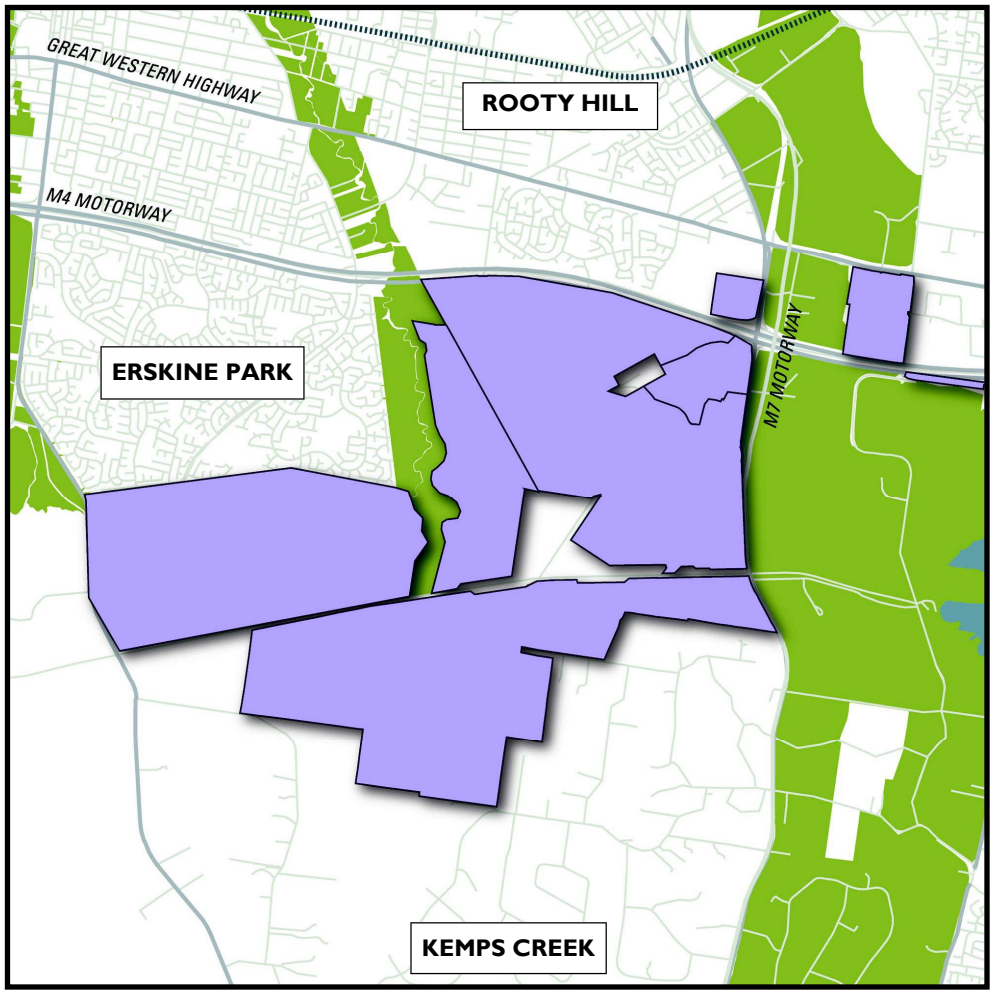
Western Sydney Employment Hub Proposed Erskine Park Link Road Network

CONCEPT PLAN

Environmental Assessment

February 2008



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CERTIFICATION

This Environmental Assessment has been prepared by National Environmental Consulting Services Pty Ltd on behalf of the NSW Roads and Traffic Authority (RTA).

In accordance with the Environmental Assessment Requirements issued by the Director General of the DoP under Part 3A of the *EP&A Act* it is certified that the information contained in this environmental assessment is neither false nor misleading.

Warren Atkinson
Director
National Environmental Consulting Services Pty Ltd

February 2008

ENVIRONMENTAL ASSESSMENT
CONCEPT PLAN
WESTERN SYDNEY EMPLOYMENT HUB
PROPOSED ERSKINE PARK LINK ROAD NETWORK

EXECUTIVE SUMMARY

The NSW Roads and Traffic Authority (RTA) has sought approval for a Concept Plan for a Road Network connecting employment areas in the Fairfield, Blacktown and Penrith Local Government Areas with the M4 and M7 Motorways and Mamre Road. The network is known as the Erskine Park Link Road Network (EPLR Network) in the Western Sydney Employment Hub. The proposed road network is located within the Blacktown and Penrith Local Government Areas but extends to the boundary of the Fairfield Local Government Area so as to link the employment lands in that Local Government Area with the roads mentioned.

The EPLR Network comprises the following key elements:

- *An east-west route connecting Mamre Road and Erskine Park Road to the Old Wallgrove Road interchange with Wallgrove Road and the M7 Motorway;*
- *Eastern and western north-south link roads connecting the Erskine Park Link Road to the South West Precincts of the Hub; and*
- *A northern access road to Archbold Road connecting the Erskine Park Link Road to the M4 Motorway and Great Western Highway.*

On 5 December 2005, the Minister for Planning announced that he had agreed to consider the Hub a potential State Significant Site as part of the NSW Government's Metropolitan Strategy. A key consideration in this decision was the desire to ensure the provision of infrastructure to service existing and future employment lands in Western Sydney.

Connections to Motorways are critical for the majority of developments within the Hub providing direct motorway access to Sydney Airport, Port Botany and the national highway network. In addition, such connections would attract new industry to locate within the Hub. Creating access to the designated existing and future employment lands within the Hub would through the provision of improved access effectively add to the available stock of employment lands in the M7 Motorway corridor and contribute to promoting employment and investment in Western Sydney.

The RTA has consulted with various groups/individuals during the development of the Concept Plan for the EPLR Network. Initial consultation has been undertaken with local Councils, relevant government departments/authorities, utility providers, property holders, operator of the M7 Motorway, potentially affected residents and representatives of the Aboriginal community.

A number of link road alignments were proposed by major landholders within the Hub. These alternatives were examined in both a traffic access and engineering constraints context. The analysis took into account environmental and engineering criteria. The general location of the road network has been determined as a result of this analysis and in consultation with the major stakeholders.

An environmental assessment of the EPLR Network has been undertaken at Concept Plan stage. The assessment has found that the environmental effects of the proposed development would be adequately ameliorated by the procedures and mitigation measures set out in the Environmental Assessment.

Following approval of this Concept Plan, the individual roadway components of the EPLR Network would be in the project approval stage subject to further specific environmental assessment in accordance with the Minister's direction under the requirements of the Environmental Planning and Assessment Act 1979. At that stage alignment and traffic design options would be subject to more detailed evaluation and refinement.

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Working Paper No 1

Maunsell Australia (2007) *Western Sydney Employment Hub Proposed Erskine Park Link Road Network – Road Alignment and Constraints* Prepared for the RTA

Working Paper No 2.

Maunsell Australia (2007) *Western Sydney Employment Hub Proposed Erskine Park Link Road Network - Traffic Study* Prepared for the RTA

ABBREVIATIONS

AHD	Australian Height Datum
BMP	Biodiversity Management Plan
CDB	Central Business District
CPW	Cumberland Plain Woodland
DA	Development Application
dB	Decibel
DCAC	Darug Custodians Aboriginal Corporation
DCP	Development Control Plan
DEC	Department of Environment and Conservation
DECC	Department of Environment and Climate Change
DEWHA	Department of Environment, Water, Heritage and the Arts
DGR	Director General's Requirements
DIPNR	Department of Infrastructure, Planning and Natural Resources
DLALC	Deerubin Local Aboriginal Land Council
DNR	Department of Natural Resources
DoP	Department of Planning
DPI	Department of Primary Industries
DTAC	Darug Tribal Aboriginal Corporation
DUAP	Department of Urban Affairs and Planning
E.	Eucalyptus
EA	Environmental Assessment
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EMP	Environmental Management Plans
EPA	Environment Protection Authority

EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EPEA	Erskine Park Employment Area
EPI	Environmental Planning Instrument
EPLR	Erskine Park Link Road
ESD	Ecologically Sustainable Development
ha	Hectare
HPP	Habitat Protection Plan
INP	Industrial Noise Policy
km	Kilometre
LEP	Local Environmental Plan
LGA	Local Government Area
m	Metres
M	Million
NECS	National Environmental Consulting Services
NPW Act	*National Parks and Wildlife Act 1974*
NPWS	National Parks and Wildlife Service
NSW	New South Wales
NWP	North West Precincts
PM_{10}	Particulate Matter < 10 µm
POEO Act	Protection of the Environment Operations Act 1997
REP	Regional Environmental Plan
RFEF	River-Flat Eucalypt Forest
RL	Relative Level
RTA	Roads and Traffic Authority

SEE	Statement of Environmental Effects
SEPP	State Environmental Planning Policy
SREP	Sydney Regional Environmental Plan
SWP	South West Precinct
TEOM	Tapered Element Oscillating Microbalance
TSC Act	*Threatened Species Conservation Act 1995*
TSP	Total Suspended Particulate Matter
WSEH	Western Sydney Employment Hub

ENVIRONMENTAL ASSESSMENT
CONCEPT PLAN
WESTERN SYDNEY EMPLOYMENT HUB
PROPOSED ERSKINE PARK LINK ROAD NETWORK

1. INTRODUCTION

This section provides a general introduction to the Concept Plan for the proposed road network, the Environmental Assessment (EA) and the associated environmental assessment process. It identifies the regulatory requirements and outlines the consultation process undertaken. A guide is also provided to the contents and structure of the EA.

