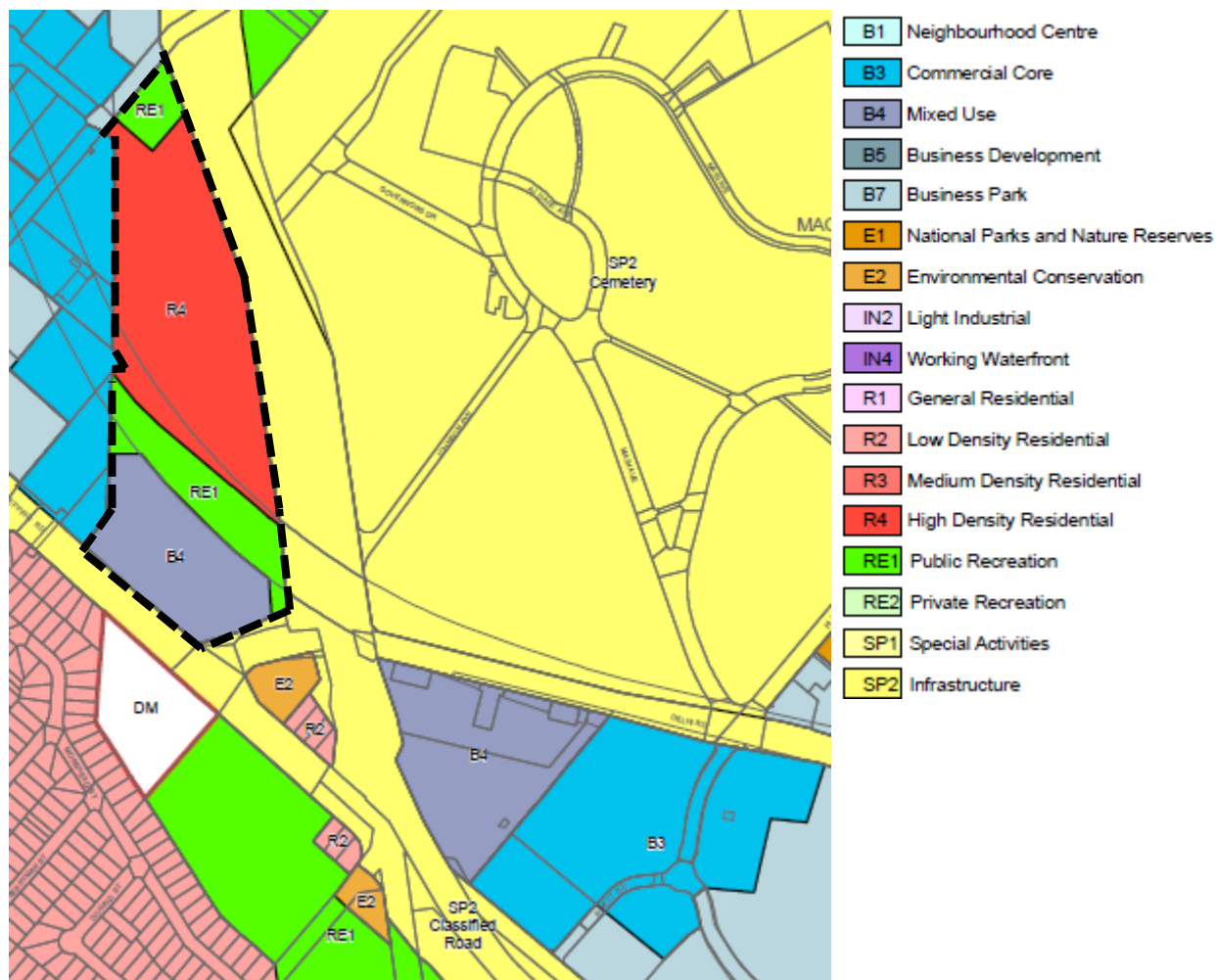
The *Ryde Local Environmental Plan 2010* (RLEP) aims to make local environmental planning provisions for land in Ryde by creating a broad framework of controls for the future development of land.

The rezoning of the NRSP established a site specific planning regime for the Precinct to guide its future development. This has now been incorporated into the RLEP and an assessment of the proposed works against the relevant controls is provided below.

Clause 2.3 – Zoning

The site has a number of different zones included in **Figure 5**.

FIGURE 5 – RYDE LEP 2010 ZONING MAP



 The Site

The site is zoned as part:

- RE1 Public Recreation: In the bushland in the far north of the site and across the lower central portion of the site reflecting the area of the Epping to Chatswood Railway tunnel.
- R4 High Density Residential: On the majority of the northern portion of the site.
- B4 Mixed Use: On the southern portion of the site.

The proposed development for the purposes of subdivision, civil and infrastructure works is permissible in the underlying zone as demonstrated in **Table 14**.

TABLE 14 – PERMISSIBLE USES

PERMITTED WITH CONSENT	PROHIBITED
RE1 Public Recreation	
<i>Business identification signs; Community facilities; Environmental facilities; Kiosks; Recreation areas; Recreation facilities (indoor); Recreation facilities (outdoor); Restaurants or cafes; Roads</i>	<i>Any development not specified as permitted.</i>

PERMITTED WITH CONSENT	PROHIBITED
B4 Mixed Use	
Boarding houses; Building identification signs; Business identification signs; Child care centres; Commercial premises; Community facilities; Educational establishments; Entertainment facilities; Function centres; Hotel or motel accommodation; Information and education facilities; Medical centres; Passenger transport facilities; Recreation facilities (indoor); Registered clubs; Respite day care centres; Restricted premises; Roads ; Seniors housing; Shop top housing; Waste or resource transfer stations; Any other development not specified as prohibited	Advertising structures; Agriculture; Animal boarding or training establishments; Biosolids treatment facilities; Camping grounds; Caravan parks; Depots; Eco-tourist facilities; General industries; Heavy industrial storage establishments; Heavy industries; Home occupations (sex services); Industrial training facilities; Sex services premises; Stock and sale yards; Vehicle body repair workshops; Vehicle repair stations; Waste or resource management facilities; Water recycling facilities; Water treatment facilities; Wharf or boating facilities
R4 High Density Residential	
Bed and breakfast accommodation; Boarding houses; Business identification signs; Child care centres; Community facilities; Dual occupancies (attached); Dwelling houses; Educational establishments; Multi dwelling housing; Neighbourhood shops; Places of public worship; Public administration buildings; Recreation areas ; Residential care facilities; Residential flat buildings; Respite day care centres; Roads ; Serviced apartments; Shop top housing	Any development not specified as permitted.

The proposed development for the purposes of subdivision works, civil and infrastructure works is permissible in the underlying zone and meets the zone objectives.

Clause 2.6 – Subdivision

Clause 2.6 states that all land may be subdivided with development consent. This proposal seeks subdivision as part of the Section 83B(3)(b) Works.

Clause 4.4 – Floor Space Ratio

The maximum floor space ratio (FSR) for development on the M2 site is provided under Clause 4.4 of the Ryde Local Environmental Plan 2010 (RLEP 2010). Clause 4.4 of the RLEP 2010 references an FSR Map. The FSR Map defines the FSR development standards for the land and is illustrated at **Figure 6**.

FIGURE 6 – RYDE LEP 2010 FSR MAP

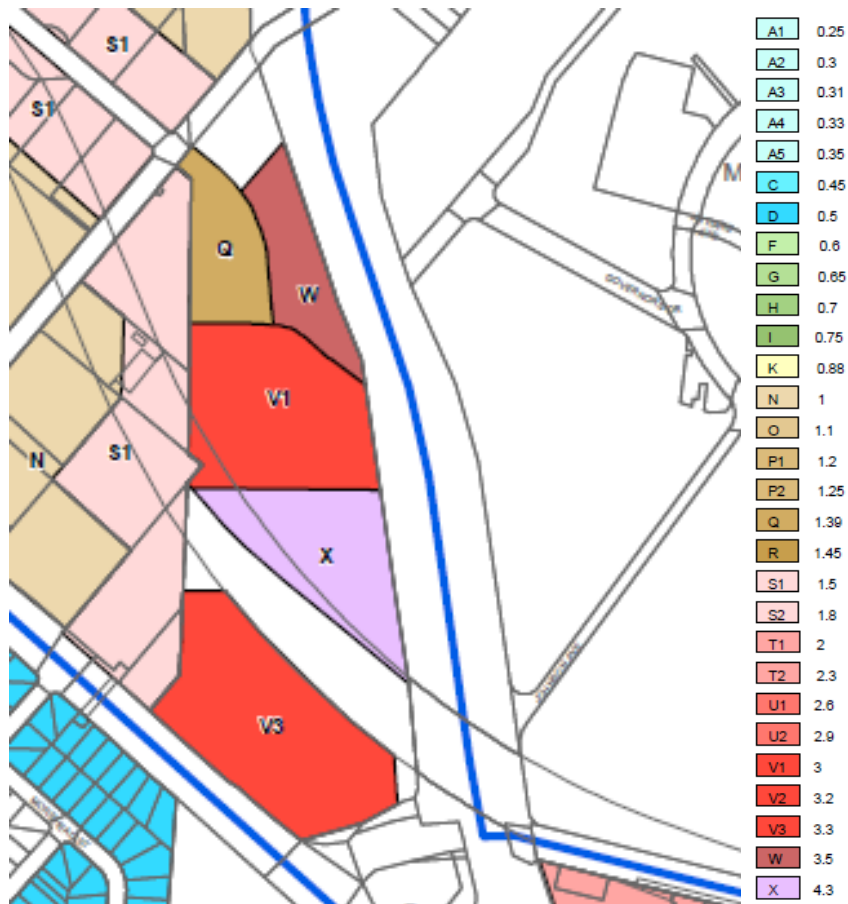


Table 15 provides the FSR bands across the M2 Site.

TABLE 15 – M2 SITE FSR BANDS

FSR BAND	FSR (MAXIMUM)
Q	1.39:1
W	3.5:1
V1	3:1
v3	3.3:1
x	4.3:1

Table 16 provides a summary of the gross floor area calculations for each of the FSR bands on the M2 site. The maximum permissible GFA that can be achieved across the M2 site within land owned by Urban Growth NSW and zoned M4 Mixed Uses or R4 High Density Residential under the Ryde LEP 2010 is 238,919sqm.

TABLE 16 – MAXIMUM PERMISSIBLE AND PROPOSED GFA

FSR ZONE	SITE AREA ¹	PERMISSIBLE GFA	PROPOSED GFA ²
W	8,332sqm	29,162sqm	45,701sqm
V1	19,853sqm	59,559sqm	55,607sqm
Q	8,183sqm	11,374sqm	6,754sqm
X	14,306sqm	61,515sqm	53,006sqm
V3	23,427sqm	77,309sqm	77,851sqm
TOTAL	74,101sqm	238,919sqm	238,919sqm

Note to table:

1. Areas of FSR bands are based on GIS coordinates and CAD mapping by the Department of Planning and Infrastructure to prepare the gazetted LEP 2010 Land Zoning, FSR and Height of Building Maps during the North Ryde UAP process.
2. Proposed GFA excludes community facilities to be dedicated to Council.

Staged development consent is sought under Section 83B of the EP&A Act including superlot subdivision of the site to create development lots and the allocation of maximum gross floor area of 238,919sqm as described in on Drawing No. DA1-003 prepared by Bates Smart Architects.

Subsequent development applications for development superlots will be required to be determined consistently with this DA, including the proposed GFA allocation.

The Finalisation Report for the North Ryde Station UAP prepared by Department of Planning and Infrastructure dated July 2013 provides that:

“It is estimated a gross floor area of 330,000m² of residential and commercial development could be provided across the precinct”.

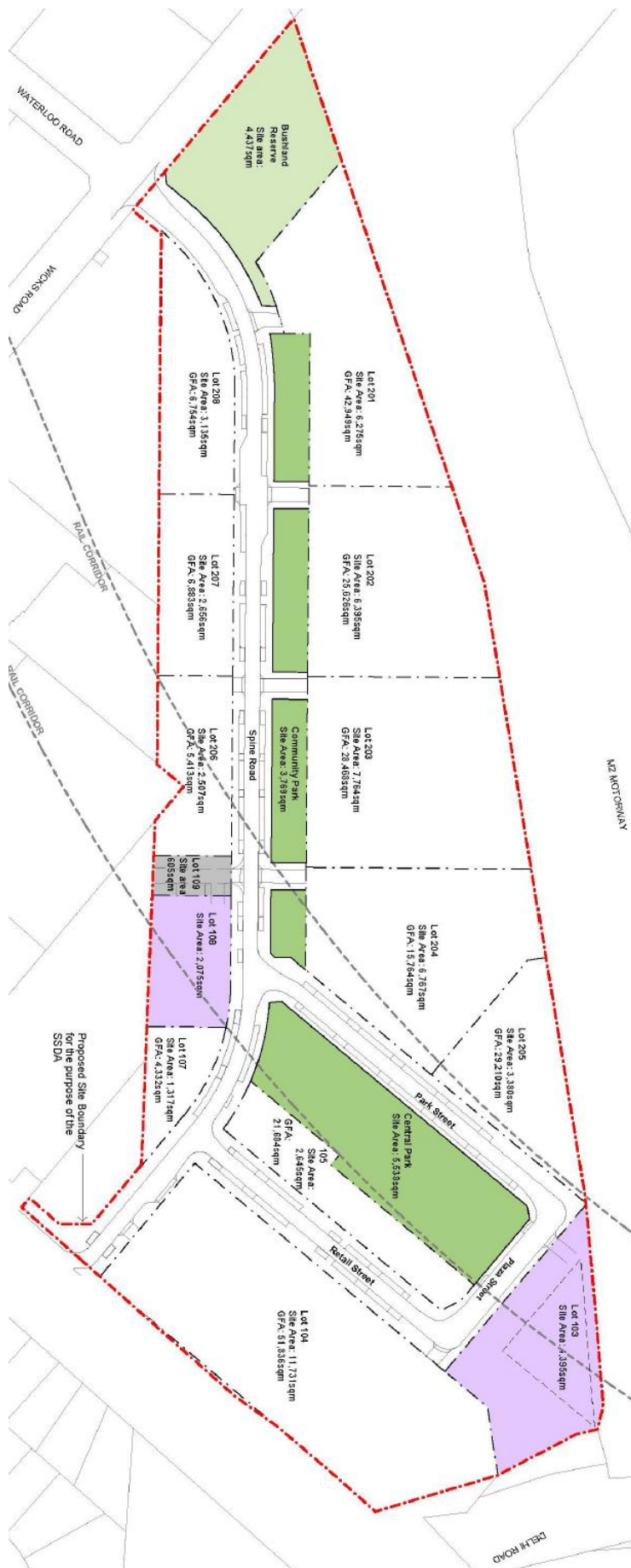
The overall GFA proposed across all of the proposed development superlots on the M2 site is consistent with the maximum permissible floor space potential for the M2 site calculated by multiplying the applicable FSR standards to each development parcel area identified under the RLEP 2010, and is consistent with the Finalisation Report for the North Ryde Station UAP.

The DGRs require the submission of plans and supporting documentation to identify the proposed distribution of GFA to the development superlots of this application. The proposal refines the GFA relative to the spatial arrangement of proposed development superlots as provided for under the gazetted FSR standards.

The proposed distribution of GFA was developed from an Indicative Layout Plan prepared by Bates Smart Architects illustrated in the Urban Design Report at **Appendix D**. The Indicative Layout Plan has been prepared, having regard to the following urban design and built form considerations:

- Ryde LEP 2010 land use provisions and maximum height of building standards
- SEPP 65: Design Quality of Residential Flat Development considerations, including:
 - Solar access;
 - Building depth;
 - Building separation;

FIGURE 8 – PROPOSED GFA ALLOCATION PLAN



Section 3 provides the proposed allocation of GFA for each of the development superlots and is demonstrated in **Figure 8**, for which Concept Approval is sought in the Staged Development Application. Refer to **Appendix E** for an A3 version of the proposed GFA Allocation Plan.

Clause 5.9 – Preservation of Trees or vegetation

This application seeks consent for the removal of trees. The Arborist Plans prepared by Arboreport at **Appendix Q** identify 28 trees. The Landscape Plans show trees to be retained and removed within the open space areas and along the Epping Rd, Delhi Rd and M2 Motorway ramp verges. Some tree removal is also required due to the proposed civil works. A total of 13 of the 28 trees will be retained and 15 removed. Vegetation within the development lots will also be cleared.