1.1 THE PROPONENT

The NSW Roads and Traffic Authority (RTA) has sought approval for a Concept Plan for a Road Network connecting employment areas in the Fairfield, Blacktown and Penrith Local Government Areas (LGAs) with the M4 and M7 Motorways and Mamre Road. The network is known as the Erskine Park Link Road Network (EPLR Network) in the Western Sydney Employment Hub (the Hub). The proposed road network is located within the Blacktown and Penrith LGAs but extends to the boundary of the Fairfield LGA so as to link the employment lands in that LGA with the roads mentioned.

On 9 June 2006, the Minister for Planning declared by order in the Gazette, pursuant to Section 75 B (1) of the *Environmental Planning and Assessment (EP&A) Act 1979* that the proposal, comprising the Concept Plan, is a Major Project to which Part 3A of the *EP&A Act* applies.

The Proponent of the Concept Plan in accordance with the provisions of the *EP&A Act* is the RTA.

1.2 KEY ELEMENTS OF THE PROJECT

1.2.1 Concept Plan Overview

The Hub as defined in the NSW Government Metropolitan Strategy comprises over 2000 hectares (ha) of land in the vicinity of the M4 Motorway and M7 Motorway interchange located in the Blacktown, Fairfield, Holroyd and Penrith LGAs. The land is divided into 10 precincts. Figure 1.1 identifies the precincts which comprise the Hub.

On 5 December 2005, the Minister for Planning announced that he had agreed to consider the Hub a potential State Significant Site as part of the NSW Government's Metropolitan Strategy. A key consideration in this decision was the desire to ensure the provision of infrastructure to service existing and future employment lands in Western Sydney.

In May 2004, the then Premier of NSW announced that the land would be rezoned to build a link between the established Erskine Park Industrial Area and the M7 Motorway. The announcement did not specify a preferred route. As part of the infrastructure required for the Hub there is a need to link the developing industrial employment sites located to the west of the M7 Motorway including the Erskine Park Industrial Area with the M4 and M7 Motorways providing direct access to Sydney Airport, Port Botany and the national highway network.

A northern east-west link road has been proposed by Penrith City Council and major landholders consistent with the then Premier's announcement of May 2004. Various other link road proposals have been developed by major landholders on alignments in the vicinity of the Sydney water supply pipeline corridor and to the south of it to service land planned for future industrial development. In addition, landholders in the northern part of the Eastern Creek Precinct within the Hub have sought an additional connection to the M4 Motorway. These have been reviewed and considered as part of this process.

Arising from these proposals there has been technical analysis and discussion between the various stakeholders including the RTA, Department of Planning (DoP), Councils and landholders, about the most suitable location for a link road or roads between the lands within the Hub and the existing road network including the M4 and M7 Motorways. Investigations undertaken for the RTA have found that a network of access roads, rather than a single link, will ultimately be required.

Figure 1.2 shows the Concept Plan for the proposed EPLR Network. Section 4 of this report provides a description of the project.

1.2.2 The Site

The EPLR Network would be located within the land identified by the Minister for Planning in December 2005 as part of the NSW Government Metropolitan Strategy as the Western Sydney Employment Hub which is located south of the M4 Motorway and west of the M7 Motorway (refer Figure 1.2). Table 1.1 provides a summary of the lands which the proposed EPLR Network would serve and Figure 1.3 shows their location. Precincts 1, 2, 6 and 7 comprise the North West Precincts (NWP) of the Hub and Precinct 8 located to the south of the Sydney water supply pipeline is located within the South West Precinct (SWP) of the Hub.

Table 1.1
Summary of Lands in the Hub Serviced by the EPLR Network

LAND	CURRENT ZONING	AREA	EMPLOYMENT POTENTIAL	OWNERSHIP
Precinct 1. Former Wonderland Blacktown LGA	Employment – SEPP 59	59 ha	3,000 jobs (ING estimate)	ING
Precinct 2. Eastern Creek Blacktown LGA	Employment – SEPP 59	645 ha	12,000 jobs (based on draft Eastern Creek Precinct plan)	Multiple owners
Precinct 6. Ropes Creek Blacktown LGA	Part 5(a) Special Uses and part Rural 1(a) (Blacktown LEP 1988)	190 ha	1,600 jobs (based on 20 jobs per developable hectare)	Part owned by DoP and part by Jacfin Pty Ltd
Precinct 7. Erskine Park Penrith LGA	Employment 4(e) and 4 (e1) Penrith LEP	500 ha	5,000 jobs (based on 20 jobs per developable hectare)	Multiple owners
Precinct 8. South of the Pipeline Fairfield & Penrith LGAs	Non Urban 1(a) and Non Urban 1(b) (Fairfield LEP 1994) Rural 1(a) (Penrith LEP 1996), Western Sydney Regional Parklands (SREP 31)	656 Ha	8,000 jobs (based on 20 jobs per developable hectare)	Majority sites owned by Macquarie Goodman, Jacfin, PGH and Jokona Pty Ltd.

1.3 APPROVAL REQUIREMENTS

As described in Section 1.1, the proposed development of the EPLR Network is a Project to which Part 3A of the *EP&A Act* applies. Part 3A provides for the approval of Concept Plans for projects so that their development can be undertaken in a staged manner. The approval of the Minister for Planning is required before a project to which Part 3A applies can be carried out.

Division 3, Section 75M of Part 3A of the *Act* sets out the requirements for a Concept Plan:

(a) Outline the scope of the project and any development options;

(b) Set out any proposal for the staged implementation of the project; and

(c) Contain any other material required by the Director General.

A detailed description of the project is not required for the Concept Plan.

The environmental assessment and public consultation requirements of Sections 75 F, G, H and I apply to the Concept Plan. Under the provisions of Section 75M the RTA sought authorisation to submit a Concept Plan for the proposed EPLR Network and under Section 75F requested Director General's Requirements from the DoP for the Environmental Assessment of the Concept Plan. The Director General's Requirements were issued by the DoP pursuant to Section 75F of the *EP&A* Act on 15 September 2007. A copy is included at Appendix A. This Environmental Assessment (EA) has been prepared in accordance with these Requirements (refer Table 1, Appendix A).

The EA would be lodged with the DoP and if accepted by the Director General would be publicly displayed for at least 30 days. During this period submissions can be submitted to the DoP in relation to the EA. At the conclusion of the public review period copies of submissions received or a summary of the issues raised would be provided to the RTA. The Director General may require the RTA to prepare a report on the submissions and any proposed changes to the project to minimise its environmental impact.

Section 75I of the Act provides that the Director-General prepare a report on the project for the Minister's consideration. This report will take into account the views of the relevant Government Agencies, Councils and the community. The Minister may then approve or disapprove the project. Under Section 75P the Minister may make any of the following determinations:

(a) That further environmental assessment is required to gain approval to carry out the project or any particular stage of the project under Part 3A of the Act;

(b) That approval to carry out the project or any particular stages of the project is to be subject to the other provisions of this Act (in which case the project or that stage of the project ceases to be a project to which assessment under Part 3A of the Act applies);

(c) That no further environmental assessment is required for the project or any particular stage of the project.

1.4 STRUCTURE OF THE ENVIRONMENTAL ASSESSMENT

The EA is presented in eight sections:

- *Section 1 – Introduction*

This section provides a general introduction of the Concept Plan for the proposed road network, the EA and the associated environmental assessment process. It identifies the regulatory requirements and outlines the consultation process undertaken. A guide is also provided to the contents and structure of the EA.

- *Section 2 – Need for the Development and Alternatives*

This section provides a description of the need for the EPLR Network and the alternatives considered.

- *Section 3 – Location and Site Description*

This section provides a general description of the proposed development site in terms of land ownership and existing use.

- *Section 4 – Description of the Project*

This section provides a description of the Concept Plan for the EPLR Network including routes and staging options.

- *Section 5 –Environmental Assessment and Risk Analysis*

This section describes the existing environment of the development site and provides a preliminary assessment of the potential impact of the EPLR Network.

- *Section 6 – Draft Statement of Commitments*

This section describes the proposed environmental management, mitigation and monitoring commitments.

- *Section 7 - Justification and Conclusion*

This section provides a justification for the EPLR Network in terms of need, economic and environmental considerations.

- *Section 8 – References*

This section lists the references used to prepare the EA.

1.5 RELATIONSHIP WITH PLANNING INSTRUMENTS AND POLICIES

The Hub is included in the NSW Government Sydney Metropolitan Strategy. There are three types of Environmental Planning Instruments (EPIs) which could apply to the lands within the NWP and SWP of the Hub:

- State Environmental Planning Policies (SEPPs) which address matters of State-wide significance;

- Regional Environmental Plans (REPs) which enable the resolution of State and Regional issues; and

- Local Environmental Plans (LEPs) address land use planning within a LGA.

EPIs (other than SEPPs) do not apply to approved projects subject to assessment under Part 3A of the *EP&A Act* (Sections 75R(3)). In deciding whether to approve a Concept Plan for a Project, the Minister may, but is not required to take into account the provisions of an EPI that would not, because of Section 75R, apply to the Project if approved (Section 75O(3)).

The relevant provisions of EPIs and DCPs have been considered for the completeness of the assessment. The proposed EPLR Network will be located within the precincts that comprise the NWP of the Hub and connect to Precinct 8 within the SWP of the Hub. There is a range of planning instruments currently applying to these precincts.

1.5.1 NSW Government Metropolitan Strategy

The Metropolitan Strategy for Sydney was produced by a whole of NSW Government process led by the DoP. It provides a broad framework to facilitate and manage growth and development in Metropolitan Sydney over the next 25 years. It sets the scene for more detailed planning in the Metropolitan Sub-Regions.

There are five stated aims of the strategy:

1. Enhance liveability;

2. Strengthen economic competitiveness;

3. Ensure fairness;

4. Protect the environment; and

5. Improve governance.

The Strategy is made up of seven strategies. These are:

- Economy and employment;

- Centre and corridors;

- Housing;

- Transport;

- Environment and resources;

- Parks and public places; and

- Implementation and governance.

The Economic and Employment Strategy objectives are to:

- Provide suitable commercial sites and employment lands in strategic areas;
- Increase innovation and skills development; and
- Improve opportunities and access to jobs for disadvantaged communities.

The Metropolitan Strategy identified the long term trend for manufacturing and logistics employment to shift towards Sydney's western suburbs with particular concentrations around Wetherill Park and the Hub. The structure and strategic planning undertaken identified a number of proposed employment land areas and potential areas for investigation.

The Metropolitan Strategy identified a small number of areas of Sydney that were considered deserving of an early classification of strategic industrial importance due to their location close to major transport infrastructure. These areas were considered to warrant immediate action to ensure that their potential as major industrial areas are protected and enhanced. One of these was the Hub located near the intersection of the M4 and M7 Motorways which currently contains about 1500 hectares (ha) of land zoned industrial and has the potential to generate over 1000 ha of additional employment land.

The Metropolitan Strategy also identified the need for the NSW Government to work with local government to identify infrastructure and servicing needs and develop more effective priority setting and funding mechanisms for governments and the private sector.

The announcement by the Minister for Planning on 5 December 2005 that he had agreed to consider the Western Sydney Employment Hub a potential State Significant Site was made in the context of the Metropolitan Strategy. The Concept Plan for the EPLR Network is aimed at ensuring the provision of transportation infrastructure for the lands within the Hub in accordance with the Metropolitan Strategy.

1.5.2 State Environmental Planning Policies and Instruments

The SEPPS which apply to the project are:

State Environmental Planning Policy No 59 – Central Western Sydney Economic and Employment Area

Under SEPP 59 land in central Western Sydney was rezoned for employment, residential and regional open space purposes. It provides a framework for detailed planning and development of the land through a precinct planning process and sets out guiding principles.

Its aims include the promotion of economic development and the creation of employment in Western Sydney by providing for the development of major warehousing, industrial, high technology, research and ancillary facilities with good access to the existing and proposed road freight network.

It provides for the staged optimum extraction of the resources from existing quarries and encourages the staged rehabilitation and construction of existing quarries to facilitate their use as employment lands.

The policy aims included the co-ordination of the planning and development of the land to which it applies by:

(1) Establishing a clear set of guiding principles for the development of the land;

(2) Requiring the preparation of precinct plans that provide detailed planning controls; and

(3) Providing for the co-ordinated provision of infrastructure services and the staging of development.

The Policy also provides for the optimal environmental planning outcomes through a number of measures including the conservation of areas that have a high biodiversity, heritage, scenic or cultural value and, in particular, areas of remnant vegetation.

SEPP 59 applies to land to the west of Wallgrove Road bounded by the M4 Motorway, the Sydney water supply pipeline and electricity transmission lines from the Sydney West Substation (refer Figure 1.1). It excluded the then Australia's Wonderland area. The land was defined in the policy as the Eastern Creek Precinct and zoned as Employment Lands.

The Eastern Creek Precinct Plan outlines a strategic road network servicing lands within the Precinct. It is limited by the boundaries of the Precinct and has been varied as a result of some developments within the Precinct. The proposed EPLR Network is consistent with the network set out in the Precinct Plan and with the variations to it.

The development of the EPLR Network proposed in the Concept Plan is consistent with the objectives of SEPP 59 and the associated Precinct Plan and is a land use which is permissible with consent. The eastern section of the East-West Route and Old Wallgrove Road utilise existing road corridors and is consistent with the Primary Road Network contained in the Precinct Transport Plan.

State Environmental Planning Policy No. 19 – Bushland in Urban Areas

SEPP 19 aims to protect and preserve bushland within urban areas (as specified within Schedule 1 of the policy) zoned or reserved for public open space purposes, as part of the natural heritage, or for aesthetic, recreational, educational or scientific purposes.

The precincts within the Blacktown, Penrith and Fairfield LGAs which are listed under Schedule 1 of the policy are areas to which SEPP 19 applies. The SEPP applies to land which comprises or adjoins bushland zoned or reserved for public open space. However, it does not apply to Regional Parklands under Sydney Regional Environmental Plan (SREP) 31.

State Environmental Planning Policy No. 55 – Remediation of Land

SEPP 55 provides planning controls for the remediation of contaminated land for the purpose of reducing risks to human health and the environment. Under the policy, contaminated land must not be developed if it is unsuitable for a proposed use unless remediation is undertaken prior to land development. The policy specifies when consent is required for remediation work, minimum standards and notification requirements, and requires that land is investigated if contamination is suspected.

Managing Land Contamination: Planning Guidelines were prepared by the then Department of Infrastructure, Planning and Natural Resources (DIPNR), in conjunction with the then NSW Environment Protection Authority (now the NSW Department of Environment and Climate Change (DECC)), in accordance with SEPP 55. These guidelines are in force under the *Contaminated Land Management Act 1997* and require that the history of a site proposed for development be considered as an indicator of potential contamination.

The historical use of the precincts serviced by the proposed EPLR Network and the results of a preliminary soil contamination assessment undertaken for some areas within the precincts have been evaluated and it is concluded that there is no evidence that the land might be contaminated. If the EPLR Network Concept Plan is approved, detailed site specific soil contamination assessments would be undertaken as part of the project approval stage and environmental assessment of the component roads within the network prior to final approval.