Clause 6.2 – Earthworks

Clause 6.2 identifies the considerations a consent authority must have regard to prior to granting development consent for earthworks. This Development Application for State Significant Development satisfies Clause 6.2 as follows:

TABLE 17 – EARTHWORKS OBJECTIVES

OBJECTIVES	ASSESSMENT
a) the likely disruption of, or any detrimental effect on, existing drainage patterns and soil stability in the locality,	The likely disruption of, or any detrimental effect on, existing drainage patterns and soil stability in the locality is minimised as the earthworks proposed by this application are specifically to facilitate and enhance drainage of the site.
(b) the effect of the proposed development on the likely future use or redevelopment of the land,	The application is consistent with the established land use framework under the Ryde LEP 2010 and therefore the current proposal will not compromise the likely future use or redevelopment of the land.
(c) the quality of the fill or the soil to be excavated, or both,	The earthworks strategy relies on minimising the disposal of surplus fill off site and the engineering plans prepared by Robert Bird Group at Appendix F demonstrates that excavated materials can be, in part, used as fill elsewhere on site.
(d) the effect of the proposed development on the existing and likely amenity of adjoining properties,	The proposal is not expected to have a significant impact on the existing and likely amenity of adjoining properties.
(e) the source of any fill material and the destination of any excavated material,	Fill material does not need to be sourced externally.
(f) the likelihood of disturbing relics,	The likelihood of disturbing relics is discussed in Section 7.6 and will be subject to relevant mitigation measures.
(g) proximity to and potential for adverse impacts on any watercourse, drinking water catchment or environmentally sensitive area.	There is little risk of potential for adverse impacts on any watercourse, drinking water catchment or environmentally sensitive area if the proposal is carried out in accordance with the recommendations of specialist consultants.

Clause 6.6 – Macquarie Park Corridor

Clause 6.6 identifies the objectives that must be satisfied by all DAs seeking development within the Macquarie Park Corridor. The proposal satisfies the provisions of Clause 6.6 as shown in **Table 18**.

TABLE 18 – MACQUARIE PARK CORRIDOR OBJECTIVES

OBJECTIVES	ASSESSMENT
a) to promote the corridor as a premium location for globally competitive businesses with strong links to the Macquarie University and research institutions and an enhanced sense of identity,	The subdivision will create superlots that will be able to be developed for residential and commercial uses which will support employment.
(b) to implement the State Government's strategic objectives of integrating land use and transport, reducing car dependency and creating opportunities for employment in areas supported by public transport,	The proposed development is an important stage in implementing the State Government's strategic objectives of integrating land use and transport, reducing car dependency and creating opportunities for employment in areas supported by public transport.
(c) to guide the quality of future development in the corridor,	The proposed development will be undertaken in accordance with the relevant Australian Standards and best practice to ensure the quality of future development is high.
(d) to ensure that the corridor is characterised by a high-quality, well-designed and safe environment that reflects the natural setting, with three accessible and vibrant railway station areas providing focal points,	The proposal includes high quality and carefully designed linked open space network which incorporates the natural bushland setting in the north of the site. The Community Linear Park provides recreational and interactive spaces which lead to the Central Park and Plaza area and links to the North Ryde Station. CPTED principles are discussed further in Section 7.13 .
(e) to ensure that residential and business areas are better integrated and an improved lifestyle is created for all those who live, work and study in the area.	The Central Open Space is located adjacent to the mixed use zone and allows for active retail edges which promote appropriate integration of future residential and business uses.

Clause 6.9 – Development requiring the preparation of a development control plan

Clause 6.9 has been satisfied through the preparation of the NRSP DCP 2013. This is assessed further in **Section 6.5.1**.

6.5 DEVELOPMENT CONTROL PLANS

6.5.1 NORTH RYDE STATION PRECINCT DCP

The NRSP DCP applies to development of North Ryde Station Precinct, including the M2 site High Density Residential Precinct and Mixed Use Precincts. The DCP provides objectives and controls for the urban structure, public domain, built form, pedestrian amenity, access, parking and servicing and environmental management.

The DCP was prepared on the basis of a previous Layout Plan for the NRSP. The DCP provides that all development applications are to be generally in accordance with the Indicative Layout. However the

Indicative Layout Plan is preliminary only and shows one option for development of the precinct. An alternative layout can be considered.

Urban Growth NSW commissioned Bates Smart to prepare a Plan for the M2 site to inform the proposed subdivision layout and the allocation of maximum GFA to the development superlots.

An assessment of the proposal against the provisions of the NRSP DCP is provided in **Table 19** below demonstrating that the proposed Concept Proposal and Section 83B(3)(b) Works have a high level of consistency with the objectives of the NRSP DCP notwithstanding the proposed amendments.

TABLE 19 – NORTH RYDE STATION PRECINCT DCP ASSESSMENT

PROVISION	ASSESSMENT
Indicative Layout Plan	– The Indicative Layout Plan is noted as ‘preliminary only’ and showing one option for development of the Precinct. An Alternative Layout Plan is now provided with an associated amendment to the indicative layout proposed to reflect the urban design proposals for the M2 site and Station Precinct. This has been subject to a comprehensive master planning exercise undertaken by Bates Smart Architects and included in Appendix D. It maintains the objectives of the current ILP while providing an alternative solution to: ▪ Connecting the proposed Bushland and Central Parks with a Community Linear Park to form a linked network of open space adjacent to the Spine Road. ▪ Pedestrian friendly Mews Roads to create a legible urban form that will support a high quality residential lifestyle. ▪ ‘Straightening out’ of the Spine Road while maintaining the north-south link. ▪ Relocation of Community Facilities. ▪ Inclusion of pedestrian and cycle routes. ▪ Allows for future connections to adjacent streets to the west.
Circulation Networks	The Indicative Vehicular Movement Plan is proposed to be amended to reflect the new road network and the Indicative Layout Plan. This includes deletion of the Local Road M2 Edge, inclusion of local Mews Roads and realigning site access points from the west. The objectives relating to Circulation Networks are met by: ▪ Providing a legible street network which responds to surrounding development by providing links to development to the west. ▪ Creates a clear hierarchy of streets with a Spine Road linking to Epping Road and Wicks Road. ▪ Has been assessed in the Traffic Impact Assessment as providing a clear and logical arrangement for pedestrian and vehicle movements. ▪ Provides a signalised intersection at Wicks Road/Waterloo Road. The requirement for emergency access to the M2 Motorway is proposed to be deleted. With the flood drainage works proposed at the northern end of the site, the Wicks Road / Waterloo Road intersection can be used for emergency vehicle access. Emergency access to the M2 Motorway is redundant.

PROVISION	ASSESSMENT																						
Public Transport	A Public Transport Facilities Plan has been prepared by ARC Traffic and Transport as part of the Traffic Impact Assessment Report in accordance with the provisions of the DCP.																						
Open Space	An amended Indicative Open Space Plan is proposed to reflect the inclusion of the Community Linear Park (rather than the 'Community Park') and the reallocation of the Community Centre to the Urban Plaza area. These amendments are considered consistent with the objectives as follows: ▪ The Community Linear Park acts as a buffer between development lots and the Spine Road, clearly defining neighbourhoods ▪ Provides a high level of amenity through Central Park and Plaza areas adjacent to future mixed use areas for workers and existing and future residents. ▪ Regenerates the existing northern bushland area to improve the ecological and water quality of the site. ▪ Provides for ease of pedestrian and cycle movements through the site via the Community Linear Park and new internal road network. The proposed open space also provides: ▪ Future development will ensure maximum solar access to the open space areas ▪ Provides trees for shade and more formal shading structures ▪ Children's play spaces for all ages which are highly visible for natural surveillance ▪ The parks and plazas are in accordance with the City of Ryde Public Domain Technical Manual ▪ Utilises a combination of native and exotic vegetation. ▪ Four open space areas form a Community Linear Park adjacent to the Spine Road Compared to the NRSP DCP, open space areas are achieved in total across the M2 site as shown in the table below. <table> <tr> <th colspan="2">DCP OPEN SPACE REQUIREMENT</th><th>PROPOSED LOT SIZE</th><th>BALANCE</th></tr> <tr> <td>Central Open Space</td><td>6,300sqm</td><td>5,538sqm</td><td>-762sqm</td></tr> <tr> <td>Northern Bushland Park</td><td>4,000sqm</td><td>4,437sqm</td><td>+437sqm</td></tr> <tr> <td>Pedestrian Plaza in Mixed Use Precinct</td><td>2,000sqm</td><td>4,395sqm (includes approx. 1,300sqm footprint of community facility and therefore the plaza areas is approx. 3,095sqm)</td><td>+1,095sqm</td></tr> <tr> <td>Community Park</td><td>2,000sqm</td><td>3,769sqm (Community Linear Park)</td><td>+1,769sqm</td></tr> </table>			DCP OPEN SPACE REQUIREMENT		PROPOSED LOT SIZE	BALANCE	Central Open Space	6,300sqm	5,538sqm	-762sqm	Northern Bushland Park	4,000sqm	4,437sqm	+437sqm	Pedestrian Plaza in Mixed Use Precinct	2,000sqm	4,395sqm (includes approx. 1,300sqm footprint of community facility and therefore the plaza areas is approx. 3,095sqm)	+1,095sqm	Community Park	2,000sqm	3,769sqm (Community Linear Park)	+1,769sqm
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PROVISION	ASSESSMENT			
	TOTAL	14,300sqm	16,839sqm	+2,539sqm
Streets	The design of the streets is generally in accordance with the NRSP DCP with variations to respond to the adjacent Community Linear Park, accommodating appropriate on street parking and meeting the traffic requirements. These are set out below. ▪ Spine Road: – Carriageway typically complies with 2x3.25m and varying from 2x3m/3.25m in the northern portion and 3.25m and 6.25m adjacent to the bus stop. – 1x2.5m parking area is provided with the exception of the northern portion. – Footpaths are provided on both sides of the road. Varying 2.5-3m footpath and 4m shareway. – Shared parking areas and WSUD planting areas are provided at 2.5m. – Consistent 17.5m road reserve. ▪ Retail Street (local road): – 2x3.25m carriageways and 2x2.5m parking areas which incorporate WSUD tree planting. – 2x4m pavements allowing for future outdoor dining uses. – 19.5m road reserve. ▪ Park Street (local road): Consistent with the Retail Street above. ▪ Plaza Street: (local road): – 2x3.25m carriageways. – 2x2.5m pavements. – No parking areas are included in order to accommodate a bus stop of 3.25m. – 19.5m road reserve.			
Pedestrian and Cycle Network	Amendment of the Indicative Pedestrian and Cycle Links are proposed to align with the new road layout. Primary pedestrian and cycle infrastructure through the M2 site is provided by the Spine Road; Community Linear Park; Park Street; the Central Park; Plaza Street; and the Plaza, which connects to the Shared Bridge and the North Ryde Station Sites. The proposed cycle and pedestrian routes are consistent with the intent of the DCP: ▪ Providing a safe and high quality environment for pedestrians and cyclists with footpaths on both sides of the street and clearly identified cycle areas. ▪ A pedestrian link to the plaza and bridge area is proposed to facilitate access to the North Ryde Station and the use of public transport. ▪ Bicycle parking included in proximity to community facilities and in accordance with Ryde DCP 2010			

PROVISION	ASSESSMENT
Pedestrian and Cycle Station Link	A pedestrian and cycle bridge connection between the M2 site and the North Ryde Station Site is proposed. The bridge will provide: ▪ 3m width and allow for both pedestrian and cyclist movements ▪ Barrier free access ▪ Plaza areas adjacent to the access points ▪ Be of a roll-on and roll-off design ▪ Be constructed of lightweight materials without visual impact to surrounding areas ▪ A 5.5m clearance from Delhi Road ▪ Signage in accordance with SEPP 64 The design of the bridge will not include a landing on Bundara Reserve. The bridge is designed with landing adjacent to the Station Site on Delhi Road. While the design varies from the DCP, it meets the objectives for the pedestrian and cycle link and provides a direct link to North Ryde Station.
Stormwater Management	An Integrated Stormwater Management Plan is provided in the Stormwater Management Report provided in Appendix H and has been prepared in accordance with the DCP and the DGRs.
Street Tree Planting	A Street Tree Plan has been prepared and provided in Appendix E in accordance with the DCP.
Street Furniture and Lighting	Street furniture and lighting is provided with reference to the Macquarie Park Public Domain Technical Manual. An assessment of the provisions of the technical manual is provided in Appendix U .
Public Art	Opportunities for public art have been identified in the Urban Design Report. A future public art consultant will be engaged to develop a precinct wide strategy to public art. A brief overview of the opportunities that have been considered to incorporate public art into the design of the public domain in the: ▪ Sculptural walk ▪ Site entry ▪ Community Linear Park interpretation ▪ Central park ▪ Plaza
Safety	An assessment of the proposed works against the principles of CPTED is provided in Section 7.13 .
Street Frontage	A zero setback is proposed for future street frontage height controls in the Mixed Use Zone. This will achieve the desired urban character.
Building	A 3m setback is proposed for future development to account for the amended alignment of the

PROVISION	ASSESSMENT
Setbacks	Spine Road, to accommodate the Community Linear Park and achieve the urban design vision for the site. These will contribute to the character of the area while retaining pedestrian amenity. To achieve the urban design vision for parts of the site where ground level dwellings are to have courtyards facing street frontages, a 3m setback control is proposed for the lower levels of buildings on certain street frontages to achieve desirable streetscape character.
Building Depth and Bulk	It is proposed to amend the length of building control to allow buildings with a length of greater than 50m fronting streets, where a recess in the building façade is provided with a minimum plan dimension for buildings that address streets, whilst requiring suitable building articulation.
Overshadowing	The indicative massing approach provides intended strategies for creating a legible residential scaled block pattern with massing that minimises overshadowing, provides optimal residential amenity, and maximises building separation. ▪ The Community Linear Park running through the centre of the site on a north-south axis maximises midday sun access to the open space and adjacent buildings. ▪ No overshadowing of Blenheim Park or Bundara Reserve after 9am on June 21. ▪ No overshadowing of existing residential lots after 11am on June 21.
Landscape Design	The proposed landscaped areas exceed the required 30% of the developable area of the site. Shading, deep soil areas and planting form integral parts of the proposed landscaping scheme.
Vehicular Access	Vehicular access into the site has been designed in accordance with the NRSP DCP. The access points proposed provide appropriate widths and grades, and minimise pedestrian and vehicular conflict.
Bicycle Parking	Allocation for appropriate bicycle parking has been included in the landscape design.
Environmental Performance	An ESD Report and assessment of the proposed development against the provisions of the DCP is provided in Appendix P .
Flooding	Flooding and the DCP requirements have been assessed in the report prepared by Robert Bird Group and provided in Appendix H .
Air, Noise and Vibration	Construction air quality, noise and vibration is considered in the report prepared by SLR and provided in Appendix L .
Waste Management	Construction waste will be addressed as part of the CEMP described in Section 8 .
Vegetation Management	▪ Tree removal has been minimised with limited impact to significant vegetation within the proposed Northern Bushland Reserve. ▪ Arborist Plans have been prepared and is provided in Appendix Q. ▪ A site specific VMP is provided in Appendix K and is in accordance with the requirements of the DCP for the Northern Bushland Reserve.
Soil Management	Soil management measures shall be in accordance with City of Ryde Council DCP 2010 Section 6.3.4.

PROVISION	ASSESSMENT
Site Contamination	This is addressed in Section 7.11 and Appendix N and Appendix O .
Heritage and Archaeology	This is addressed in Section 7.6 and Section 7.7 .

6.6 GUIDELINES AND PLANNING AGREEMENTS

6.6.1 MACQUARIE PARK PUBLIC DOMAIN TECHNICAL MANUAL 2008

The Macquarie Park Public Domain Technical Manual 2008 provides a guideline for designing and constructing public domain works on private and public land in the MPC. It recommends design treatments, materials and finishes for the full suite of public domain elements, ranging from light poles and pavers to street furniture and trees.

An assessment of the proposed precinct design against the guidelines of the technical manual in relation to road arrangements, paving, furniture and fixtures and lighting has been provided in **Appendix U**.

6.6.2 INFRASTRUCTURE DELIVERY AND FUNDING STRATEGY

UrbanGrowth NSW proposes to deliver a range of infrastructure to meet the demands of the proposed development. The infrastructure schedule has been derived from a number of technical assessments and agency consultations that have informed proposed development.

The Finalisation Report and the UrbanGrowth NSW letter to DPI dated 23 July 2013 documents UrbanGrowth NSW commitments associated with the development of the NRSP as set out in **Table 20** and **Table 21**. The proposed works seek to provide the necessary infrastructure as a priority to facilitate delivery of development on the site including local infrastructure.