State Environmental Planning Policy (Major Projects) 2005

SEPP 2005 was gazetted on 25 May 2005 and aims to provide consistent and comprehensive assessment and decision making for development of economic, social or environmental significance to the State. It also aims to identify development to which Part 3A of the *EP&A Act* applies. As described in Section 1.1, the development proposed in the Project is a Major Project to which Part 3A of the *EP&A Act* applies. Although it is not included in this SEPP the Concept Plan was declared a Major Project by the Minister for Planning pursuant to Section 75 B (I) of the *EP&A Act*. The consent authority for the Concept Plan is the Minister for Planning.

State Environmental Planning Policy (Infrastructure) 2007

SEPP (Infrastructure) simplifies the process for providing infrastructure in a range of areas including roads and traffic. It repeals SEPP 11 – Traffic Generating Development. The policy provides that development for the purpose of a road and road infrastructure facilities may be carried out by or on behalf of a public authority without consent on any land except where the land is reserved under the *National Parks and Wildlife Act 1974* and specified restrictions apply. No land reserved under this Act is affected by the proposed EPLR Network. The SEPP applies in relation to traffic generating developments as specified in Schedule 3 of the policy. The policy contains provisions designed to ensure the RTA is consulted in regard to traffic generating developments during the development assessment process.

1.5.3 Regional Environmental Plans

The REPs most relevant to this Project are:

Sydney Regional Environmental Plan No. 20 – Hawkesbury-Nepean River (No 2 – 1997)

SREP 20 is relevant to the proposal as the Hub is within the nominated catchment. This plan aims to protect the environment of the Hawkesbury-Nepean River system by ensuring that the impacts of future land uses are considered in a regional context. Clause 4 of the SREP requires that the general planning consideration set out in Clause 5 and the specific planning policies and related recommended strategies set out in Clause 6 must be taken into consideration by a Consent Authority.

The general planning considerations include:

(a) The aim of the Plan;

(b) The Strategies listed in the Action Plan for the Hawkesbury-Nepean Environmental Planning Strategy;

(c) Whether there are any feasible alternatives to a development or other proposal concerned; and

(d) The relationship between the different impacts of the development on other proposals and the environment, and how these impacts will be addressed or monitored.

The specific policies and strategies are listed as follows:

(1) Total Catchment Management

Total catchment management is to be integrated with environmental planning for the catchment.

(2) Environmentally Sensitive Areas

The environmental quality of environmentally sensitive areas must be protected and enhanced through careful control of future land use changes and through management and (where necessary) remediation of existing uses.

(3) Water Quality

Future development must not prejudice the achievement of the goals of use of the river for primary contact recreation (eg. swimming) and aquatic ecosystem protection in the river system.

(4) Water Quantity

Aquatic ecosystems must not be adversely affected by development which changes the flow characteristics of surface or groundwater in the catchment.

(5) Cultural Heritage

The importance of the river in contributing to the significance should be recognised, and these items and places should be protected and sensitively managed and, if appropriate, enhanced.

(6) Flora and Fauna

Manage flora and fauna communities so that the diversity of species and genetics within the catchment is conserved and enhanced.

(7) Riverine Scenic Quality

The scenic quality of the riverine corridor must be protected.

(8) Agriculture/Aquaculture and Fishing

Agriculture must be planned and managed to minimise adverse environmental impacts and be protected from adverse impacts of other forms of development.

(9) Rural Residential Development

Rural residential development should not reduce agricultural sustainability, contribute to urban sprawl, or have adverse environmental impacts (particularly on the water cycle or on flora or fauna).

(10) Urban Development

All potential adverse environmental impacts of urban development must be assessed and controlled.

(11) Recreation and Tourism

The value of the riverine corridor as a significant recreational and tourist asset must be protected.

(12) Metropolitan Strategy

Development should complement the vision, goal, key principles and action plan for the Metropolitan Strategy.

These considerations are addressed by the environmental assessment described at Section 5 of this report.

Part 3 of the SREP sets out the development controls applicable to specified items or types of development. The proposed project and the site are not included as an item under Clause 11 of the SREP and there are no development controls specified for the proposed development.

Sydney Regional Environmental Plan No. 31 – Regional Parklands

SREP 31 applies to designated land in the LGAs of Blacktown, Fairfield and Liverpool. The aims of this SREP are:

(a) To promote the consistent planning and management of the Regional Parklands by replacing the existing planning controls with a single regional environmental plan;

(b) To strengthen the perception of the Regional Parklands as a unit that is a focus for the conservation of natural systems and a diverse range of recreational uses in Western Sydney;

(c) To enhance the ability of the Regional Parklands to meet the needs of the residents of Sydney for:

- *high quality open space;*
- *a range of recreational opportunities; and*
- *a visual and physical break between areas of urban development;*

(d) To maintain, enhance and rehabilitate the natural systems of the Regional Parklands, particularly those that include threatened species, populations or ecological communities, or their habitats;

(e) To preserve, care for and manage the cultural assets of the Regional Parklands;

(f) To improve management of the Regional Parklands by all those responsible for land within the Regional Parklands; and

(g) To protect the quality of the water in Prospect Reservoir, its Upper Canal and other bulk water supply infrastructure.

SREP 31 applies to lands located to the east of Wallgrove Road in the vicinity of the Hub. As such it includes the M7 Motorway corridor and any land which could be affected by roadways associated with the M7 Motorway interchange. Road development is permissible with consent on these lands and the project within these areas is consistent with the objectives of the SREP.

1.5.4 Local Environmental Plans

Blacktown LEP

The Blacktown LEP 1988 applies to the lands north of the Sydney water pipeline and east of Ropes Creek excluding the lands to which SEPP 59 applies. However it does not apply to the proposed project except for the purposes of determining permissibility.

Precinct 6 which comprises the lands between the SEPP 59 lands and Ropes Creek is zoned in part 5(a) – Special Uses – General The objectives of this zone are:

(a) To identify land which is currently used by public authorities, organisations and the council to provide certain community facilities and services;

(b) To identify land reserved for future acquisition by the council for a range of community facilities and services;

(c) To identify land which has been reserved at the request of certain public authorities for its future acquisition to provide a range of community facilities and services; and

(d) In relation to land marked "Corridor" on the map –

(i) To set aside land for the development of certain major longterm services and facilities, and special uses carried out by public authorities in an economic, safe and environmentally sensitive manner; and

(ii) To allow the identified land to be used for recreational or other purposes where that use does not conflict with the existing or likely future use of the land by public authorities.

The land adjacent to Ropes Creek is not identified as a Corridor on the LEP mapping.

The remainder of the land in this precinct is zoned 1(a) General Rural. The objectives of this zone are:

(a) To ensure that actual or potential agriculturally productive land is not withdrawn unnecessarily from production;

(b) To ensure that development in rural areas is carried out in a manner that minimizes risks from natural hazards and does not unreasonably increase demand for public services;

(c) To provide for urban support functions; and

(d) To ensure that development within the rural zone does not hinder the proper and orderly development of any future urban lands.

Development for roads is permissible with consent under either zoning. Industrial and related developments are prohibited. Consequently the land would need to be rezoned to enable industrial/employment development.

Penrith LEP

Penrith City LEP 1994 (Erskine Park Employment Area) applies to Precinct 7, the Erskine Park Employment Area (EPEA). The site is zoned 4(e) Employment and 4(e1) Employment Restricted. The aims of the LEP are:

(a) To make land available for economic and employment generating development in the City of Penrith;

(b) To promote development which is consistent with the Council's vision of the City of Penrith contained in its Strategic Management Plan, namely, one of a region having a harmony of urban and rural qualities with a strong commitment to environmental protection and enhancement; and

(c) To promote development which observes responsible and environmentally sound management practices to minimise any adverse environmental impact of that development on surrounding localities.

The objectives of the 4(e) zone are:

(a) To prohibit certain development which is likely to have an adverse environmental effect on the amenity of adjoining localities;

(b) To provide opportunities for a diverse range of employment generating activities;

(c) To accommodate office and retail activities which are primarily intended to service persons working in the Erskine Park Employment Area;

(d) To permit development for the purposes of recreation facilities, child care centres or community facilities in association with, or independent of, other permitted development to serve the needs of the workforce of the Area and the adjoining residential communities;

(e) To prohibit development of land for any purpose if, as a result of carrying out the development, there will be direct vehicular access between that land and either Erskine Park Road or Mamre Road; and

(f) To promote development of land with frontage to Mamre Road and Erskine Park Road if the buildings or works resulting from the carrying out of the development will, by their architectural and landscape design, enhance the rural scenic character of those roads and their roles as gateways to the City of Penrith.

The objectives of Zone No 4(e1) are similar to those of the 4(e) zone with the addition of:

(b) To promote development which does not have an adverse environmental effect on the adjoining residential and rural communities arising from air, noise or other pollution; and

(c) To permit retail activities which are:

(i) Compatible with the concept of the employment area; and
(ii) Unlikely to prejudice the viability of existing business centres, or are primarily intended to service persons working in the Erskine Park Employment Area; and

(d) To permit office development of a type which:

(i) Would not be readily located in a traditional business zone;
(ii) Would be unlikely to prejudice the viability of existing business centres.

The LEP requires that the Council must not consent to the carrying out of development on land to which the plan applies where, in the opinion of the Council, it will have an adverse environmental effect on adjoining residential or rural lands.

The development of roads is permissible with consent under either zoning. The EPLR Network is consistent with the objectives of the zones.

The Penrith LEP No 201, 1991 (Rural Lands) applies to the land in Precinct 8 within the Penrith City LGA and to the corridor of Ropes Creek north of Precinct 7.

The general aim of the LEP is to encourage the proper management, development and conservation of valuable natural and man-made resources within the rural lands of the City of Penrith.

The Ropes Creek Corridor is zoned 5(d) Corridor Zone.

The objectives of the zone are:

(a) To provide land for recreation and community purposes; and

(b) To provide a physical and visual buffer between urban areas; and

(c) To set aside land for the development of services, facilities and special uses by public authorities for the benefit of the community.

Road development is permissible with consent under this zoning.

Penrith LEP 1991 (Environmental Heritage Conservation) applies to all lands within the LGA. The general aim of the Plan is to assist in the conservation or enhancement of heritage items and heritage conservation areas for the LGA. Schedule 2 of the LEP lists the items of heritage values.

Penrith Draft LEP 1999 (Flora and Fauna Conservation) applies to the land within Precinct 7. Under the Draft LEP these fall within lands described as native vegetation areas. The objective of these areas are:

(a) To prevent inappropriate clearing of native vegetation, not located within flora and fauna corridors;

(b) To protect flora and fauna habitat and maintain natural ecosystem processes;

(c) To encourage and provide native vegetation management;

(d) To promote sustainable agriculture; and

(e) To promote and maintain a diverse local rural landscape and associated amenity.

Clause 6 deals with flora and fauna corridors. The objectives of the flora and fauna corridors (Clause 6(2)) are:

(a) To provide effective links between native vegetation areas within the Penrith Local Government Area and other adjoining Local Government Areas; and

(b) To promote the unhindered movement of native animals and plants by limiting the density of development, or by modifying development; and

(c) To facilitate the rehabilitation of flora and fauna corridors to maintain and increase fauna habitat; and

(d) To ensure that clearing or other development takes into account the objectives of this plan, and that measures are taken to implement the objectives; and

(e) To protect significant native vegetation outside conservation areas.

The biodiversity corridors being established in Precinct 7 are in accordance with these objectives.

Clause 6(4) states that a person must not carry out development or work on the land to which the clause applies except with the consent of the Council. Native vegetation must not be cleared on land to which the Draft LEP applies except with the consent of Council which must take into account:

(a) The effect of clearing on flora and fauna species existing or likely to utilise the area;

(b) The presence of threatened species, populations and ecological communities;

(c) The local and regional significance of the vegetation;

(d) Any measures to be taken to ameliorate any impacts;

(e) The significance of any flora and fauna species, populations or ecological community listed under the Threatened Species Conservation (TSC) Act 1995; and

(f) The requirements of any species recovery plan under the TSC Act.

These requirements are relevant to any clearing of defined flora and fauna corridors for the purpose of construction of the proposed road network.

Fairfield LEP

The remainder of Precinct 8 is located within the Fairfield LGA. It is zoned predominantly 1(a) Non-Urban Residential with quarry areas zoned (1b) Non–Urban Extractive Industry under the Fairfield LEP 1994.

The aims and objectives of this LEP are:

(a) To repeal all the existing local planning controls, and to replace these controls with a single local environmental plan;

(b) To give the Council of the City of Fairfield greater responsibility for environmental planning by including broad controls in this plan and more detailed controls in the development control plans prepared by the Council;

(c) To conserve, improve or safeguard the existing environmental qualities of the City of Fairfield;

(d) To provide sufficient land for a range of land uses to accommodate:

(i) Differing lifestyles, incomes and cultures;
(ii) Economic and employment opportunities for the benefit of business and residents;
(iii) A wide range of affordable quality housing; and
(iv) Public services and facilities that are well located and responsive to the needs of the community.

(e) To require the provision of services and facilities when development occurs pursuant to a development consent;

(f) To restrict development on land adversely affected by natural or manmade hazards; and

(g) To conserve the environmental heritage of the City of Fairfield.

The specific objectives of the Zone 1(a) are:

(a) To allow rural-residential development;

(b) To achieve attractive high quality development which is sympathetic to the rural environment and mininises risks from natural and man made hazards;

(c) To ensure that development does not unreasonably increase demand for public facilities and services;

(d) To allow people to carry out a reasonable range of agricultural activities which are compatible with the living environment of neighbours; and

(e) To limit activities that have a detrimental effect on the environment, particularly on noise levels and on the quality of soil, air and water.

The objectives of the Zone 1(b) are:

(a) To identify land containing extractive material of regional significance; and

(b) To allow the economic development of extractive materials subject to environmental controls.

Under both zonings, development for the purpose of roads is permissible with development consent.

1.5.5 Development Control Plans

The requirements of the Blacktown DCP 1992, Penrith (Erskine Park Employment Area) DCP and Fairfield DCP have been addressed as a matter of completeness.

Blacktown DCP

The Blacktown DCP 1992 provides details of the various standards, policies and guidelines adopted by Blacktown City Council for development in the LGA. It sets out the procedures to be followed and the standards to be met.

Part A of the DCP provides general guidelines for development. Part B provides guidelines for development in Rural Zone and Part E provides guidelines for development in Industrial Zone lands.

Part A Guidelines include:

- Soil Conservation – Details to be provided of soil erosion control and sedimentation control measures;
- Tree Preservation – Consent required for the removal of trees;
- Cultural Heritage – Protection of items of environmental heritage;
- Pollution Control; and
- Noise Reduction.

Clause 8 of Part A of the DCP provides information in relation to development on Flood Prone Land. The DCP requirements may be taken into account at the project approval stage of the EPLR Network.

Penrith DCP

The Erskine Park Employment Area DCP applies to Precinct 7 of the development site. The Plan provides more detailed provisions than the LEP in regard to development standards, the provision of public amenities and service infrastructure and biodiversity conservation.

In general terms this plan aims to:

(a) Provide a framework that will lead to a high standard of development in the Erskine Park Employment Area encouraging local employment and creating an area which is pleasant, safe and efficient to work in;

(b) Ensure that development takes account of the physical nature of the local environment, particularly Ropes Creek, ridgelines and the natural landscape;

(c) Ensure that development does not result in pollution of waterways and in particular of Ropes Creek and South Creek;

(d) Promote the development of a visually attractive physical environment where form, scale, colour, shape and texture of urban elements are managed in a way which will achieve an aesthetically pleasing balance which does not adversely affect the amenity of the existing residential areas;

(e) Identify and provide for public amenities and service infrastructure to accommodate development in the Erskine Park Employment Area;

(f) Promote the creation of a landscaped area within the electricity transmission easement to act as a buffer between the employment zones and the residential communities;

(g) Establish environmental criteria and controls for development within the area to ensure that the environmental quality of adjoining areas is not compromised;

(h) Ensure that development is consistent with the objectives of the Threatened Species Conservation Act and particular regard to the endangered ecological communities, flora and fauna present on the site;

(i) Facilitate conservation of urban bushland; and

(j) Protect, restore and enhance riparian corridors within the Erskine Park Employment Area.

The Plan provides objectives and requirements for drainage, transportation, site development and urban design, environmental quality and biodiversity. The requirements of the DCP may be taken into account at the project approval stage of the EPLR Network.

Fairfield DCP

The Fairfield City Wide DCP (2006) applies to all land in the Fairfield City LGA. The DCP contains detailed development controls to be used by Council as benchmarks of what is acceptable development taking into consideration an environmental site analysis.