TABLE 20 –COMMITMENTS TO INFRASTRUCTURE PROVISIONS AS DOCUMENTED IN THE FINALISATION REPORT

MEASURE	COMMITMENT IN THE FINALISATION REPORT	COMMENT
Site Access Arrangements		
M2 site - Waterloo Road/Wicks Road traffic signals and pedestrian crossings	Staging will be reviewed by UrbanGrowth NSW during preparation of the SSDA for superlot subdivision, public domain and infrastructure works, in consultation with RMS, Transport for NSW and DP&I. Final intersection design will require RMS approval.	Proposed as part of this application.
M2 site - Epping Road left-in only with deceleration lane	Staging will be reviewed by UrbanGrowth NSW during preparation of the SSDA in consultation with RMS, Transport for NSW and DPI.	Proposed as part of this application.
Project related transport measures		
Construct pedestrian bridge from M2 site to Station Site	UrbanGrowth NSW has allocated 100% of the funding of the pedestrian bridge. The bridge will be completed before the first buildings are occupied. UrbanGrowth NSW has undertaken consultation with Transport for NSW, RMS, Council and the Department, during its preparation of the SSDA.	Proposed as part of this application.

MEASURE	COMMITMENT IN THE FINALISATION REPORT	COMMENT
Community Infrastructure		
Multipurpose community facility: 2,500sqm community facility	Community facility to be delivered by UrbanGrowth NSW, with arrangements for dedication and local contributions levy offset to be negotiated with Council.	Enabling works for a community facility of up to 2,500sqm GFA subject to a future VPA.
Northern bushland park: Minimum area of 4,000sqm	Open space to be delivered by UrbanGrowth NSW, with arrangements for dedication to Council and local contributions levy offset to be negotiated with Council.	Proposed as part of this application.
Community park: Minimum area of 2,000sqm	Open space to be delivered by UrbanGrowth NSW, with arrangements for dedication to Council and local contributions levy offset to be negotiated with Council.	Known as the Community Linear Park. Proposed as part of this application.
Central open space: Minimum area of 6,300sqm	Open space to be delivered by UrbanGrowth NSW, with arrangements for dedication to Council and local contributions levy offset to be negotiated with Council.	Proposed as part of this application.
Pedestrian plazas, mixed use precinct: Minimum area of 2,000sqm	To be delivered by UrbanGrowth NSW and/or future developers, with arrangements for dedication to Council for local contributions levy offset to be negotiated with Council.	Proposed as part of this application.

TABLE 21 – REGIONAL TRANSPORT COMMITMENTS TO INFRASTRUCTURE PROVISIONS AS DOCUMENTED IN THE FINALISATION REPORT AND URBANGROWTH NSW LETTER TO DPI DATED 23 JULY 2013

REGIONAL TRANSPORT PLANNING MATTERS		
A number of regional transport measures have been identified to reduce congestion in the Macquarie Park area.	UGNSW has allocated \$10,400,000.00 towards regional transport upgrades. Discussions between UrbanGrowth NSW, Transport for NSW and RMS have been undertaken with regard to a VPA framework and in principle agreement has been reached for the following: • THE \$10.4M WILL COVER THE REGIONAL TRANSPORT CONTRIBUTIONS REQUIRED FOR THE FUTURE DEVELOPMENT OF THE M2 SITE; • The government shall not request regional transport upgrade contributions from future developers of apartments, commercial and retail buildings; • Timing of payment of \$10.4m – payment at issue of subdivision certificate for the M2 site subdivision works; • Amount paid – proportional to the lot development area included in the subdivision certificate compared to the overall site lot development area;	Subject to a separate agreement with Transport for NSW and the RMS.

	• Lot development area – the draft lot layout plan shows the superlot areas. The final areas will be those defined in the subdivision certificate; • Holding of funds – UrbanGrowth NSW will retain funds in a separate account with funds issued to RMS on receipt of a QS expenditure certificate on the regional transport upgrades listed below; • Method of payment – UrbanGrowth NSW will agree with RMS for each regional transport upgrade (see list below) with specific details for each project; • The UrbanGrowth NSW contribution will be applicable to the following projects in the priority as listed: 1. Wicks/Waterloo Roads length turn lane from Wicks Rd into Waterloo Road 2. Upgrade to Wicks/Epping Rd intersection 3. Upgrade to Waterloo/Lane Cove Roads intersection 4. Upgrade to Epping/Lane Cove Rd intersection 5. Widening Delhi Rd adjacent to North Ryde railway station 6. Upgrade to Epping/Pittwater Rd intersection 7. Upgrade to Lucknow Rd ramp onto Epping Rd 8. Bus stop and facilities outbound on Epping Rd at Delhi Rd 9. Cycleways along Wicks/Waterloo Roads.	
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The delivery of infrastructure and facilities offered by UrbanGrowth NSW in a coordinated and staged manner is a superior outcome, compared to the alternative where Council collects monetary contributions from multiple developers for individual development proposals to fund incremental infrastructure upgrades.

Section 2.10 of the Ryde Section 94 Plan describe situations where Council may accept an offer by an applicant to provide in-kind contributions where the applicant completes parts of or all of the works identified in the Plan known as a work in kind (WIK) or through the provision of another material public benefit (MPB) in lieu of the applicant satisfying the monetary contributions under the Plan. This is reflected in Council's Section 94 Plan where the works program does not place any time commitments for the delivery of the infrastructure.

Council may accept a WIK or MPB where all of the following circumstances are applicable:

- *The value of the works to be undertaken is at least equal to the value of the contribution that would otherwise be required under the Section 94 Plan;*
- *The standard of the works is to Council's full satisfaction;*

- *The provision of the material public benefit will not prejudice the timing or the manner of the provision of public facilities including in the works program.*

UrbanGrowth NSW has held discussions with Council concerning the entering into of a voluntary planning agreement (VPA) to provide this infrastructure. The VPA would seek credits which will be applied to future developers of the superlots. **Table 22** documents the proposed offsets from Ryde Section 94 Developer Contributions Plan.

TABLE 22 – PROPOSED OFFSETS FROM RYDE SECTION 94 DEVELOPER CONTRIBUTIONS PLAN

FACILITIES TO BE PROVIDED AS S94 OFFSET	RATIONALE FOR OFFSET
Community and Cultural Facilities	
<i>Multi-purpose community centre</i> Works = \$7,800,000 Land = \$2,500,000	▪ Works and land ▪ A Community facility is proposed on the M2 site with a Gross Floor Area of 2500sqm. Construction of the facility and its dedication to Council is proposed as in lieu of Council's Section 94 contributions. ▪ The Section 94 contribution is levied for community and cultural facilities to meet demand expected to be generated by future development across the LGA. A new community facility in Macquarie Park is identified in the Council's S94 Plan works schedule. A site for a new community facility will need to be acquired and the facility constructed. ▪ Council's VPA Policy has a list of potential planning obligation benefits that includes community servicing including meeting rooms, halls and libraries, child care and family health care centres, performance spaces, and family care facilities. ▪ The proposed community facility on the M2 Site will be accessible to the general public. Access is to be enhanced by providing the pedestrian/cycleways bridge over Delhi Road to link to North Ryde Station and existing and future commercial office and residential precincts outside of the NRSP. ▪ A community facility brief is being prepared in consultation with Council and will outline the range of uses that are to be accommodated in the building. ▪ Provision of a community facility in the early stages of the M2 development brings forward the delivery of this facility for Macquarie Park.
Open space	
Works = \$7,625,000 (approx.) Land = \$15,500,000	▪ Works and land ▪ A total of 14,300sqm of open space on the M2 site was committed to in the Finalisation Report for the rezoning of land in the NRSP. ▪ The works schedule for open space in Council's Section 94 Plan includes new parks acquisition and new parks and Community Linear Parks construction in Macquarie Park. It is noted Council's works schedule proposed new parks, suggesting multiple parks are required to meet demand from future residents and workers. ▪ Council's VPA Policy has a list of potential planning obligations that includes open space and public domain improvements.

FACILITIES TO BE PROVIDED AS S94 OFFSET	RATIONALE FOR OFFSET
	▪ The proposed open space areas including a network of spaces including the northern and linear community park, central park and plazas. ▪ The public domain plans for the open space embellishment works are being prepared in accordance with the Macquarie Park Public Domain Manual, prepared by Council. ▪ The provision of open space on site illuminates the need for Council to acquire open space in Macquarie Park to meet the demand created by the new resident and worker population on the M2 Site, as well as other users at the eastern end of Macquarie Park. ▪ The network of open space on the M2 Site is accessible to residents and workers in the wider Macquarie Park through the provision of vehicle access and pedestrian/cycleway improvements.
Civic and Urban	
<i>Pedestrian bridge</i> Bridge Works = \$6,900,000 Bridge Land = \$250,000 <i>Internal Pedestrian/cycleways</i> Works = \$500,000 <i>Road Verge Embellishment Works</i> Works = \$300,000 <i>Public Art Works</i> Works = \$750,000	▪ Works and land ▪ A pedestrian bridge is proposed to link the M2 Site with the North Ryde Station over Delhi Road. A shared pedestrian and cycleway network is to be provided through the M2 Site. ▪ The bridge is not specifically identified in Council's Section 94 Plan works schedule, though is considered a significant material public benefit. Public domain design and construction and public domain land acquisition in the Macquarie Park corridor is included in the works schedule. ▪ The pedestrian and cycle network (including a new bridge to the North Ryde Station) will link the development with the surrounding neighbourhoods, workplaces and the Lane Cove National Park. ▪ The pedestrian and cycle network contributes to Macquarie Park Corridor pedestrian access network. ▪ The pedestrian bridge is to be publically accessible and dedicated to Council (we assume). ▪ The pedestrian bridge is accommodated on land zoned mixed use. The use of land on the M2 Site for the bridge alignment and landing is a component of the cost in delivering this public facility. ▪ Council's Section 94 Plan includes road verge embellishment and allowances for public art.
Traffic	
Works = \$1,780,000	▪ Works ▪ Roads and traffic facilities are proposed to be provided for the M2 Site development including upgrades to surrounding local roads and intersections: – Wicks Road / Waterloo Road intersection upgrade; – Additional lane at Wicks Road/Epping Road Intersection; and

FACILITIES TO BE PROVIDED AS S94 OFFSET	RATIONALE FOR OFFSET
	- Waterloo/Lane Cove Roads ▪ Council's Section Plan works schedule include traffic management works including new signalised intersection and roundabouts. The works for the Wicks and Waterloo Road intersection are proposed as WIK while the Wicks and Waterloo Road widening will be covered by UrbanGrowth NSW contributions. ▪ Local road works proposed will contribute to improved traffic flows in the Macquarie Park Corridor, with benefits to a catchment wider than the NRSP.
Transport	
No facilities in this S94 category	▪ N/A
Cycleways	
<i>Pedestrian bridge</i> Works = \$400,000	▪ Works ▪ A pedestrian bridge is proposed to link the M2 Site with the North Ryde Station over Delhi Road. A shared pedestrian and cycleway network is to be provided through the M2 Site. ▪ The pedestrian and cycleway connections are proposed from Riverside Corporate Park, through Station Site North, over the new pedestrian bridge, through the M2 Site and connect to Waterloo Road. ▪ The shared pedestrian/cycleway are being designed in accordance with Council's standards. ▪ Council's Section 94 Plan includes a program of cycleway works with proposed local and subregional routes. Proposed local and subregional routes are identified in the Ryde Bike Plan 2007. Local bike route LR07 is proposed through the M2 Site. Refer to the Proposed North South Local Routes Map at Attachment A. ▪ The provision of a local route through the site will increase the level of cycling in Ryde, will improve and upgrade the cycling environment and improve cycling safety, consistent with the strategic objectives of Council's Bike Plan. ▪ The pedestrian bridge is to be publically accessible and dedicated (we have assumed to Council). It will service a catchment wider than the NRSP. ▪ Shared pedestrian / cycleway through the site serves a catchment wider than the NRSP. Access through the site to North Ryde Station will be enhanced for workers within the Macquarie Park Corridor and local residents.
Stormwater	
Works = \$3,780,000	▪ Works ▪ Works are proposed to upgrade the pipe drainage in Wicks and Waterloo Road and the Porters Creek culvert at the Spine Road crossing to reduce the extent of flooding in the

FACILITIES TO BE PROVIDED AS S94 OFFSET	RATIONALE FOR OFFSET
	area, and other trunk stormwater control works including pipes detention tanks, tree pits and gross pollutant traps (GPTs) on the site to support future upstream drainage network improvements. These works will have a benefit for residents and workers within the wider catchment. There is material public benefit for upstream drainage improvements by undertaking the works listed above, where Council would otherwise be required to spend monies levied under their Section 94 Plan.
TOTAL OFFSETS	\$48,085,000.00

6.6.2.1 INDOOR SPORTS AND RECREATION CENTRE

The Infrastructure Schedule at Appendix A of the Finalisation Report for the Rezoning of the NRSP lands requires UrbanGrowth NSW to deliver a community facility of 2,500m² on the NRSP lands, with arrangements made for the dedication of the facility to Council with an offset from local development contributions. UrbanGrowth NSW intends, by this development application, to initiate the process necessary to fulfil that requirement.

UrbanGrowth NSW engaged the Urbis Public Policy Group to prepare an initial assessment of the appropriate type and scale of services to be delivered as part of a community facility on the M2 Site. A multi-purpose community facility which includes a range of services including limited sport and recreation, community spaces for art and cultural activities, child care and digital and technological services was assessed to be a viable option for the site. The assessment found that a facility of this type can be adequately accommodated in an area of up to 2,500m² and will offer a range of services to meet the needs of the community. This approach meets City of Ryde Council's objective of developing flexible purpose built facilities to meet the diverse needs of residents and provides integrated services.

Urbis Public Policy has prepared a Draft Facilities Brief for a proposed community facility. This document has been prepared to inform planning and design considerations appropriate to fulfil the requirement to deliver a community facility on the NRSP lands.

Consultation with City of Ryde

Members of the project team met with Council's Senior Social Planner during the preparation of the Community Needs Assessment and Draft Facilities Brief, to discuss needs, key priorities and requirements for future provision of facilities to be considered. Meetings were held on 22 April and 13 May 2014. The Draft Facilities Brief documents the discussions including Council's preferred model for the community facility.

The purpose of the first meeting was to outline the process for undertaking a community needs analysis, discuss any existing and future community needs, and identify any supporting information. At the second meeting the outcomes from the community needs assessment, the emerging range of uses to be considered and implications for the facilities brief were discussed.

Following the meeting of the 13 May 2014, Council provided further detail on its preferred model for a community facility, namely an indoor sports centre, which Council considers should contain:

- Four (4) courts (35m by 21m/per court)
- Centre management office space
- Amenities to support the proposed use

- Adequate storage to support the proposed use
- 120m² flexible community meeting/class space
- Adequate parking to support the proposed use
- One floor of retail/commercial space

Urbis and Bates Smart have considered Council's preferred model for the community facility, and identify the following challenges for accommodating all aspects of Council's preferred model:

- Four courts of the dimensions described by Council would have an area of 2940m² (excluding circulation space between each court), exceeding the size of the community facility specified in the Finalisation Report and confirmed by the Community Needs Assessment referred to above. A single multi-purpose indoor court will meet the needs for a range of community recreational pursuits.
- Retail uses can be appropriately accommodated on the ground level to contribute to the activation of the public plaza. The provision of retail and commercial uses needs to be balanced with the primary purpose of the facility as a sports and recreation centre. A gymnasium is accommodated in the proposal, which can operate as a commercial operation.

The Proposal

This development application is a staged development application under Section 83B of the Environmental Planning and Assessment Act 1979 in respect of the indoor sports and recreation centre on proposed Public Reserve Dedication Lot 103. The area of the community facility is to be 2500m² Gross Floor Area (GFA). A level by level description of the proposed indoor sports and recreation centre is as follows:

Basement Level

- Car and bicycle parking
- Change facilities and amenities

Ground Floor Level

- One multiple-purpose court with dimensions of 35m by 21m
- Retail space (café)
- Reception
- Gymnasium
- Storage to support the proposed use
- Community meeting space designed for flexible use

First Floor Level

- Centre management office space
- Community meeting space designed for flexible use

UrbanGrowth NSW invites imposition of the following condition in the consent to this development application:

1. It is a condition of this consent that, subject to issuance of another relevant consent as referred to in Section 83B(3)(a) of the Environmental Planning and Assessment Act 1979 in respect of the proposed community facility, the applicant must complete the construction of the community facility in accordance with that other relevant consent and must dedicate Lot 103 to the City of Ryde not later than 12 months after the subdivision certificate is issued for the subdivision which forms part of Stage 1 referred to in Condition ##.
2. If, at the time of issuance of the subdivision certificate for the subdivision which forms part of Stage 1 referred to in Condition ## the community facility has not been completed and Lot 103 has not been dedicated to the City of Ryde, the applicant must provide to City of Ryde an undertaking in favour of City of Ryde from a bank entitled to conduct banking business in Australia to pay to City of Ryde upon demand the sum of \$7.8 million as security for performance of the obligations in paragraph 1 above.
3. If at the time of issuance of the subdivision certificate for the subdivision which forms part of Stage 1 referred to in Condition ## the person entitled to the benefit of this consent is a public authority, that public authority is entitled to provide its own undertaking to pay the sum of \$7.8 million, instead of an undertaking from a bank, in satisfaction of the obligation in paragraph 2.