Chapter 4 of the DCP addressed the development principles for rural land and is applicable to the land within Precinct 8 zoned 1(a) Non-Urban-Residential.

The existing character of the rural area is generally a semi-rural environment that contains a mix of rural-residential, agricultural and extractive land uses. Several creeks traverse that area and are lined with pockets of vegetation. The remainder of the area has mostly been cleared of natural vegetation. The objectives of the DCP for rural lands are:

(a) To ensure development is consistent with the existing character of the rural area;

(b) To prohibit any further agricultural activities such as piggeries and poultry farms; and

(c) Ensure all new development in the area has regard to its rural setting and minimises adverse effects on the environment and adjoining residents.

The DCP sets out objectives and controls in terms of:

- Road Access and Points;
- Landscaping;
- Sewerage Disposal;
- Residential Development Near Extractive Industries;
- Noise Mitigation Measures for Dwellings Near Extractive Industries;
- Aircraft Noise;
- Subdivision of Rural Land;
- Horsley Park Village; and
- Agricultural Development.

1.5.6 Other Instruments

Habitat Protection Plan No 3 – The Hawkesbury – Nepean River System

To assist in the protection of key fish habitats, the *Fisheries Management Act 1994* enables the Minister for Fisheries to make Habitat Protection Plans (HPP) for the protection of any fish habitat. Once gazetted the Minister and Public Authorities must have regard to any HPP that is relevant to the exercise of their functions.

HPP No 3 applies to the Hawkesbury-Nepean River System and its catchment. The objectives of the Plan include mitigating habitat degradation within the Hawkesbury-Nepean Catchment. It applies to all activities within the catchment. Specifically in relation to the EPLR Network it applies to:

- Pollution – Requiring the application of best management practice to pollution control;
- Erosion and Sedimentation – Requiring the application of best management practice to erosion control to protect fish habitats;
- Dredging and Extraction – Effort to be made not to interfere with fish habitat corridors and sensitive habitats;
- Construction of Bridges – Structures not to alter natural sediment transport or impede fish passage and be designed to minimise shading of aquatic plants;
- Clearing of Riparian or Floodplain Vegetation – Native vegetation should be retained where possible particularly where it is within 50 metres of a stream;
- Removal of snags – Snags not to be removed unless essential; and
- Water regulation – Ensure the maintenance of stream flows.

These requirements would be incorporated as far as possible in the development of roads within the EPLR Network.

1.6 DEVELOPMENT APPROVAL AND CONSENT PROCESS

1.6.1 Australian Government

Environment Protection & Biodiversity Conservation Act (EPBC Act) 1999

The *EPBC Act* is administered by the Australian Government Department of Environment, Water, Heritage and the Arts (DEWHA). Under the Act approval from the Minister for the Environment, Water, Heritage and the Arts is required for any proposed action that may have a significant impact on matters of National Environmental Significance.

The Act identifies seven matters of National Environmental Significance:

- World Heritage properties;
- National heritage places;
- Wetlands of international importance (Ramsar wetlands);
- Threatened species and ecological communities;
- Migratory species;
- Commonwealth marine areas; and
- Nuclear actions (including uranium mining).

Under the provisions of *EPBC Act* actions that are likely to have a significant impact on a matter of National Environmental Significance are subject to the Commonwealth assessment and approval process. Areas of remnant vegetation on the Hub have been identified as Cumberland Plain Woodland. Cumberland Plain Woodland is listed as an endangered ecological community under the *EPBC Act*. Under the provisions of the *EPBC Act*, any proposal that is likely to impact on this community must be referred to the DEWHA. Referrals for any potentially significant impact on a species, population or community would be made to the Minister in the course of the detailed environmental assessment of each of the road components of the EPLR Network.

The Act also applies to proposals that may have a significant impact on Commonwealth land. The EPLR Network does not affect Commonwealth land.

Native Title Act 1993

The objectives of the *Native Title Act* are:

- To provide for the recognition and protection of native title;
- To establish ways in which future dealings affecting native title may proceed and to set standards for these dealings;

- To establish a mechanism for determining claims to native title; and

- To provide for, or permit, the validation of past acts, and intermediate period acts invalidated because of the existence of native title.

The Act is administered by the National Native Title Tribunal. The Tribunal is responsible for maintaining a register of native title claimants and bodies to whom native title rights have been granted. The Darrug Tribal Aboriginal Corporation is a claimant in respect of lands within the Sydney Region including the Blacktown and Penrith LGAs. The claim is subject to mediation.

The *Native Title Act 1993* provides that native title can be extinguished under certain circumstances. Privately owned land, land covered by residential and commercial leases, areas on which public works have been undertaken and some Crown reserves are lands on which native title is extinguished.

1.6.2 New South Wales Government

As described in Section 1.1, the Concept Plan for the EPLR Network is a Major Project to which Part 3A of the *EP&A Act* applies. The approval of the Minister for Planning is required before a project to which Part 3A applies can be carried out.

Part 3A of the Act provides for Concept Plan approvals for Projects. Section 1.3 of this EA sets out the requirements of the Act for a Concept Plan. A detailed description of the Project is not required. The Act sets out the environmental assessment and public consultation requirements that apply to a Concept Plan. In response to a request from the RTA, the Director General of the DoP has issued Requirements for environmental assessment. This EA has been prepared in accordance with these Requirements. It will be lodged with the DoP and placed on public exhibition.

A number of NSW Acts (and their corresponding Regulations) apply to the EPLR Network which include:

- *Contaminated Land Management Act 1997*

This Act provides guidelines for managing land contamination (refer Section 1.5.2, SEPP No 55).

- *Noxious Weeds Act 1993*

This Act provides for the mandatory control and eradication of weeds in prescribed circumstances.

- *Occupational Health and Safety Act 2000*

This Act aims to secure the health, safety and welfare of persons at work.

- *Protection of the Environment Operations Act 1997*

This Act aims to protect the environment and introduces a schedule of activities, which requires licencing by the NSW EPA. It enables inter alia the procedures for the issuing of Environment Protection Licences for activities listed in Schedule 1 of the Act.

- *Roads Act 1993*

This Act required proponents to obtain consent to carry out works in, on or over a public road. An application under Section 138 of the *Road Act 1993* to carry out works on a public road, cannot be refused if it is necessary for the carrying out of a Project approved under Part 3A of the *EP&A Act* (Section 75V).

- *Soil Conservation Act 1938*

This Act provides for measures to promote, coordinate and research the conservation of soil resources and mitigation of erosion.

- *Threatened Species Conservation Act 1995*

This Act contains provisions aimed at the protection of all threatened plants and animals native to NSW (excluding fish and marine vegetation) and introduces recovery and management strategies for the protection of these species.

- *Waste Avoidance and Resource Recovery Act 2001*

This Act seeks to encourage the most efficient use of resources and to reduce environmental harm in accordance with the principles of ecologically sustainable development. In addition, the Act seeks to ensure that resource management options are considered against the waste hierarchy.

1.6.3 Purpose of the Environmental Assessment

The EA covers the matters referred to in the requirements issued by the Director-General (refer Appendix A). The EA has addressed these requirements in the context of the Concept Plan for the EPLR Network.

1.7 CONSULTATION

The RTA has consulted with various groups/individuals during the development of the Concept Plan for the EPLR Network. Initial consultation has been undertaken with local Councils, relevant government departments/authorities, utility providers, property holders, operator of the M7 Motorway, potentially affected residents and representatives of the Aboriginal community. This constitutes the initial phase of the consultation programme for the Concept Plan for the EPLR Network.

As part of the next phase of consultation the EA for the Concept Plan for the proposed EPLR Network will be available for comment as part of the formal assessment procedures undertaken by the DoP. Submissions received during this process will be used to finalise the routes within the EPLR Network and provide input to the project approval stage.

1.7.1 Government Agencies

Consultation has been undertaken with the Ministry for Transport, DECC, Sydney Water, Integral Energy, Sydney Catchment Authority and Transgrid. This consultation has been in the form of

briefings as part of development of the Concept Plan and advice on the environmental assessment process being undertaken.

In addition Penrith, Blacktown and Fairfield Councils have been consulted in relation to the route options within the EPLR Network to ensure the Concept Plan is consistent with local planning within the LGAs.