In accordance with the Finalisation Report, UrbanGrowth NSW proposes that the cost of construction of the community facility and dedication of Lot 103 is to be offset from the monetary contributions required under the Ryde Section 94 Plan, which would apply to the future mixed use and residential development of the M2 Site. In this respect, please refer to Section 6.6.2 of this EIS.

UrbanGrowth NSW acknowledges that the community facility proposed in this development application does not satisfy all of the preferred outcomes of the City of Ryde concerning the facility. Accordingly, UrbanGrowth NSW proposes, prior to determination of this development application, to continue consultation with the City of Ryde in respect of the community facility proposed in this development application in order to ascertain whether any mutually acceptable alterations to the proposed community facility can be identified.

7 Environmental Assessment

7.1 OVERVIEW

This section provides an environmental impact assessment of the proposed works that form the Stage 1 development. An assessment of each key issue is provided below.

7.2 TRAFFIC AND TRANSPORT

UrbanGrowth NSW engaged ARC Traffic and Transport to prepare a Traffic Impact Assessment for the proposed Section 83B(3)(b) Works. A copy of this report is included at **Appendix I**.

This section provides an assessment of the existing conditions of the Precinct as well an assessment of the potential impacts specifically related to the construction of the Section 83B(3)(b) Works subject of this application.

7.2.1 EXISTING CONDITIONS

The Traffic Management and Accessibility Plan prepared for the rezoning of the NRSP provided a full assessment of the existing traffic and transport conditions which are summarised in **Table 23**.

TABLE 23 – EXISTING TRAFFIC CONDITIONS

EXISTING TRAFFIC CONDITIONS	
Road Network	The road network surrounding the North Ryde Station Precinct is dominated by arterial roads including Epping Road, Delhi Road, Lane Cove Road and the M2 Motorway. Traffic data from various sources including RMS data, traffic counts commissioned in respect of the NRSP and data from previous studies was used to obtain an understanding of current traffic conditions in the surrounding area. The analysis concluded that the road network around the Macquarie Park area is subject to congested traffic conditions during the morning and afternoon weekday peak periods and during the weekend peak, with particular congestion occurring around the Macquarie Centre. PARAMICS and SIDRA modelling was also undertaken to examine the performance of key intersections to measure performance. Preliminary traffic modelling indicated that the existing road network (particularly Lane Cove Road, Epping Road and Delhi Road) is operating close to capacity with long delays and queues. Without road upgrades, traffic would have difficulty entering and leaving the individual sites within the North Ryde Precinct due to congestion on the surrounding roads.
Intersections	SIDRA modelling found that the following intersections were currently operating at unsatisfactory Levels of Service (LoS), with extended delays and long traffic queues: ▪ Delhi Road and M2 Ramps. ▪ Epping Road and Delhi Road. ▪ Epping Road and Wicks Road. ▪ Lane Cove Road and Waterloo Road. ▪ Lane Cove Road and Epping Road.

	The Epping Road/Pittwater Road and Waterloo Road/Wicks Road intersections were also found to be experiencing extended delays. The congested conditions are projected to continue with the growth of the area, though conditions on Epping Road are expected to be alleviated with the completion of the M2 widening project.
Car Parking	Parking in the area is limited and is generally in high demand with no parking provided on main arterial roads. On-site parking rates within the MPC imposed by Council's existing planning controls are relatively high.
EXISTING PUBLIC TRANSPORT CONDITIONS	
Rail Services	The precinct is well serviced by public transport with North Ryde and Macquarie Park Stations in close proximity (generally within 800m). These stations form part of the recently constructed ECRL, served by Northern Line trains which link to the Sydney CBD and Hornsby via Epping. The line provides four services per hour in each direction during the AM and PM peaks.
Bus Services	High frequency bus services also operate along Epping Road connecting the precinct to Macquarie Park to the west and Sydney CBD and Chatswood to the east. Services are operated by the State Transit Authority (STA) and Hillsbus. Bus priority measures are also active in the area surrounding the site.
EXISTING PEDESTRIAN AND CYCLE NETWORKS	
Pedestrian	Pedestrian walkways are provided throughout the Macquarie Park area and the majority of streets and intersections have footpaths on both sides. An existing pedestrian bridge is located across Epping Road between Delhi Road and Wicks Road. Some intersections have few opportunities for providing crossings for pedestrians.
Cycle	Dedicated cycle lanes are provided on both sides of Delhi Road and within the breakdown lane on the M2 Motorway. Bike parking is also provided at North Ryde Station.
Shared ways	Shared pedestrian and cycleways are provided on the southern side of Epping Road, the western side of Wicks Road (between Wicks Road and Thomas Holt Drive) and the northern side of Waterloo Road (west of Thomas Holt Drive).

7.2.2 IMPACT ASSESSMENT

Overall Development

The traffic and transport impacts of the broader redevelopment of the Precinct have been addressed in the TMAP and Rezoning Study. Traffic and transport impacts of future development within the Precinct would also be assessed as part of future individual development applications and approvals.

TABLE 24 – TRAFFIC IMPACT ASSESSMENT

VEHICLE ACCESS	
Interface intersections	The interface intersections to the existing road network are the same provided for in the NRSP DCP. Principal vehicle access to the M2 Site will be via the signalised intersection of Wicks Road & Waterloo Road & Spine Road, while an ingress only (left turn in) intersection will also be provided from Epping Road to the Spine Road.

Future External Links	The NRSP DCP Indicative Vehicular Movement Plan requires potential future road connections to and through the existing commercial and industrial precinct to the immediate south-west of the M2 Site. A Future Access Link intersection is proposed from the Spine Road. Notwithstanding, any future connection(s) to/through the adjacent precinct will precipitate additional traffic analysis.
TRIP GENERATION	
Residential Trip Generation	In 2013 the RMS published revised trip generation rates in the RMS Guide Update, which report lower generation rates for high density resident units than those provided in the RTA Guide, being 0.19 vph per unit in the AM peak, and 0.15 vph per unit in the PM peak. Further to the resulting revisions to trips per unit (all modes), mode split analysis provides a vehicle trip estimate of approximately 490 vph in the AM peak; and 380 vph in the PM peak. These forecast flows are commensurate with the RMS Guide Update trip rate per unit, though ARC notes that the RMS Guide Update also provides trip rates per parking space, which are lower again; given that the NRSP DCP will specifically restrict parking provision (to a maximum of one space per unit) it would not be inappropriate to use these lower rates for assessment, i.e. a further reduced residential vehicle trip generation (without detailed consideration of mode split, to approximately 390 vph in the AM peak and 310 vph in the PM peak). It is acknowledged that there is the potential for a slightly higher modal split to car driver per unit at the expense of the internal containment of walking and cycle commuter trips and as such the vehicle trip generation determined with the trip rate per unit has been used for the assessment. This also aligns with the trip rates used in the TMAP modelling.
Commercial Trip Generation	Reference to the RMS Guide Update indicates that commercial trip rates have reduced from the RTA Guide rates, a result of factors such as reduced employees working the standard “9 to 5”. This particularly impacts PM peak trips, with the RMS Guide Update reporting PM peak vehicle trips are 25% lower than AM peak vehicle trips. Reference to the Guide Update, and to the TMAP mode split analysis, provides a vehicle trip estimate of approximately 100 vph in the AM peak and 80 vph in the PM peak.
Community Centre Trip Generation	The trip generation of the community facility has been estimated at 11 vph in both the AM and PM peak.
Intersections	The revised TMAP modelling incorporates the trips rate revisions provided in the RMS Guide Update for residential units, commercial and retail floorspace. Key intersections report lower delays than those reported in the TMAP. The TMAP Review provides revised intersection upgrade recommendations for 3 of the key intersections: ▪ <i>Intersection of Epping Road and Wicks Road – number of additional turn bays reduced from three to two. RMS has already conditioned the redevelopment of the service station on the corner of Epping Road and Wicks Road to allow for widening for one additional lane width. Due to this change this current allowance will be sufficient. Intersection of Wicks Road and Waterloo Road – length of left-turn lane leaving the site reduced from 100 metres to 50 metres due to reduced traffic volumes/reduced queuing.</i> ▪ <i>Intersection of Lane Cove Road and Waterloo Road – no change.</i> ▪ <i>While the intersections modelled are still forecast to be under substantial pressure, the results indicate that the impact of the development on the road network will be substantially reduced.</i>
Pedestrian and	Pedestrian and cycle infrastructure for the M2 Site is provided in accordance with the NRSP

Cycleways	DCP. Primary pedestrian and cycle infrastructure through the M2 Site is provided by the Spine Road; the Community Linear Park; Park Street; the Central Park; Plaza Street; and the Plaza, which connects to the shared pedestrian and cycle bridge and thence the Station Sites. Along with the M2 Site internal infrastructure and shared pedestrian and cycle bridge, the application also provides for the installation of signalised pedestrian crossings at the intersection of Wicks Road & Waterloo Road & Spine Road. Future M2 Site developer contributions will facilitate the upgrade of the Waterloo Road (north) existing path to a shared path between Eden Park Drive and Wicks Road. A shared zone and shared path will be constructed as part of the Station Site North enabling infrastructure works between the Shared Bridge and the Riverside Corporate Park.
Parking	While the provision of on-street parking remains essentially unchanged, the amendments increase total off-street parking requirements for the M2 Site to some 2,770 spaces. Notwithstanding, the increase in required parking does not result in an increase in daily or peak period traffic generation. With reference to Ryde DCP 2010, there is a bicycle parking requirements for some 1,100 bicycle parking spaces across the M2 Site.
Public Transport	Public transport access infrastructure for the M2 Site is provided in accordance with the NRSP DCP. A new pedestrian path will link to the Epping Road (north) bus stop, which will be relocated to the immediate west of the Epping Road pedestrian overpass to provide for the Epping Road deceleration lane to the Spine Road. Additional public transport infrastructure will be provided further to a VPA, including funding for the upgrade of the Epping Road (north and south) bus shelters adjacent to the Epping Road pedestrian overpass; and an upgrade of the Epping Road (south) bus stop east of Delhi Road.

Construction of Section 83B(3)(b) Works

The potential traffic and transport impacts of the Section 83B(3)(b) Works subject of the application are largely related to construction, as the proposal does not include permanent traffic generating development. These impacts are considered in **Table 25** in terms of the potential traffic and transport impacts associated with the construction phase and the adequacy of the design of the proposed vehicular, pedestrian and cycle network and circulation.

TABLE 25 – POTENTIAL TRAFFIC AND TRANSPORT IMPACTS AND ASSESSMENT

CONSTRUCTION TRAFFIC GENERATION	
Staff Vehicles	It is estimated that during the peak period of construction some 120 construction staff would be employed across Station Site and M2 Site. The M2 Site is estimated to employ up to 80 construction staff during peak construction periods. It is acknowledged that the majority of construction staff are expected to drive to and from the sites, potentially with little car sharing; this is simply a product of construction staff who necessarily need to transport heavy equipment and the like to and from a construction site. As such, a worst case scenario would have all construction staff travelling to and from the M2 Site each day in separate vehicles, i.e. generating some 80 vph prior to the existing AM Commuter Peak (i.e. before 7:00am); and 80 vph after the existing PM Commuter Peak (i.e. after 6:00pm).

Heavy Vehicles	Construction vehicles would include tipper trucks, semi-trailers and ready-mix (concrete) trucks. In addition, truck & dog combinations will be used for the removal of spoil, and special vehicles would deliver construction plant and bridge erection equipment. To the extent possible, specific construction plant will be installed on-site so as to reduce the demand for daily construction vehicle generation. During peak demolition and construction periods, it is estimated that the M2 Site and Station Site could together require approximately 70 construction vehicles per day, or some 140 construction vehicle trips per day.
CONSTRUCTION IMPACTS	
Traffic impacts	Given that the proposal will have similar work hours to the M2 Site construction hours, the M2 Project would therefore currently generate over 350 vph prior to the AM peak hour and following the PM peak hour, as well as construction vehicles throughout the day. These trips are generated to the intersection of Wicks Road & Waterloo Road (via a construction access point essentially aligning with the future Spine Road). As such, the M2 Site construction vehicle trip generation would represent a significant reduction from the traffic currently generated by the proposal, and as such traffic impacts in the adjacent road network would likely be significantly reduced from current levels. Notwithstanding, potential impacts would necessarily be reviewed in the CTMPs once detailed M2 Site construction trip generation is determined.
General Impacts	More broadly, the potential exists for some key construction tasks to impact on pedestrians and cyclists, particularly through the construction of the shared pedestrian and cycle bridge. However, in this case - and indeed wherever pedestrians or cyclists were impacted by M2 Site construction works - the contractor would be required to prepare appropriate Traffic Control Plans to minimise such impacts; this would likely include the clear designation of alternative travel paths; the use of traffic controllers; and the construction of key pieces of infrastructure outside of peak periods. Finally, very minimal impacts to emergency vehicles are expected through the M2 Site construction; should potential impacts arise, for example through the construction of the shared pedestrian and cycle bridge, the contractor would directly inform emergency services in regard to any possible delays/detours that might be in place.
Construction Parking	All construction staff and construction vehicle parking will be contained within the M2 Site for the duration of the demolition and construction period. No parking will be generated to the adjacent parking environment by the M2 Site construction, nor will construction vehicles be allowed to 'rest' within the adjacent road network, but rather proceed directly to the M2 Site.

7.2.3 CONCLUSION

Mitigation measures to address the above identified potential traffic and transport related impacts are provided in **Section 9** of this report.

The proposed SSDA works would result in overall improvements to pedestrian and cycle connectivity and accessibility to North Ryde Station.

Delivery of the works as proposed would have a minimal impact upon traffic and transport in the surrounding area with impacts largely related to construction and therefore being temporary, intermittent and relatively short-term. These impacts will be managed through the implementation of a Construction

Traffic Management Plan (CTMP) incorporating the mitigation measures recommended in **Section 9** of this report.

Given the extensive work involved in informing the proposed road, pedestrian and cycle improvements, the nature of impacts and the management of these impacts through construction, the proposed works are considered acceptable from a traffic and transport perspective.

7.3 BIODIVERSITY

UrbanGrowth NSW engaged EcoLogical Australia Pty Ltd (Ecological) to prepare the following reports to address the ecological impacts of the proposed Section 83B(3)(b) Works to which this application applies:

- Ecological Impact Assessment.
- Vegetation Management Plan.

Copies of these reports are included as **Appendices I1** and **I2**.

This section provides an assessment of the existing ecological conditions of the site as well an assessment of the potential impacts associated with the proposed Section 83B(3)(b) Works.

7.3.1 EXISTING CONDITIONS

The Ecological Assessment prepared by Eco Logical (refer **Appendix J**) to assess potential impacts on the flora and fauna included the following:

- Review of key datasets, mapping, and mapping interpretation guidelines were reviewed to determine ecological values and constraints.
- Review of existing flora and fauna surveys.
- Field survey over two periods.

The M2 Site contains exotic and native vegetation, with no EECs located within this area. The results of the Ecological Impact Assessment are summarised in the following sections.

TABLE 26 – EXISTING ECOLOGICAL CONDITIONS

ITEM	ASSESSMENT
Vegetation Communities	The field surveys identified two validated vegetation communities on the site: ▪ Sandstone Ridgetop Woodland (SRW) – SRW was recorded in the northern parts of the M2 Site. The patch was evident in two condition classes, in moderate to good condition occurring along the eastern boundary and that in low condition occurring in the riparian zone. This community is not consistent with any EEC listed under the TSC or EPBC Act. ▪ Weeds and Exotics - Weeds and exotics were mapped along the western boundary and dominated by bamboo.
Flora and Fauna	A total of 107 flora species were identified within the parts of the study area surveyed. Of these, 62 were native and 45 species were introduced. No threatened flora species were observed during the field survey, and the study area is unlikely to provide habitat for any of these threatened flora species. Of the weeds recorded, 14 are declared as noxious in the Ryde LGA (DPI 2014) under the <i>Noxious Weeds Act 1993</i>. The Eastern Bentwing-bat was recorded within the study area. The East Coast Freetail Bat and the Grey-headed Flying-fox was recorded at the nearby OSL site and has the

ITEM	ASSESSMENT
	potential to forage within the study area. Eastern Bentwing-bat, East Coast Freetail Bat, and Grey-headed Flying-fox are listed as vulnerable species under the TSC Act. The Grey-headed Flying-fox is also listed as a vulnerable species under the EPBC Act. A range of fauna habitat features were present in the study area which provided potential foraging, roosting, breeding and nesting resources for fauna species. While the Red-crowned Toadlet has been previously recorded on land adjoining the M2 Site, habitat for the species on the M2 site was assessed as poor and unlikely to provide habitat for the species in the long-term. The subject site contains habitat features that may be used by both diurnal and nocturnal birds, including hollow bearing trees, stags, flowering Myrtaceous trees and shrubs and the Porters Creek watercourse.