1.7.2 Community

Landholders potentially affected by the Project have been consulted during the process of development of the Concept Plan. As part of the process of evaluation of alternative routes, consultation has also been undertaken with representatives of local industry to ensure the EPLR Network would address their requirements. Property holders have been advised of preparation of the Concept Plan and opportunities to comment on the plan as part of the environmental assessment process.

Consultation with the Aboriginal community has commenced. The RTA placed an advertisement in relevant newspapers including the St Marys Star, Fairfield Advance, Koori Mail, National Indigenous Times, Deadly Vibe and In Vibe inviting registrations of interest from Aboriginal groups or peoples with cultural attachment to the area. A meeting was held on August 26, 2006 to discuss the Concept Plan for the EPLR Network and receive preliminary comments from representatives of the Aboriginal community.

1.7.3 Issues

The following is a summary of the issues raised during the consultation process:

- Opportunity for access to the M4 Motorway at Archbold Road;
- Capacity of existing Wallgrove Road /Old Wallgrove Road/M7 interchange;
- Funding for the proposed EPLR Network;
- Need for improved access;
- Maintenance of access to properties;
- Biodiversity protection;
- Timing for works within the proposed EPLR Network;
- The type and form of road network required for the SWP;
- Need for southern and northern routes and link roads;
- Alternative route alignments within the proposed EPLR Network;
- Land acquisition issues including impact on property values and future development potential;

- Impact on residents in close proximity to the proposed routes including access, amenity, noise and dust;

- Proposed creek crossings and mitigation measures; and

- Bus and cycle way access.

The issues raised were considered in the development of the Concept Plan and the assessment undertaken.

1.7.4 Consultation Programme

Consultation with the community including key stakeholders would be ongoing during the concept approval and project approval stages for the proposed EPLR Network.

The phases of the consultation programme are:

Concept Plan Approval Stage

- Stage 1 – Preparation of Concept Plan and EA for submission to the Director General of DoP. Consultation with potentially affected landholders, key stakeholders, local Councils and relevant Government Departments; and

- Stage 2 – Review of consideration of submissions on the EA for the Concept Plan for the EPLR Network ;

Project Approval Stage

- Stage 3 – Update community on progress of project planning and consult as appropriate with directly affected landholders; and

- Stage 4 – Environmental Assessments of roads within the EPLR Network in accordance with the requirements of the Minister's determination.

As part of the public review process for the EA the DoP will inform all property holders potentially affected by the Project and place advertisements in local newspapers. The public review period for the EA will be a minimum of 30 days.

2. NEED FOR THE DEVELOPMENT AND ALTERNATIVES

This section provides a description of the need for the EPLR Network and the alternatives considered.

2.1 NETWORK OBJECTIVE

The primary objective of the Project is to develop a road network which links industrial lands within the NWP including the Erskine Park (Precinct 7) and Eastern Creek (Precincts 1 and 2) Industrial Precincts and future industrial lands (Precinct 6 and 8) with the M4 and M7 Motorways (refer Figures 1.2 and 1.3). The EPLR Network is a strategic road infrastructure proposal that is crucial to the ongoing development of the Hub.

Other objectives of the Project include:

- Development of an internal road network that adequately services the industrial lands of the NWP and provides a connection to future industrial lands in the SWP;
- Ensuring new roads connect with the existing road network;
- Provision of bus, cyclist and pedestrian facilities as part of the EPLR Network;
- Protection of the environment by either avoiding, minimising or mitigating disturbance to environmentally sensitive areas; and
- Meeting community expectations in relation to provision of services and facilities.

2.2 NEED FOR THE PROPOSED NETWORK

The Concept Plan and the EA under Part 3A of the *EP&A Act* would enable the components of the EPLR Network to be evaluated against the broader objectives of the Government and relevant landholders including land developer, community and conservation outcomes.

2.2.1 Western Sydney Employment Hub

The lands of the Hub are of State significance for employment and investment. The Minister for Planning has announced that he has agreed to consider the Hub as a State Significant Site as part of the NSW Government Metropolitan Strategy. A key consideration in making the declaration is to ensure the provision of infrastructure to service existing and future employment lands, including link roads to the M4 and M7 Motorways. Connections to the Motorways are critical for the majority of developments within the Hub providing direct motorway access to Sydney Airport, Port Botany and the national highway network. In addition, such connections would attract new industry to locate within the Hub. The Metropolitan Strategy projects up to an additional 500,000 jobs would be created by 2031 with almost half of all new jobs expected to be located in Western Sydney. Creating access to the designated existing and future employment lands within the Hub would through the provision of improves access effectively add to the available stock of employment lands in the M7 Motorway corridor and contribute to promoting employment and investment in Western Sydney.

To date planning of new roads within the NWP and SWP linking with the Motorways has been based on individual precinct and landholder requirements in the absence of any strategic link road plan for the proposed development, in particular those precincts located to the west of the M7 Motorway and south of the M4 Motorway.

In May 2004, the then Premier announced that the Government would rezone land to build a link between the established industrial estate in the Erskine Park Employment Area within the Penrith City LGA to the M7 Motorway. Since then a number of developments have been undertaken in the Erskine Park Employment Area which comprises Precinct 7 of the Hub. Currently traffic associated with these developments uses Erskine Park and Mamre Roads to the west to access the M4 and M7 Motorways.

2.2.2 Management of Traffic

Strategic traffic modeling was undertaken by the RTA and compiled by Maunsell Australia to examine traffic impacts associated with the development of lands for industrial/employment purposes within the Hub (refer Working Paper No 2). Modelling was undertaken for the AM and PM Peak periods. The modelling compared traffic volumes for the EPLR Network incorporating the development of the Hub lands at the year 2016 and a year 2016 Road Network without the development of the Hub and associated road network.

The results indicate that the development of the NWP and SWP and the EPLR Network would significantly increase traffic volumes on the surrounding road network (refer Working Paper No 2). Additional works would be required to upgrade roads outside the Hub (refer Section 4.2).

2.2.3 Access within the Western Sydney Employment Hub

Penrith City Council have upgraded Lenore Lane (refer Figure 1.2) easterly from Erskine Park Road for 1.4km. This section of Lenore Lane would form part of the EPLR Network being proposed.

Developments within the SEPP 59 lands, comprising Precincts 1 and 2 of the Hub, generate traffic which currently utilises the Old Wallgrove Road/M7 Interchange. This interchange was designed to meet the capacity requirements of developments within the Eastern Creek area. Development of a northern road linking the Erskine Park Employment Area (Precinct 7) to the M7 Motorway via the Old Wallgrove Road interchange is supported by Penrith City Council and major landholders in the NWP. It would individually service developments within Precincts 1, 2, 6 and 7 and result in a reduction in the projected increase in heavy vehicle movements on Mamre and Erskine Park Roads through urban and rural-residential areas. However this link road alone would not be sufficient to serve the NWP and would be oversaturated at the M7 Motorway/Wallgrove Road/Old Wallgrove Road intersection and interchange.

Landholders in the southern portion of the Hub have proposed other road link options adjacent to and to the south of the Sydney water supply pipeline. A southern link road between Mamre Road and the M7 Motorway would service the proposed future industrial employment areas in the SWP of the Hub. It would relieve pressure on the Old Wallgrove Road / M7 Motorway interchange and provide for a possible future connection with the Wetherill Park industrial area.

In addition, landholders in the northern portion of Precinct 2 have proposed a connection to the M4 Motorway preferably utilising Archbold Road. Such a connection would effectively link the industrial area with the M4 Motorway and Great Western Highway and relieve pressure on the M7/M4Motorway interchange. If linked with the northern link road option it would provide alternative access to the M4

Motorway for traffic generated by the Erskine Park Employment Area (Precinct 7) and enable a reduction in heavy vehicle traffic on Erskine Park and Mamre Roads.

Technical analysis and consultation with stakeholders about the most appropriate locations for a link road or roads between the lands within the NWP and SWP and the two Motorways and Erskine Park/Mamre Roads has been undertaken. The RTA has developed a Concept Plan for the EPLR Network which includes connections to the M4 and M7 Motorways and Erskine Park/Mamre Roads and internal link roads to enable traffic to move more readily between major link roads.

2.3 ROUTE SELECTION CRITERIA

Section 2.2 set out the background to the need for the EPLR Network. The general location for the road network has been determined in consultation with the major stakeholders including Councils and land holders. For the purpose of the development of the Concept Plan it was necessary for the RTA to identify in general terms the proposed routes of the roads comprising the EPLR Network. These routes may be refined on the basis of input during the course of the public consultation on this EA and in the course of the detailed road design (project approval) stage.