7.3.2 POTENTIAL IMPACTS AND ASSESSMENT

Table 27 describes the direct impacts of the proposed works on the biodiversity and vegetation on the site.

TABLE 27 – DIRECT IMPACTS ON ECOLOGY

IMPACT	DESCRIPTION
Direct Impacts	
Vegetation Clearing	- The proposal would impact on a total of 0.34 ha of moderate to good condition SRW and 0.38 ha of low condition SRW. The proposal would also impact on a total of 1.55 ha of land containing weeds and exotic species. The area indirectly impacted is 0.07 ha. - A total of 2.27ha of vegetation will be cleared (including weeds and exotics) and 0.32ha of low condition SRW will be retained. - In the Northern Bushland Park a vegetation clearance buffer of 2 m has been applied to the edge of the proposed passive recreation infrastructure, to take into account the work zone and potential indirect impacts in this area.
Loss of flora habitat	No threatened flora was detected and the study area is unlikely to support threatened flora species. Therefore, habitat for threatened flora species would not be lost.
Loss of fauna habitat	- The removal of vegetation, which supports SRW and weeds and exotics, would result in the removal of potential habitat including foraging, roosting/sheltering, and breeding habitat for threatened fauna species. Six hollow-bearing trees representing potential roosting/breeding habitat for East Coast Freetail Bat, Yellow-bellied Sheathtail Bat, and Little Lorikeet would be removed. - The proposal would result in the loss of approximately 0.29 ha of moderate to poor quality potential habitat for the Red-crowned Toadlet on the western boundary of the study area. Core areas of this potential habitat would be retained within the proposed 2.4m drainage easement. - The amount of habitat that would be directly impacted comprises only a small portion of habitat for threatened fauna throughout the locality. Larger areas of habitat are present in

IMPACT	DESCRIPTION
	the locality, mostly in a band of vegetation arching around the east and south of the study area, within areas including Lane Cove National Park. ▪ Direct impacts within the riparian corridor would occur due to the proposed construction of the retaining wall to Porters Creek adjacent to the Spine Road footpath / cycleway and the raised timber boardwalk and landings. ▪ The proposed raised timber boardwalk and landings have the potential to have both short and long term impacts on the riparian corridor. The proposal would require clearing of vegetation within the footprint and a 2 m buffer for access and works would be required.
Porters Creek Catchment Area and Lane Cove National Park	In summary, no direct impacts from the proposal are expected to occur within the Porters Creek Catchment Area or Lane Cove National Park given proximity of these areas from the study area and separation via the M2 Motorway.
Bundara Reserve	Bundara Reserve is located approximately 40 m to the south of the study area on the opposite side of a major road (Delhi Road). Vegetation within Bundara Reserve is Sydney Turpentine-Ironbark Forest (STIF). This community is listed as an EEC under the TSC Act as Turpentine-Ironbark Forest in the Sydney Basin Bioregion. The patch of STIF however does not meet the definition of Turpentine Ironbark Forest of the Sydney Basin Bioregion under the EPBC Act as the patch is less than 1 hectare. No direct impacts from the proposal are expected to occur within Bundara Reserve given separation via Delhi Road.

A biodiversity assessment in accordance with the *Guidelines for development adjoining land and water managed by the Department of Environment, Climate Change and Water* (DECCW, 2010) was required by the DGRs and summarised in **Table 27**.

Indirect impacts assessed include erosion and sediment control, stormwater runoff, waste water, management implications relating to pests, weeds and edge effects, fire and asset protection zones, and threats to ecological connectivity and groundwater dependent ecosystems. These are summarised in **Table 28**.

TABLE 28 – INDIRECT IMPACTS ON ECOLOGY

IMPACT	DESCRIPTION
Erosion and sediment control	Uncontrolled erosion and deposition of sediments from construction activities has the potential to smother aquatic habitats and block watercourses. Mitigation measures will be implemented to prevent sedimentation of Porters Creek and potential downstream impacts on the Lane Cove River. No impacts from direct deposition of materials would occur due to physical separation of these areas from the study area by the M2 Motorway.
Stormwater run-off	Stormwater run-off from the study area drains along Porters Creek to the Lane Cover River. The proposal is implementing a Water Sensitive Urban Design (WSUD) approach which is

IMPACT	DESCRIPTION
	described in the Stormwater/WSUD report and which will also include an Integrated Water Cycle Management Plan (IWCMP). The WSUD approach involves designing stormwater management to achieve the water quality targets outlined in Managing Urban Stormwater – Environmental targets (DECC 2007). Source control measures include gross pollutant traps and bioretention 'raingardens' that will minimise indirect impacts on both the Porters Creek Catchment Area and Lane Cove River downstream of the study area. WSUD targets have also been incorporated into the Sustainability Strategy for the NRSP.
Management implications relating to pests, weeds and edge effects	The study area contains a large number of weed and exotic species along the western boundary of the study area and at the northern end which drains to Porters Creek, likely due to the edge effects created by previous vegetation clearing. A Vegetation Management Plan (VMP) has been prepared and is currently being reviewed to assess future management of native vegetation and weeds, in order to improve the existing bushland within the northern portions of the study area along the riparian corridor. The VMP provides for the removal of weeds and reinstatement of native species in this area and will therefore improve the existing vegetation both within the study area and minimise the potential for weeds to carry downstream.

7.3.3 VEGETATION MANAGEMENT

A Vegetation Management Plan (VMP) has been prepared by EcoLogical Australia and is provided in **Appendix K**. The VMP provides recommendations for retained native vegetation within the Porters Creek riparian corridor.

Vegetation Management Works include:

- Collection of seed from SRW native vegetation proposed to be cleared at the northern end of the study area
- Weed control
- Management of human disturbance
- Retention of regrowth and remnant native vegetation
- Replanting or supplementary planting where natural regeneration will not be sufficient
- Retention of dead timber
- Erosion control
- Retention of rocks

For a detailed description of vegetation management works refer to the VMP provided in **Appendix K**.

This VMP covers both the establishment phase and the maintenance phase. The establishment phase will last for approximately two years following substantial completion of construction works with maintenance works being undertaken for a further three years.

Implementation of the VMP is included in the mitigation measures provided in **Section 9** of this report.

7.3.4 CONCLUSION

Mitigation measures to address the above identified potential impacts on biodiversity are provided in **Section 9** of this report. The key findings and conclusions of the ecological assessment include:

- The M2 site is located in a highly urbanized area and on land that has few ecological values due to past disturbance.
- The proposal will impact on 0.75 ha of Sandstone Ridgeline Woodland which is potential habitat for threatened fauna including bats, birds and one frog species. These impacts are unlikely to be significant at a local or regional scale and will be mitigated via implementation of a CEMP and Vegetation Management Plan.
- No indirect impacts to the Porters Creek Catchment Area and Lane Cove National Park and Bundara Reserve are expected to occur.
- The implementation of the VMP in the Porters Creek riparian corridor will protect remnant bushland and involve bush regeneration works.

Accordingly, with the proposed mitigation and management measures, the development is considered to be acceptable from an ecological perspective.

7.4 VISUAL IMPACTS

The proposed Section 83B(3)(b) Works will have limited visual impacts. The main visually prominent structure will be the shared pedestrian and cycle bridge. Pedestrian Bridge Plans and Design Report have been prepared by ARUP and are provided in **Appendix G**.

The existing view of the site is characterised by the following:

- The M2 site is located between predominantly industrial land in the triangle formed by the north west boundary of the site, Wicks Road to the north and Epping Road to the east and a long east boundary to the M2 Motorway.
- The existing character of the northern section of the site is dominated by remnant natural vegetation that forms a break between this area and the site.
- There are no significant views of the site from Delhi or Epping Road, other than in an oblique view to southbound vehicles on the M2 over a short distance south of the Wicks Road overpass bridge and from the western part of the Macquarie Park Cemetery. This is also screened by vegetation in the cemetery and the M2 Motorway corridor.
- The commercial/industrial built form adjacent to the site to the west is varied in height and density. The built form is generally of a lower scale than more recent commercial development along Epping Road and along Waterloo Road to the north west.

FIGURE 9 – EXISTING VIEW LOOKING EAST TOWARDS MACQUARIE PARK CEMETERY



FIGURE 10 – VIEW WITH THE PROPOSED SHARED PEDESTRIAN AND CYCLE BRIDGE



The proposed shared pedestrian and cycle bridge will be highly visibility from Delhi Road and from the intersection with the M2 and Epping Road. The visual presentation of the bridge is considered appropriate with consideration to the following:

- Its visual character would be similar to other examples in the Sydney area spanning the F3 and M4 Motorways and Pennant Hills Road.
- The bridge link to Station North Site would provide entry, permeability and connectivity to link the site to the adjacent and future community.
- The bridge would provide viewing opportunities not presently available.
- The bridge is unlikely to have significant impacts on the character of Bundara Reserve.
- It is not an unexpected item associated with a Transport Orientated Development because of the emphasis on pedestrian access.
- It would become a local landmark and signifier of linkage and entry to both sites.
- It is not considered to increase the visual sensitivity of the views in which it is present.

- Views of the bridge from the Cemetery and Crematorium will be screened to some extent by vegetation in the cemetery.
- The bridge alignment is designed to integrate with the surrounding vegetation and not result in any adverse visual impacts.

In summary, the proposed pedestrian and cycle bridge will not have a significant impact on existing views of the area and is considered appropriate to provide a key piece of linking infrastructure between the M2 site and the North Ryde Station.

7.5 CONSTRUCTION NOISE IMPACTS

An Acoustics and Air Quality Construction Assessment (AAQCA) has been prepared by SLR and includes an assessment of the existing noise environment in the locality and identification of specific noise impacts from the proposed construction works subject of this application. The report was prepared in response to the DGRs as they relate to construction noise.

Key findings from the assessment included:

- **Construction of Pedestrian Bridge:** Exceedance of the daytime noise goal of up to 11dB is predicted at the worst affected receivers being residential properties in along Epping Road. This level of exceedance is common for construction activity and will be restricted to the daytime only. The noise impacts on any single receiver are only expected to be present for a relatively short time.
- **Roads and Intersections:** Exceedance of the daytime noise goal of up to 23dB is predicted at the most affected commercial receiver west of the site during the construction of the Spine Road. In general, works to construct roads and intersections are predicted to have a low impact on residential receivers.
- **Public Domain Works:** Exceedance of the daytime noise goal of up to 14dB is predicted at the most affected commercial receiver west of site. In general, noise generated with this activity is only predicted to have a low impact on residential receivers.
- **Civil Works:** Exceedance of the daytime noise goal of up to 10dB is predicted at the most affected residential receiver south west of the site. Similar noise levels are predicted during the construction of utility infrastructure. Works will be restricted to the daytime only. The noise impacts on any single receiver are only expected to be present for a relatively short time.
- **Drainage and WSUD:** Exceedance of the daytime noise goal of up to 13dB is predicted at the most affected commercial receiver west of the site.

During noise intensive activities for civil works, it would be expected that residential receivers with a direct line of sight to the works and within a distance of approximately 65m may experience noise levels in excess of 75dBA and would therefore be considered highly noise affected.

Noise emissions from the proposed activities will be managed in accordance with the recommendations provided in the AAQCA. Mitigation measures to address potential construction noise impacts are also provided in **Section 9** of this report.

Refer to **Appendix L** for the AAQCA.

7.6 ARCHAEOLOGY HERITAGE IMPACTS

An Archaeological Assessment has been prepared by Artefact Heritage in respect of the proposed Section 83B(3)(b) Works. The assessment responds to the DGRs in relation to heritage and is included with this EIS at **Appendix R**.

The key findings of the assessment included:

- The study area has low potential to contain archaeological remains other than those of the cistern/well that was identified and re-buried in 2002. The area has been severely disturbed through its earlier use as a stockpile and compound site, and during the construction of the M2 Motorway.
- The cistern/well has local significance (after assessment under the *NSW Heritage Manual* and the *Archaeological Assessment Guidelines*). As the proposal will irreparably damage or remove the archaeological resource, a program of archaeological monitoring and excavation has been deemed the most appropriate mitigation.

Provisions for heritage management, including archaeological monitoring will be required to re-identify the cistern/well will be incorporated in the CEMP for the Section 83B(3)(b) Works. Archaeological excavation of the cistern/well and any works with the potential to impact the C.1900 well or cistern on the M2 Site will require archaeological monitoring and, may require test excavation.

Mitigation measures to address potential impacts are provided in **Section 9** of this report.

7.7 EUROPEAN HERITAGE IMPACTS

A European Heritage Assessment was undertaken by Urbis in respect of the NRSPP to address the potential heritage impacts of the proposed Section 83B(3)(b) Works is found at **Appendix S**.

The key findings of the assessment include:

- There are no statutory heritage items located within the M2 site or larger North Ryde Station Precinct site precinct boundary. Overall, the works do not adversely impact on the significance of heritage items in the vicinity of the NRSPP.
- The works on the M2 Site are opposite the Cemetery. The western boundary of the Cemetery is lined with trees that provide a buffer zone to the M2 Motorway and aesthetic setting for the Cemetery. The two sites are separated by the M2 Motorway, which varies in height from north to south.
- There are significant vistas within the Cemetery and to the surrounding area. Formal plantings within the Cemetery provide an internal aesthetic setting and landscape buffer to surrounding development.
- A new pedestrian and cycle bridge is proposed to connect the M2 Site and North Ryde Station. The proposed design for the bridge is contemporary, lightweight and low scale. The design scheme is of minimal form and will mitigate potential visual impacts to the surrounding heritage items.
- The proposal will have no negative affect to the surrounding heritage items and streetscape character.

7.8 CONSTRUCTION AIR QUALITY IMPACTS

An Acoustics and Air Quality Construction Assessment (AAQCA) has been prepared by SLR in respect of the Section 83B(3)(b) Works to characterise the existing air quality environment of the locality and to identify specific air quality impacts from the proposed construction works. The full AAQCA report is included with this EIS at **Appendix L**.

The key areas for assessment in relation to air quality impacts identified in the AAQCA are as follows:

- Potential emissions from construction phase activities on:
 - Residential land uses.
 - Commercial land uses.
 - The Macquarie Park Cemetery and Crematorium.

- Industrial land uses.
- The emission of products of combustion from plant and machinery.
- Fugitive release of emissions from fuel storage areas.
- Potentially odorous emissions due to ground invasive activities.

The key conclusions of the AAQCA are as follows:

- The risk assessment has determined that where dust impacts are unmitigated during the construction phase an 'intermediate/minor' impact significance exists for residential receptors situated greater than 10m of the M2 Site, and an 'intermediate' risk exists for commercial receptors located within 10m of the M2 Site, and for potentially odorous ground works.
- Lesser impact significance ratings apply to receptors impacts located at greater distances from construction worksites and to other air pollutants associated with the construction phase of the M2 Site.
- A reappraisal of the predicted air quality impacts has been undertaken assuming that site specific and site appropriate mitigation measures will be employed at the M2 site during the construction phase. This shows that reduced impact significance may be achieved where site specific mitigation measures are effectively employed.

Air quality mitigation measures provided in the AAQCA will be incorporated into a CEMP which will be implemented during construction. A detailed list of mitigation measures to address potential impacts is provided in **Section 9** of this report.

7.9 HYDROLOGY IMPACTS

A Stormwater Management Plan study was undertaken by the Robert Bird Group in respect of the proposed works and is included in full at **Appendix H** of this report.

The study reviews the hydrological regime of the site and considers the potential impacts of the proposed Section 83B(3)(b) Works on hydrological conditions.

The key findings of this study are provided at **Table 29**.

TABLE 29 – KEY HYDROLOGY IMPACTS

HYDROLOGY ASPECT	FINDINGS
Flooding and Access	The current assessed levels of flooding in this area pose a challenge to vehicles entering or exiting the site to evacuate south along Wicks Road or west along Waterloo Road during a major flood event. In order to capture the required amount of overland flows to make the Wicks/Waterloo Road intersection 'safe', additional twin 3.3m kerb inlet pits are proposed on both sides of Waterloo Road, spaced at approximately 5-8m intervals. The stormwater reticulation is to be upgraded to 0.9m and 1.2m diameter pipes, with twin 1.2m diameter pipes to discharge downstream of the culvert. Included in the proposed upgrade of the Wicks/Waterloo intersection is an upgrade of the stormwater culvert which runs under the existing site access road to the M2 Site. The culvert is to be a 3.6m x 2.4m reinforced concrete box culvert, which will replace the existing 2.7m diameter culvert. In summary, the substantial upgrade of the Wicks/Waterloo Road intersection drainage system will capture sufficient overland flows from surrounding catchments, permitting emergency vehicles to enter/exit the planned development through the Wicks/Waterloo Road intersection in

HYDROLOGY ASPECT	FINDINGS
	a 100 year ARI flood.
On Site Detention	Under the City of Ryde DCP Part 8.2, on site detention requirements may be waived where it can be demonstrated that the total catchment containing the site were developed to its full potential while maintaining the existing infrastructure, stormwater detention on the subject site would not be beneficial in reducing adverse flooding impacts on downstream roads, properties and open watercourses. The existing conditions; proposed conditions with OSD; and proposed conditions without OSD were modelled re-directing the precinct runoff to an outfall downstream of the existing site access road locally reduces flooding of existing development upstream of the access road. This, in combination with the drainage augmentation, far outweighs any minor impact of slightly increasing the peak runoff from the M2 site by not implementing OSD as part of the development. In summary, it was concluded that: ▪ The precinct will discharge runoff at the lower end of the developed catchments; and ▪ Exempting the planned development from the requirement to install OSD does not adversely impact on the flood behaviour on downstream roads or properties.
WSUD	A water sensitive urban design (WSUD) approach has been adopted to mitigate any water quality issues on downstream receiving environments. These include environmental and water quality objectives and lot-based stormwater management objectives. WSUD management principles that have been adopted for this project include: ▪ Safe conveyance of stormwater; ▪ Water quality treatment of runoff, in order to minimise adverse impacts on downstream waterways; ▪ Source control; and ▪ Incorporating stormwater management measures in to the streetscape/
Stormwater Quality: Water conservation and safe conveyance of stormwater runoff.	A stormwater drainage system has been designed using the specified design criteria. Pipe sizes range from diameter 375mm at the very top of the catchment, to an end of line discharge pipe of diameter 1350mm. Pits have been arranged to sufficiently reduce overland flows to 'pedestrian safe' values throughout the site, and to zero at the bottom of the catchment, during the 100 year ARI storm event. No OSD has been provided for the Public Domain.
Stormwater Quality: Construction stage and post-development	An erosion and sediment control plan has been prepared as required by Section 6.3.4 of Part 4.5 of the Ryde DCP, in order to minimise the construction impacts of the works associated with the development. Refer to the Civil Plans provided in Appendix F .
Stormwater Drainage	A major/minor storm drainage philosophy has been adopted for the M2 Site. The minor design storm modelled is the 20 year ARI, which will be conveyed in stormwater drainage pipes. The major storm event is 100 year ARI with excess stormwater runoff safely discharging within the roads and overland flows paths. The site discharge point is proposed is to be at the northern end of Spine Road, downstream of the proposed culvert upgrade into Porters Creek.

HYDROLOGY ASPECT	FINDINGS
	Lot generated flows will pass through WSUD treatment devices within each development lot in order to meet the project water quality objectives. Design of lot WSUD will be by future lot developers in accordance with the DCP 2010 and project requirements. The stormwater from the lot developments will discharge to the stormwater network within the Public Domain and ultimately discharge into Porters Creek downstream of the culvert under Spine Road. Within the Public Domain, stormwater runoff will be directed to streetscape bio-retention and inground treatment devices (such as Enviropods) before entering the stormwater network in Spine Road, Park Street, Retail Street and Plaza Street. MUSIC modelling has demonstrated that water quality targets can be reached by a combination of approximately 500m² of streetscape bioretention and seven Enviropods. A Stormwater Layout Plan of the overall stormwater drainage concept is provided with this EIS in Appendix H.

The findings of the hydrology, flooding and WSUD study, and the proposed works to be undertaken, are included in **Appendix H**.

Mitigation measures to address potential impacts of hydrology are provided in **Section 9** of this report.

7.10 GEOTECHNICAL IMPACTS

A Preliminary Geotechnical Investigation has been prepared by Douglas Partners and is provided in **Appendix M**.

The report provides information on subsurface conditions for the preliminary design and planning of earthworks, foundations, excavation support and pavements.

The key findings of the Geotechnical Report are as follows:

- Any surface development within the zone of influence of the ECRL tunnel will need to consider the effects on the tunnel.
- For the construction of engineered filling platforms, or pavements, site preparation and earthworks measures are recommended for new filling on natural ground.

Mitigation measures to address potential geotechnical impacts are provided in **Section 9** of this report.

7.11 CONTAMINATION IMPACTS

The M2 Site is predominantly used at present by Leighton Contractors Pty Ltd (Leighton) and the Epping to Thornleigh Third Track (ETTT) Alliance as the site compound associated with the M2 Hills Motorway upgrade and the Epping to Thornleigh rail track works.

A Phase 1 Contamination Assessment by Douglas Partners in 2011 (refer **Appendix N**) to assess the earthworks associated with the proposed roads, infrastructure and public domain areas. The Phase 1 Contamination Assessment identified low levels of contamination on the site. However no significant contamination issues were identified. The Phase 1 Contamination Assessment concludes that the currently identified low level of contamination will not prohibit the proposed works and the land uses proposed in the Rezoning.

A Remediation Action Plan (RAP) has been prepared by Douglas Partners and provided in **Appendix O**. Due to the current use of the site, intrusive investigations recommended in the Phase 1 Contamination Assessment report could not be completed prior to preparing the RAP. Accordingly, the RAP is a generic RAP which outlines the work potentially required to remediate the M2 Site to a standard suitable for future

development. This RAP, therefore, has been informed by the potential contamination issues outlined in the Phase 1 Contamination Assessment report which have not been ground-truthed. The remediation recommendations provided herein will require review once intrusive investigations have been completed and the actual extent of contamination, if any, has been assessed. A revised RAP will then be prepared providing remediation and validation details.

The RAP presents:

- A remediation strategy including remediation options;
- A preferred remediation;
- Proposed Detailed Site Investigation; and
- Anticipated updates required to the RAP.

The RAP concludes that it is considered likely that the M2 Site can be rendered suitable for the proposed development.

7.12 SUSTAINABILITY

An Ecologically Sustainable Development (ESD) Report prepared by Cardno is provided in **Appendix P** and identifies suitable sustainability initiatives that may be employed throughout the design, construction and ongoing operation of the proposed development. The report has been prepared with regard to the following:

- Schedule 2, Clause 7(4) of *Environmental Planning and Assessment Regulation 2000*
- Ryde Local Environment Plan 2010
- North Ryde Station Precinct Development Control Plan (DCP) 2013

Table 30 provides a summary of the proposed initiatives.

TABLE 30 – PROPOSED SUSTAINABILITY INITIATIVES

CATEGORY	INITIATIVES
Management	▪ Use of contractors operating under ISO84001 Environmental Management Systems. ▪ Prepare and implement a CEMP. ▪ Prepare and implement a WMP (a sub plan of the CEMP).
Energy and Emissions	▪ Minimise cut to fill earthworks in the design; ▪ Minimise off-site disposal of materials to minimise transport emissions; ▪ Maximise beneficial re-use of any excess materials to minimise energy usage associated with treatment or reprocessing of those materials; ▪ Prepare and implement a CEMP; ▪ Use of low emissions fuels and low embodied carbon materials where practicable; ▪ Implement dust suppression measures such as water sprays; ▪ Fitting construction vehicles with pollution control devices;

CATEGORY	INITIATIVES
	▪ Locating plant as far from residential receptors as practicable; ▪ Trucks and other machinery would be properly maintained and not be left idling; ▪ Use of bunded areas to store fuels, oils, chemicals, flammable and liquids; ▪ Provision of spill kits at hydrocarbon storage and handling areas; ▪ Regular environmental inspections; ▪ Encourage workers to commute to work.
Transport	▪ Development of site as a Transit Oriented Development (TOD); ▪ Construction of a shared pedestrian and cycle bridge linking the M2 Site to North Ryde Station; ▪ Create pedestrian and cycle links with North Ryde Station and Epping Road bus routes; ▪ Create pedestrian and cycle links with surrounding area; ▪ Development of mixed use zones and buildings to reduce travel required for residents; ▪ Provision of bicycle parking at North Ryde Station and within development; and ▪ Development of a detailed CTMP.
Water	▪ Implement a whole of site drainage plan; ▪ Incorporation of WSUD measures into precinct design; ▪ Rain gardens and bioremediation swales incorporated into primary road infrastructure; ▪ Develop and implement an erosion and sediment control plan; ▪ Monitoring potable water consumption during construction; ▪ Reuse of wastewater for dust suppression or irrigation; ▪ Minimise erosion through seeding and planting; ▪ Rehabilitation of the riparian zone alongside Porters Creek.
Materials and Waste	▪ Minimise cut to fill earthworks in the design; ▪ Use of sustainably sourced materials where raw materials are required; ▪ Reuse of VENM on other development sites to divert waste from landfill; ▪ Implement a WMP during the construction phase of works in accordance with the resource recovery principles of the Waste Avoidance and Resource Recovery Act 2001; ▪ Reuse of suitable waste material on-site where possible; ▪ Centralised recycling areas and waste bins on construction site; and ▪ Toolbox talks for construction workers to encourage recycling and good waste management

CATEGORY	INITIATIVES
	practices.
Land Use and Ecology	▪ Creation of open space/landscaped areas within a brownfield site; ▪ Minimise vegetation removal during design; ▪ Consolidate vegetation corridors and links to Lane Cove National Park through street tree planting; ▪ Planting of indigenous species to contribute to the ecological diversity of the area and create habitat for local species; ▪ Vegetation Management Plan for the Northern Bushland Park and rehabilitation of the Porters Creek riparian corridor; and ▪ Implementation of CEMP including ecological management and mitigation measures.
Social and Community	▪ Encourage use of mass public transport by workers to reduce local traffic and exhaust emissions from construction works; ▪ Minimise reliance on private transport through provision of a pedestrian and cycle network and encourage use of mass public transport; ▪ Provide public open spaces and high quality amenities for active and passive recreation; ▪ Provide community areas and public art; ▪ Encourage development of mixed used buildings to promote lively streets and community areas; ▪ Minimise overshadowing of public spaces and existing residential areas through design of building layout and height restrictions; ▪ Archaeological investigation of well/cistern heritage item; and ▪ The CEMP to outline the process to be followed should Aboriginal objects are located during construction works.

7.13 SAFETY

In accordance with the Department's guideline - *Crime prevention and the assessment of development applications* – the following Crime Prevention Through Environmental Design (CPTED) principles have been considered in the design of the site.

Situational crime prevention involves changing various aspects of the environment so that the efforts and risks required to commit crime are increased, and offender's perceived rewards are reduced. Crimes such as vandalism, assault, break and enter; theft, trespassing, and motor vehicle theft tend to be more responsive to situational crime prevention strategies. These are the types of crimes that most commonly occur in public spaces.

This knowledge has been applied through the CPTED principles to inform the planning and design stages of public spaces. The key CPTED principles are:

- **Natural surveillance** – maximising opportunities for passers-by or residents to observe what happens in an area (the 'safety in numbers' concept). This may be achieved through, for instance, the placement of physical features, activities and people.

- **Access control** – control of who enters an area so that unauthorised people are excluded, for instance, via physical barriers such as fences and grills.
- **Territorial reinforcement/ownership** – people are more likely to protect territory they feel they own and have a certain respect for the territory of others. This can be expressed through installation of fences, paving, signs, good maintenance and landscaping.
- **Space management** – ensures that space is appropriately utilised and cared for. Space management strategies include; activity coordination, site cleanliness, rapid repair of vandalism and graffiti, the replacement of burned out lighting and the removal or refurbishment of decayed physical elements.

The key design and operational measures that will be implemented for the site are outlined below.

TABLE 31 – ASSESSMENT OF CPTED PRINCIPLES

PRINCIPLE	RESPONSE
Surveillance	▪ Clear sightlines are provided between public open space and adjoining private lots; ▪ The site is relatively uniformly graded with clear sightlines. ▪ Effective lighting of the roads, parks and plaza areas. ▪ Lighting incorporated into bridge structure. ▪ A provision of landscaping that does not provide offenders with a place to hide or entrap victims. ▪ Lighting will satisfy the relevant Australian Standard. ▪ Minimise density of planting to maintain clear sightlines. ▪ Carefully located seats provide opportunity for sitting within a garden setting, or elevated positions to 'people-watch'. ▪ Careful siting ensures play is safely located away from major roads and intersections, and adjacent to gathering areas to ensure good surveillance.
Access Control	Public open spaces are clearly distinguished from private spaces and development lots.
Territorial reinforcement/ownership	▪ A Retail Street is located on axis with the proposed shared pedestrian and cycle bridge. ▪ Streets within the site may be extended into the neighbouring site to provide a legible network of neighbourhood streets. ▪ Streets where pedestrians are prioritised. ▪ 8m landscape buffer along Motorway adjoining development lots north of the plaza. ▪ Active retail edge. ▪ Continuous shared footpath/ cycle path from Wicks Road to Plaza and shared pedestrian and cycle bridge. ▪ Seating integrated to boardwalk in the Northern Bushland Reserve at regular intervals. ▪ Plaza Street and a portion of Retail Street carriageways paved in small format granite

PRINCIPLE	RESPONSE
	pavers/ setts as slow speed environment.
Space management	- Integration of bins into open space and plaza areas. - Open plaza environment.

Further to the above, the bridge design incorporates CPTED principles such as incorporating lighting, maximising visual exposure for users and interfacing in areas of high visibility. The design also provides for ease of maintenance by limiting graffiti surfaces, avoiding any lift structures and providing for a robust and durable structure in the selection of materials and finishes.

7.14 UTILITIES

The Site will be supplied with electricity, potable water, sewer, gas and telecommunications services. Street lighting will be provided for the roads and public open spaces in accordance with City of Ryde Council standards.

All services will be located within the road reserve verges and footpaths, except for sewerage, which is proposed to be located in the public open space (Lot 111) and along the western site boundary.

The following sections describe the proposed lead in works associated with sewer, water and power connections.

Sewer

The Site has a sewer connection into an existing reticulation sewer in Wicks Road which discharges to the West Lane Cove Sub-Main, located on the east of the M2 corridor. This section of reticulation main includes a crossing under the M2, which has been upsized to DN375 to allow for future growth.

Sydney Water has advised that a continuous length of DN375 main is required to service the future M2 Site. As a result, the existing reticulation mains in Waterloo Road and Wicks Road do not have sufficient capacity to service the proposed development. Sydney Water have advised that the upsized DN375 M2 crossing and the West Lane Cove Sub-Main both have sufficient capacity for the development. The DN300 sewer between the M2 and the sub-main does not have sufficient capacity for the development.

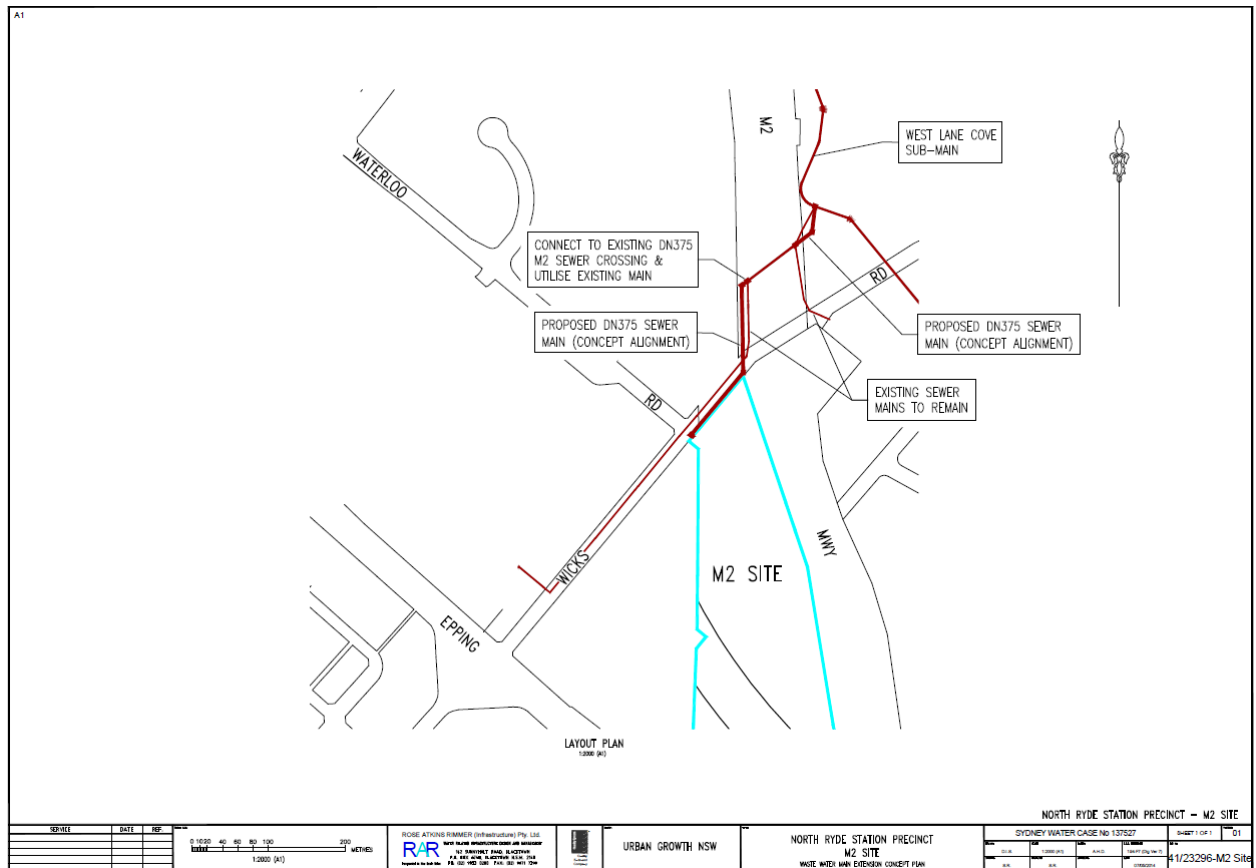
Based on this, it is required to duplicate the existing reticulation mains in Wicks Rd, providing a DN375 sewer for the proposed development. The existing DN375 sewer crossing of the M2 can be utilised, however, a DN375 main is required between the M2 and the sub-main.

To service the future M2 site subdivision, the lead-in sewer is proposed between the West Lane Cove Sub-Main and the Wicks Rd site entry, at the northern end of the site. Regrading of the site will allow drainage of the future subdivision to the proposed Wicks Rd lead-in sewer. These works are shown in **Figure 11**.

The section of proposed main to the east of the M2 and the connection to the sub-main are within land owned by the City of Ryde.

The sewer lead in works will be undertaken in the first stage of works associated with the State Significant Development.

FIGURE 11 – PROPOSED SEWER MAIN EXTENSION



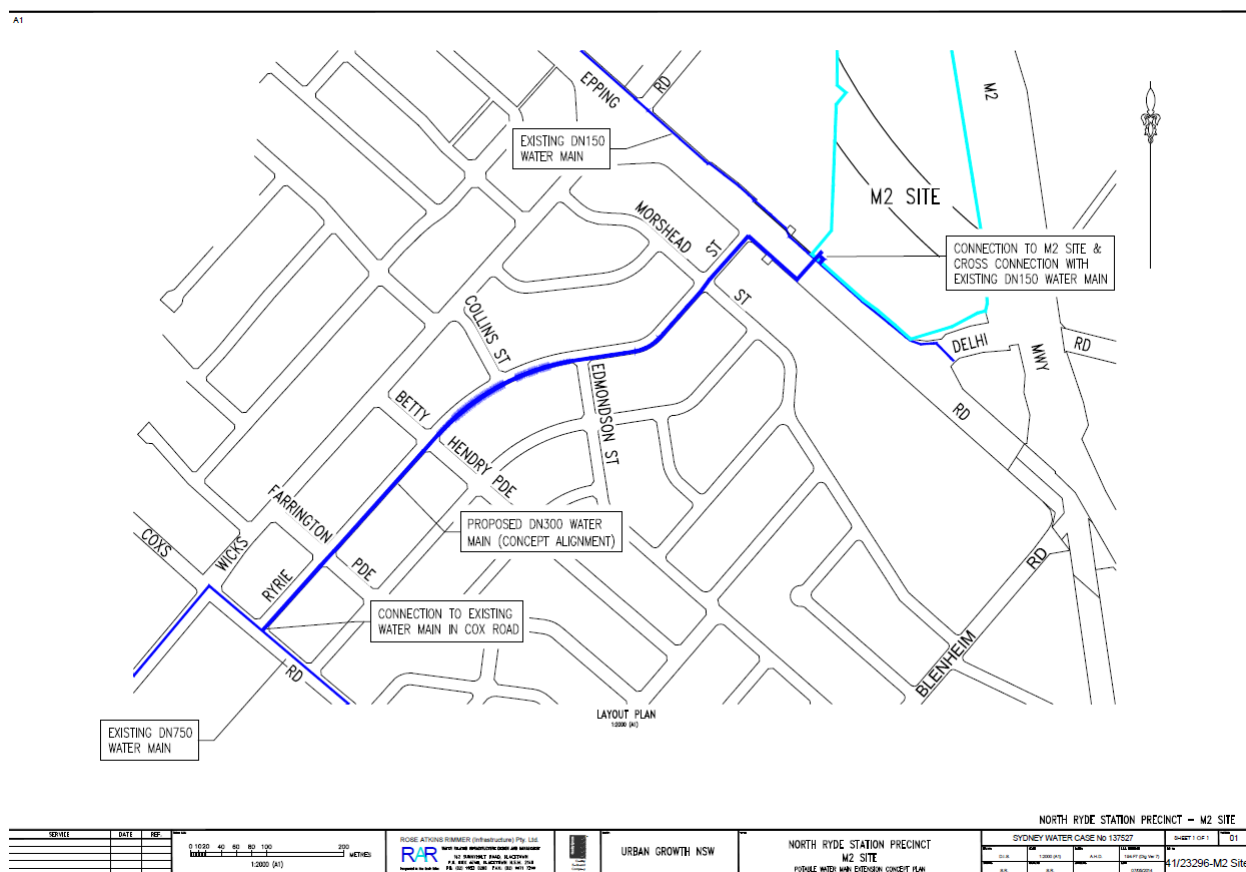
Water

The proposed M2 Site development is at the boundary of three separate water supply systems, however, only two have a direct frontage to the property. Of these, the Marsfield zone has a frontage along Wicks Rd, however, does not have sufficient capacity to service the proposed development. The Chatswood zone has a frontage along Epping Road and has sufficient bulk capacity to service the development. Although the existing DN150 water main within Epping Road is too small to service the property, the existing DN750 main within Cocks Road is capable of servicing the development.

Sydney Water has advised that a single purpose principal bulk supply main, minimum size DN300, is required to service the property via the Epping Road entry. This can be brought to the site from the DN750 Ryde to Chatswood main located in Cocks Road. An open cross connection is also required with the existing DN150 in Epping Road to provide a limited alternate supply.

To service the future M2 site subdivision, the lead-in water main is proposed between the existing DN750 water main in Cocks Road and the Epping Road site entry as shown in **Figure 12**.

FIGURE 12 – PROPOSED POTABLE WATER MAIN EXTENSION



Power

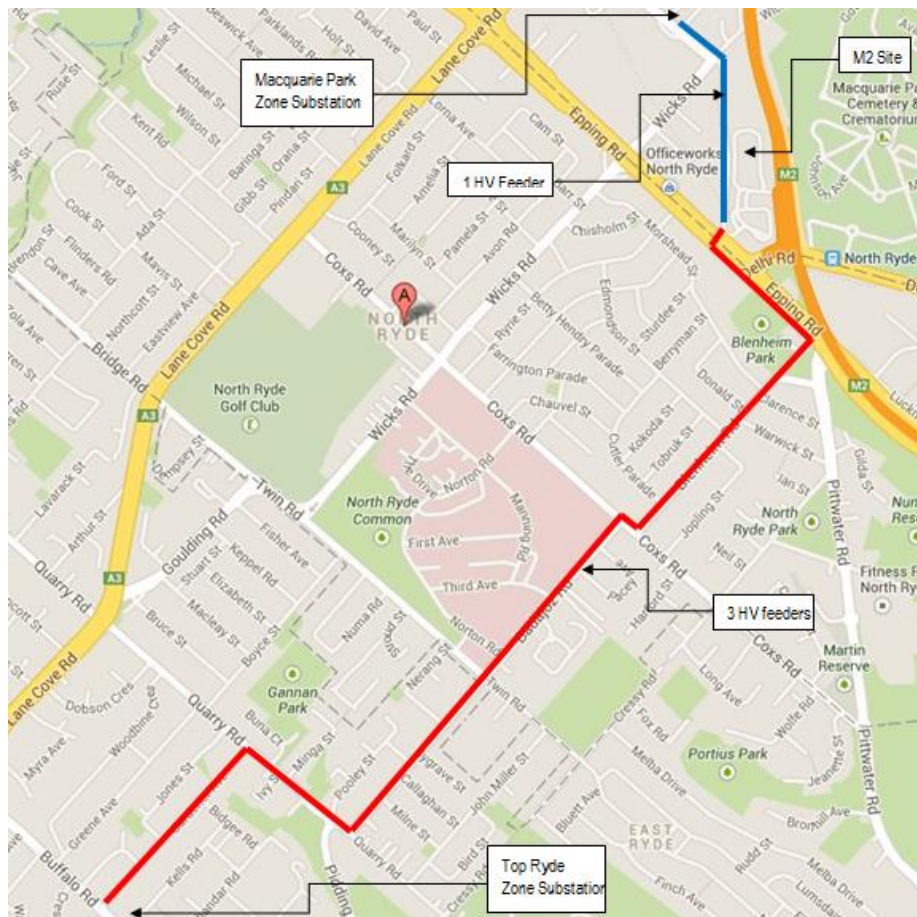
Power supply to the site will be via two Ausgrid substations, one located on Waterloo Road, Macquarie Park and one located on the corner of Gardener Avenue and Buffalo Road, Top Ryde. High Voltage feeders are proposed to be installed as indicated in **Figure 13**.

The High Voltage Feeders will be designed in accordance with the relevant Ausgrid standards and Ausgrid's Environmental Policy has been developed to satisfy the requirements of the EP&A Act.

During detailed design stage of the works, a computer based Environmental Impact Assessment (EIA) will be prepared for these works. The EIA provides the following information:

- Project details and description of the environment where the works will take place.
- Possible approvals and licences which may be required for the works.
- Sensitive areas and issues that may affect the project, including standard controls to mitigate these issues.
- Project specific environmental controls that are required in addition to the controls within Ausgrid's Environmental Policy/Handbook.

FIGURE 13 – PROPOSED ROUTE FOR HIGH VOLTAGE FEEDERS



8 Construction Environmental Management Plan

A CEMP will be prepared in respect of the proposed works to identify detailed mitigation and management measures to be implemented during construction.

The mitigation measures and ecological management procedures to be incorporated into the CEMP include:

- Site-specific environmental induction prior to construction.
- Identification of clearing limits.
- Management of erosion and sediment control.
- Clearly demarking riparian areas.
- Incorporate stormwater management techniques.
- Locating site office and plant storage outside of ecologically sensitive areas.
- Screen and direct light to where it is needed to avoid light spillage.
- Establish and implement weed and phytophthora management.
- Develop a monitoring programme.

9 Recommendations and Mitigation Measures

As a result of the EIS process and based on the technical studies completed, a range of mitigation measures are proposed to reduce any potential environmental and social impact of the proposal.

Table 32 and **Table 33** provide a summary of the environmental management measures proposed.

Following approval of the Section 83B(3)(b) Works, the conditions of consent would guide the subsequent phases of the proposal. Any consortium or contractor selected to undertake further planning, detailed design, construction and/or operation of the proposal would be required to undertake all works in accordance with the specified environmental management measures and conditions of approval.

9.1 DETAILED DESIGN

Environmental management measures to be implemented during the detailed design phase of the proposal are listed in **Table 32**.

TABLE 32 – DETAILED DESIGN ENVIRONMENTAL MANAGEMENT MEASURES

ITEM AND REFERENCE NUMBER	ENVIRONMENTAL MANAGEMENT MEASURE
A. Ecology	
A.1	Opportunities to further reduce the clearing of native vegetation would be investigated during detailed design.
B. Design and visual amenity	
B.1	The colour of the shared pedestrian and cycle bridge is to be selected to avoid reflection and be recessive in colour.

9.2 CONSTRUCTION

Environmental management measures to be implemented during the construction phase of the proposal are listed in **Table 33**.

TABLE 33 – CONSTRUCTION ENVIRONMENTAL MANAGEMENT MEASURES

ITEM AND REFERENCE NUMBER	ENVIRONMENTAL MANAGEMENT MEASURE
C. Ecology	
C.1	a) Works are to be undertaken in accordance with the VMP prepared by EcoLogical Australia. b) Specific environmental safeguards and mitigation measures to be adopted as identified in the "M2 Site SSDA VMP", prepared by Eco Logical Australia, dated 1 May 2014. c) In addition, the environmental safeguards recommended in the VMP would be implemented.
C.2	All workers would be provided with an environmental induction prior to commencing work on-site. The induction should include items such as: I. Sensitivity of vegetation in the Porters Creek riparian corridor and adjacent Northern Bushland

ITEM AND REFERENCE NUMBER	ENVIRONMENTAL MANAGEMENT MEASURE
	Park. II. Site environmental procedures (vegetation management, sediment and erosion control, protective fencing, noxious weeds). II. What to do in case of emergency (sediment fence failure, injured fauna). v. Key contacts in case of environmental emergency e.g. WIRES, Sydney Wildlife Rescue
C.3	a) Accurately and clearly mark out the limits of clearing and trees / vegetation to be retained. b) Identify, retain and protect trees close to the work areas which are at risk during construction and install protective fencing (temporary fluoro orange 'para-web' fencing or similar). This high visibility fencing would reduce risk during construction phases of the development. c) Do not store materials / vehicles under the drip-line (canopy) of retained vegetation
C.4	a) Qualified ecologist to conduct pre-clearing surveys of habitat trees in Sandstone Ridgetop Woodland (SRW) within the site and the weed infested areas adjoining the Red-crowned Toadlet habitat on the western boundary of the site.
C.5	a) Where trees require felling, retain the timber, particularly sections with hollows - as Coarse Woody Debris for enhancement of the riparian corridor. b) Cease work immediately if any previously unknown threatened flora or fauna species are encountered. WIRES or Sydney Wildlife Rescue should be consulted if any injured fauna are encountered.
C.6	a) Construct and place six nest boxes in the riparian zone at the northern end of the M2 Site. Boxes should be designed for use by micro-chiropteran bats.
C.7	a) Provide appropriate controls to manage exposed soil surfaces and stockpiles to prevent erosion and subsequent sediment discharge into surrounding areas including the Porters Creek and Lane Cove River catchments. b) Clearly identify stockpile and storage locations and provide erosion and sediment controls around stockpiles. c) Stockpiles of topsoil to be stored in windrows no higher than 2m and be maintained free of weeds. d) Undertake dust suppression where required in accordance with the <i>Protection of the Environment Operations Act 1997</i> (POEO Act) where there is a risk of increased dust outside of acceptable levels
C.8	a) Clearly demarcate riparian areas from construction / work areas and protect riparian areas with para-web fencing or similar. No access or works would occur outside the 2m works buffer to the retaining wall or boardwalk. b) Ensure all works within proximity to riparian zones have adequate sediment and erosion controls, in particular construction of the retaining wall and raised boardwalk. No materials or vehicles are to be stored within the riparian zone, drip zone of trees or the 30 m creek buffer zone. Works are to be timed to avoid heavy rain periods and no earth works are to be

ITEM AND REFERENCE NUMBER	ENVIRONMENTAL MANAGEMENT MEASURE
	conducted during rain events. Soils must be immediately stabilised following works to prevent sedimentation of Porters Creek.
C.9	a) Incorporate stormwater management techniques that control stormwater quality and quantity by adopting stormwater treatment measures to remove gross pollutants, including sediments, from urban runoff to mimic pre-construction water quality and quantity, minimising impacts on downstream receiving waters (see Storm Consulting 2011).
C.10	a) Ensure site office and plant storage areas are located outside of vegetated areas.
C.11	a) No night works would be allowed within the riparian corridor. b) Use low-pressure sodium lamps instead of high-pressure sodium or mercury lamps where lights are required, where possible. Restrict column heights such that lights are mounted at the lowest heights possible. Avoid lighting of the Bushland Park Reserve raised timber boardwalk and landings to minimise light spill to the riparian corridor and to minimise human disturbance at night.
C.12	a) Establish and implement a Hygiene Protocol for vehicles entering and leaving the site to minimise spread of weeds and other biological risks such as <i>Phytophthora</i> management protocol. b) Inspect all construction machinery and vehicles and thoroughly clean with a high pressure hose or similar prior to entry to site so that no vegetative matter or soil is brought onto the site in tacks or wheels. c) Implement inspection/maintenance procedures to reduce the carriage of weed material on machinery.
C.13	a) Develop a monitoring program during construction (including a weekly checklist) to ensure that all mitigation measures proposed have been undertaken. The checklist should include items such as fencing and sediment and erosion control.
D. Noise and vibration	
D.1	a) A Construction Noise and Vibration Management Plan (CNVMP) is to be prepared by the relevant contractor to be included as part of CEMP. The CNVMP would take into consideration measures for reducing the source noise levels of construction equipment by construction planning and equipment selection where practicable. b) The CNVMP is to address each major stage of the construction works and identify the appropriate mitigation and management measures, consistent with the requirements of the <i>Interim Construction Noise Guideline</i> . c) Use of localised acoustic hoarding around all significantly noise generating items of plant where practicable. This would expect to provide between 5dB and 10dB of additional noise attenuation provided the line of sight between all receivers and construction equipment is broken. Barriers are most effective when located either close to the noise source of the receiver. d) Scheduling of the higher Noise Management Level exceedance activities/locations to be

ITEM AND REFERENCE NUMBER	ENVIRONMENTAL MANAGEMENT MEASURE
	undertaken predominately during less noise sensitive periods, where available and possible. e) Avoid the coincidence of noise plant working simultaneously close together and adjacent to sensitive receivers. f) Briefing of the work team in order to create awareness of the locality of sensitive receivers and the importance of minimising noise emissions. g) Use of less noise intensive equipment, where reasonable and feasible. h) Use of non tonal reversing alarms fitted to all construction vehicles. i) Loading and unloading should be carried out away from sensitive receivers, where practical.
D.3	a) Relocate vibration generating plant and equipment to areas within the site in order to lower the vibration impacts at affected locations.
D.4	a) Construction works should be carried out Monday to Friday, 7.00 am to 6.00 pm, where possible. Work generating high vibration levels should be scheduled during less sensitive periods.
D.5	a) Use lower vibration generating items of excavation plant and equipment where feasible.
D.6	a) Minimise consecutive works in the same locality (if applicable).
D.7	a) High vibration generating activities such as vibratory rolling, hydraulic hammering and piling should only be carried out in continuous blocks, not exceeding 3 hours each, which a minimum respite period of 1 hour between each block where these works are proposed in proximity to sensitive receivers.
E. Design and visual amenity	
E.1	a) Temporary hoardings, barriers, traffic management and signage would be removed when no longer required.
E.2	a) Work/site compounds would be screened, with shade cloth (or similar material) (where necessary) to minimise visual impacts from elevated locations.
E.3	a) Graffiti would be required to be managed by the contractor throughout construction.
F. Access, traffic and transport	
F.1	a) A Construction Traffic Management Plan (CTMP) will be prepared once all construction details are finalised. The CTMP is to include: ▪ Construction schedule, including a breakdown to peak demolition/construction phases ▪ Construction staff numbers during across all demolition/construction phases ▪ Construction vehicle numbers during across all demolition/construction phases ▪ Construction vehicle travel routes, including routes to be used by oversized vehicles and vehicles carrying hazardous materials ▪ Traffic and parking management strategies to minimise impacts to the local traffic, pedestrian

ITEM AND REFERENCE NUMBER	ENVIRONMENTAL MANAGEMENT MEASURE
	and cyclist environment ▪ Traffic management plans for key demolition/construction phases, including (but not limited to) the following: - – The construction/upgrade of the intersection of Wicks Road, Waterloo Road and Spine Road – The construction of the intersection of Epping Road and Spine Road – The construction of the shared pedestrian and cycle bridge
G. Non-Indigenous Heritage	
G.1	a) A short program of archaeological monitoring will be required to re-identify the cistern/well, and ensure it is uncovered without further damage. The monitoring program will commence within the 15 metre perimeter buffer around the known location of the cistern/well. The monitoring program will also identify any additional archaeological remains within the study area. If unexpected archaeological remains are encountered during the monitoring phase, adequate time and resources should be afforded to the archaeologist/s on site to identify, excavate and record the remains (if necessary).
G.2	a) Archaeological excavation of the cistern/well should be conducted by a suitably qualified archaeologist. It is recommended that the material within the structure be manually excavated to a depth of 1.5 metres. This excavation phase will allow the archaeologist/s to identify and record the structure, and take samples of any material within the fill. If the structure is more than 1.5 metres in depth the remainder of the fill will need to be excavated by machine to meet occupational health and safety requirements. Appropriate samples will be taken. Artefacts will be collected and examined by specialists.
H. Aboriginal heritage	
H.1	a) If Aboriginal objects are located during future construction, work should stop immediately and the OEH, the Aboriginal stakeholder groups, and an archaeologist should be contacted. Further archaeological work may be required.
I. Contamination	
I.1	a) A detailed site investigation will be undertaken in accordance with the Remediation Action Plan prepared by Douglas Partners and dated April 2014.
I.2	a) The RAP will be subject to revision upon completion of the site investigation and any subsequent investigations deemed necessary to delineate and define the extent of remediation. The revised RAP will include the following: ▪ Background information as outlined in this current version; ▪ A summary of the results of the DSI and any subsequent investigations; ▪ An updated CSM, incorporating the results of the DSI; ▪ Development of Tier 2 RAC;

ITEM AND REFERENCE NUMBER	ENVIRONMENTAL MANAGEMENT MEASURE
	▪ Identification of areas / zones / media requiring remediation; ▪ A discussion on the remediation options; ▪ Decision process for determining the preferred remediation strategies; ▪ Remediation goal; ▪ The remediation process / sequence in detail; ▪ The remediation acceptance criteria and validation requirements; ▪ Waste classification process; ▪ An unexpected finds protocol; ▪ Contingency actions; ▪ A worker health and safety plan to be implemented during the remediation works; ▪ A construction environmental management plan (CEMP) to be implemented during the remediation works; ▪ A list of relevant persons and their role and responsibility during the remediation process; and ▪ Any legislative requirements that need to be met prior to or during the remediation process.
I.3	a) Should the site assessment determine that no remediation is required for the M2 Site, a report titled “site works’ plan” or similar will be prepared by the Environmental Consultant as an alternative to the RAP. The report will include the following: ▪ Background information as outlined in this current version; ▪ A summary of the results of the DSI and any subsequent investigations; ▪ Waste classification process; ▪ An unexpected finds protocol; and ▪ Contingency actions.
J. Geotechnical	
J.1	a) Further geotechnical investigation(s) appropriate for the proposed development should be carried out for detailed design purposes, as required for the shared pedestrian and cycle bridge structures and civil works. b) Detailed CBR testing of the subgrade will be required for pavement design as the subgrade materials vary across the sites. c) Further investigation and assessment of impacts on the ECRL from temporary and permanent works should be undertaken in accordance with the ECRL Protection Guidelines and Railcorp requirements.

ITEM AND REFERENCE NUMBER	ENVIRONMENTAL MANAGEMENT MEASURE
K. Surface and groundwater	
K.2	a) Implement the WSUD principles provided in the Integrated Water Management Plan including: ▪ Safe conveyance of stormwater; ▪ Water quality treatment of runoff, in order to minimise adverse impacts on downstream waterways; ▪ Source control, and ▪ Incorporating stormwater management measures into the streetscape.
L. Soils and earthworks	
L.1	a) Implement the erosion and sediment control plan prepared by Robert Bird Group and including: ▪ Sediment basins with sediment storage volume and “clean water channel” catch drains for discharge into Porters Creek; ▪ Sediment fences around stockpiles and construction zones where soils are exposed; ▪ Catch drains/bunds to collect construction site runoff and convey flows to the settling basin; and ▪ Sediment protection devices on existing and proposed inlet pits i.e. filter socks.
M. Air quality	
M.1	a) Air quality mitigation measures to be included in CEMP as per recommendation in AAQCA (refer Appendix L). Construction air quality management will include recommendations relating to good site management, good housekeeping measures, vehicle maintenance and applying appropriate dust mitigation measures where required. This will be compiled prior to any works commencing on site. Implication will be by the site manager and project manager for the works. b) CEMP to also include monitoring program as follows: ▪ Regular environmental inspections. ▪ Complaints handling. ▪ Reactive response procedures.
M.2	Dust mitigation measures from construction works include: ▪ Silt and other material removed from around erosion control structures to ensure deposits do not become a dust source. ▪ Amending of dust-generating construction activities during adverse wind conditions blowing in

ITEM AND REFERENCE NUMBER	ENVIRONMENTAL MANAGEMENT MEASURE
	the direction of sensitive receptors. - Minimising the use of material stockpiles and locating them away from sensitive receptor locations. - Reducing the truck speeds on site will reduce wheel generated dust. It is noted that the physical size and layout of the site will act to limit truck speeds. - If access track is causing problems, manual brushing of the truck's flanks and wheels could be implemented as a further precaution. Also, trucks exiting the site should be observed to determine if the both wheels travel over the shaker grid.
M.3	Control measures for emissions from plant and machinery include: - Ensuring vehicles and machinery are maintained in accordance with manufacturer's specifications. - Minimising truck queuing and unnecessary trips through logistical planning of materials delivery and work practices. - Stationary trucks should switch off engines if idling time on-site is likely to exceed 2 minutes - Fixed plant should be located as far from local receptors as practicable.
M.4	Control measures for fugitive emissions from fuel storage that may be implemented during the construction phase include: - Locate fuel storage and handling areas as far from local receptors as practicable. - Storage areas for all liquids should be appropriately bunded. - Spill kits including absorbing materials should be provided nearby handling and storage areas. - Where possible, the delivery of liquid fuels should utilise reciprocal feeds, so that tank vapours are displaced into the delivery vehicle rather than being emitted to the atmosphere as a fugitive emission. - Empty containers should be managed and disposed of in appropriate manner.
N. Sustainability	
N.1	Implement the sustainability initiatives identified in the ESD Report prepared by Cardno dated May 2014.
O. Utilities	
O.1	The Electrical Works involved in construction of the High Voltage feeders from Macquarie Park Zone Substation and Top Ryde Zone Substation would be designed and installed in accordance with:

ITEM AND REFERENCE NUMBER	ENVIRONMENTAL MANAGEMENT MEASURE
	▪ <i>Ausgrid Network Standard and Policy NUS 174C "Environmental Procedures" May 2006</i> ▪ <i>Ausgrid NUS 174A EIA Worksheet version 1.10</i> ▪ <i>Ausgrid NUS174B EIA Guideline Supplementary Note – Version 11</i> ▪ <i>Ausgrid NUS174C Environment Handbook for Construction and Maintenance</i>
O.2	During design stage of the works, the Level 3 Accredited Service Provider (with assistance of the design team members, inclusive of specialist consultants, e.g. heritage, environmental consultant, arborist, etc.) undertake a computer based Environmental Impact Assessment (EIA). The EIA provides the following information: ▪ Project details and description of the environment where the works will take place. ▪ Possible approvals and licences which may be required for the works ▪ Sensitive areas and issues that may affect the project, including standard controls to mitigate these issues. ▪ Project specific environmental controls that are required in addition to the controls within Ausgrid's Environmental Policy/Handbook. The EIA must be verified by Ausgrid's Environmental Planning department prior to the design's certification and commencement of construction. Construction work would be carried out by the Level 1 Accredited Service Provider in accordance with Ausgrid's NUS174C Policy/Handbook and the completed EIA.

10 Section 79C Assessment

The proposed development has been assessed in accordance with the matters of consideration listed in Section 79C of the EP&A Act as outlined below:

TABLE 34 – SECTION 79C ASSESSMENT

CONSIDERATION	COMMENT
Environmental Planning Instrument	State and Local Environmental Planning Instruments have been assessed in Section 6.2.
Draft Environmental Planning Instruments	There are no Draft Environmental Planning Instruments relevant to the site.
Development Control Plans	The proposed development has been assessed against the DCP for the NRSP in Section 6.5.
Any Matters Prescribed by the Regulations	There are no matters prescribed by the regulations which relate to this proposal.
Likely Impacts of the Development	An impact assessment has been provided in Section 7 of this report.
Suitability of the Site	- The suitability of the site is assessed in the site analysis provided in Section 2. - The proposed works would facilitate ultimate development of built form.
Any Submission made in accordance with this Act or the Regulations	Submissions will be considered following exhibition of the application.
The Public Interest	The proposal is consistent with the allocation of the site as a UAP, the rezoning of the NRSP and will facilitate: - Future mix of residential, retail, commercial and community uses and associated facilities on a vacant site in MPC. - High quality public spaces and streets which are within 800 metres of North Ryde Station and bus services. - Encourages reduced rates of private car parking to ease traffic congestion through increased accessibility to North Ryde Station. - Liveable and active public domain spaces will be created for the community that integrate with proposed land uses and North Ryde Station. - Enables communities to have a high degree of amenity including open space and solar access. It also aims to provide a mix of housing near employment lands and public transport. - Provides a high level of pedestrian and bicycle connectivity to nearby employment. - The development is compliant with the relevant planning instruments and controls. - The proposal will not create permanent or significant social or amenity impacts.

11 Conclusion

This EIS has been prepared to assess the Concept Proposal for subdivision and GFA allocation and Section 83B(3)(b) Works including subdivision, site preparation and civil works and public domain works on land known as the M2 Site within the North Ryde Station Precinct (NRSP).

The EIS accords with:

- Part 4.1 of the EP&A Act.
- Schedule 2, Part 3 of the EP&A Regulation
- Schedule 2, Part 12 of the SRD SEPP.
- The DGRs issued pursuant to Section 75E of the EP&A Act.

It is justified to proceed with this proposal for the following reasons:

- The proposal demonstrates consistency with the relevant environmental planning instruments including strategic planning policy, State and local planning legislation, regulation and policies.
- The proposal fully addresses the issues identified in the DGRs and proposes appropriate mitigation measures for implementation during detailed design and construction.
- The proposal will result in minimal environmental impacts, all of which can be mitigated through the recommendations recommended in **Section 9** of this report.
- The proposal is consistent with the principles of ESD as defined by Schedule 2, clause 7(4) of Schedule 2 of the EP&A Regulation.
- The proposed works will enable future residential, retail and commercial development at the site and will result in positive economic impacts through the provision of direct and indirect employment (during both construction and operation).
- The Section 83B(3)(b) Works will establish public domain areas and deliver key infrastructure to remove barriers to future development of lots.
- Amendments the NRSP DCP will better align the DCP with the proposal for the M2 Site and the Station North Site so that future development achieves the urban design vision for the site.
- The allocation of maximum achievable GFA for each development superlot will provide certainty for future development of superlots that the Floor Space Ratio (FSR) permitted under the *Ryde Local Environmental Plan 2010* can be achieved.
- The site is considered as suitable for the proposed works given its location in the MPC and will result in public benefit through the provision of the following:
 - Recreation and pedestrian or bicycle connectivity throughout the site which links with key transport and access nodes. These will provide significant pedestrian and cycleway upgrades and new links to improve connectivity to North Ryde Station and the MPC.
 - Development of a series of linked public open space areas, providing for both active and passive recreation.
 - Provision of a spine road linking Epping Road to Wicks Road and providing the main vehicular connection through the site.
 - Allows for future connectivity with the land (mainly of a commercial nature) immediately to the west. This can be achieved by future connections to internal roads on the M2 site.

- A shared pedestrian and cycle bridge sited at the southern end of the M2 site connecting the site with North Ryde Station.
- A future community facility is accommodated which will respond to the needs of the area and the demographic profile of the current and future population.
- Best practice sustainability measures including the use of native plants grown with locally sourced seed, WSUD measures and rehabilitation of the riparian zones adjoining Porters Creek in the northern portion of the M2 Site to create a natural open space area, thereby mitigating impacts on the nearby Bundara Reserve and Lane Cove National Park.

Given the merits of the proposal and the ability to realise the planning potential of the M2 site as identified in the Finalisation Report, it is requested that the Minister approve the proposal subject to the mitigation measures outlined in this report.

Disclaimer

This report is dated May 2014 and incorporates information and events up to that date only and excludes any information arising, or event occurring, after that date which may affect the validity of Urbis Pty Ltd's (**Urbis**) opinion in this report. Urbis prepared this report on the instructions, and for the benefit only, of UrbanGrowth NSW (**Instructing Party**) for the purpose of Environmental Impact Statement (**Purpose**) and not for any other purpose or use. To the extent permitted by applicable law, Urbis expressly disclaims all liability, whether direct or indirect, to the Instructing Party which relies or purports to rely on this report for any purpose other than the Purpose, and to any other person which relies or purports to rely on this report for any purpose whatsoever (including the Purpose).

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All surveys, forecasts, projections and recommendations contained in or associated with this report are made in good faith and on the basis of information supplied to Urbis at the date of this report, and upon which Urbis relied. Achievement of the projections and budgets set out in this report will depend, among other things, on the actions of others over which Urbis has no control.

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This report has been prepared with due care and diligence by Urbis and the statements and opinions given by Urbis in this report are given in good faith and in the reasonable belief that they are correct and not misleading, subject to the limitations above.

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