To identify the road routes within the EPLR Network a desktop constraints analysis was undertaken by Maunsell Australia (refer Working Paper No 1). Constraints assessed included:

- Existing road connections;
- Existing natural features including topography, water courses and flood extents;
- Existing infrastructure including development and utilities;
- Existing property boundaries, easements and opportunity for future development; and
- Specific geometric road alignment design requirements.

In addition a preliminary environmental constraints and opportunities analysis was undertaken for the NWP lands including:

- A review of ecological and cultural information pertaining to the area; and
- Identification of environmentally sensitive areas.

Maunsell Australia (refer Working Paper No 1) tabulated the key environmental constraints identified in the preliminary analysis. Table 2.1 presents a summary of the results of this analysis together with recommendations for the design of the EPLR Network.

Table 2.1
Summary of Key Environmental Constraints

POTENTIAL IMPACT	CONSTRAINT	RECOMMENDATION
Due to the presence of threatened flora and fauna in close proximity to the proposed road network, it is possible that other populations of threatened species occur within the area.	Species listed under the *TSC Act 1995*.	Align road network to avoid disturbance to known populations of threatened flora and fauna. Undertake a targeted survey for flora and fauna of conservation significance along the proposed alignment prior during the detailed design (project approval) stage.
Potential impact to the Cumberland Land Snail *(Meriodolum corneovirens)* through widening of the existing Old Wallgrove Road at the eastern end of the Erskine Park Link Road Network.	The Cumberland Land Snail is listed as Endangered under the *TSC Act 1995*.	Conduct targeted search for the Cumberland Land Snail and assess potential for habitat during the detailed design (project approval) stage. During detailed design (project approval), align road network to minimise disturbance to known populations or habitat of the Cumberland Land Snail. Ensure that any known populations of the Cumberland Land Snail, located in close proximity to the proposed alignment, are protected during the construction phase through implementation of an Environmental Management Plan.
Potential clearing of River Flat Eucalypt Forest (RFEF)	This community is listed as an Endangered Ecological Community (EEC) under the *TSC Act 1995*.	Align road network to minimise disturbance to this community wherever possible. Use of bridge structures to cross Ropes Creek to avoid disturbance to the RFEF
Potential clearing of Cumberland Plain Woodland (CPW)	This community is listed as an EEC under the *TSC Act* and the *EPBC Act.*	Align road network to minimise disturbance to this community wherever possible.
The proposed road network alignment crosses a 'Biodiversity Corridor' and a Biodiversity Area' as identified by the Erskine Park Biodiversity Management Strategy. The proposed alignment crosses these corridors along the Erskine Park Link Road and the north-south connections of the SWP. A total of 1.58ha of mapped biodiversity corridors will be impacted. These biodiversity corridors are subject to planning provisions of the Erskine Park Development Control Plan.	Planning Provisions of the Erskine Park Development Control Plan	Align road network to minimise impacts to Erskine Park Biodiversity Corridors. Any development within these areas will require consideration of the Biodiversity Strategy and relevant planning provisions. Comprehensive ecological Survey in accordance with management recommendations of the 'Erskine Park Biodiversity Management Strategy' to assess potential for significant impact to flora, fauna and vegetation of significance (in consultation with Penrith City Council). These surveys to be undertaken during the project approval stage. The results of this survey would be used to mitigate environmental impacts to Biodiversity Corridors (e.g. inclusion of design measures such as fauna fencing, and movement corridors (culverts, underpasses)
Ecological impacts associated with the Ropes Creek crossing	*River and Foreshores Improvement Act 1948* (RFI Act).	A bridging structure is recommended to minimise impacts to Ropes Creek and associated riparian vegetation.

POTENTIAL IMPACT	CONSTRAINT	RECOMMENDATION
		The alignment should endeavour to cross Ropes Creek at a location perpendicular to the watercourse, avoiding the bed, banks and riparian vegetation. Bridge works are recommended to be greater than 40m from the watercourse (in accordance with the RFI Act).
	Fisheries Management Act 1994 (FM Act)	Bridging structures are recommended to minimise impacts to Ropes Creek and associated riparian vegetation. During the project approval stage consultation will be required with the Department of Natural Resources to discuss the Riparian buffer required for Ropes Creek.
Indigenous Heritage - due to the presence of sites in close proximity to the proposed road network, it is possible that other sites of heritage significance may occur within the area.	*National Parks and Wildlife Act 1974*	A comprehensive indigenous heritage survey is recommended prior to detailed design (project approval stage). The DECC provides guidelines for standard archaeological reporting and assessment ((NPWS 1997). These guidelines are currently being updated and are in draft form (NPWS 2003)

Source: Maunsell 2007 – Working Paper No 1

The key engineering constraints are listed in Table 2.2 with recommended concept design criteria incorporating the environmental recommendations set out in Table 2.1.

Table 2.2
Engineering Constraints

CONSTRAINTS	CONCEPT DESIGN ACTION
Property Boundaries	• Alignments aim to follow existing property boundaries wherever feasible. This minimises property severance and prevents the creation of small pockets of non-developable land; • Individual property boundaries have been identified and the alignments attempt to provide access to each property.
Ropes Creek	• The east-west alignment (Erskine Park Link Road) crosses Ropes Creek. A bridge crossing has been allowed at this location.
Sydney Water Supply Pipelines	• Both the eastern and western north-south alignments will need to cross the existing twin 2100mm diameter water supply pipelines for the future connection to the SWP. • Due to the proposed biodiversity corridor within the Penrith LGA, a bridge crossing is recommended to maintain flora and fauna corridors. • Based on work-as-executed plans obtained from Sydney Water/Sydney Catchment Authority, the eastern crossing at Old Wallgrove Road is concrete encased. Due to the presence of the existing concrete encasement and great depth of cover it is not envisaged that any further remediation works will be required for the pipeline in this location.
Aboriginal sites	• The alignments avoid any historical Aboriginal sites identified in the environmental constraint mapping.

CONSTRAINTS	CONCEPT DESIGN ACTION
Old Wallgrove Road	• The route alignment ties into Old Wallgrove Road at a level matching the existing pavement and alignment.
Topographical features	• Hilltops have generally been avoided where feasible. This prevents excessive earthworks excavation, steep grades and making a hilltop road a prominent feature of the local area. • The alignments endeavour to fit into the local environment; • The alignments endeavour to avoid natural/existing water features, such as ponds (where possible) as construction work in these areas is undesirable due to potential environmental considerations; and • The alignments endeavour to avoid significantly vegetated areas where possible to limit the impact on the local environment.
Electricity Transmission Easements	• Given the close proximity of the TransGrid sub-station, the local environment is dominated by electricity transmission easements. The proposed road network alignments have been developed to have a minimum impact on the electricity utilities; • TransGrid and Integral Energy utilities have been identified within the area and there has been correspondence with both authorities; • The proposed road network has been developed to avoid electricity towers and provide as much clearance as possible between the road boundary and electricity tower structure. Relocation of towers has been avoided; • The road network alignments endeavour to cross under the overhead HV cables at locations close to the electricity towers where sag is at a minimum. This is desirable as cable sag can vary with ambient temperature; • The vertical alignment endeavours to be in cut or at ground level at locations where the alignment and overhead cables intersect; and • Proposed road network alignments endeavour to cross the cables and easements as perpendicular as possible in order to reduce the length of alignment underneath the overhead cable.
EPEA Biodiversity Corridor (as supplied by Penrith City Council)	• Crossing the proposed biodiversity corridor is unavoidable and crossing locations have been dictated by other constraints such as property boundaries, proposed and existing developments and circumventing property lots. At locations where sections of road intersect with the biodiversity corridor; measures, as advised by the relevant authorities, will need to be implemented to maintain the corridor. For the purposes of this investigation where a biodiversity corridor is crossed it is proposed to bridge over this area.
Lenore Lane (recently constructed)	• Lenore Lane has recently been upgraded to provide a dual carriageway (4 lane) access road for the EPEA. This section of road has been incorporated into the northern east – west route (Erskine Park Link Road) and the concept design has been developed as a continuation of the “as-built” horizontal alignment.
Lenore Lane access road (located to the south of Lenore Lane, providing access to CSR developments and identified as Road No.1)	• This route was considered for a north – south connection. However, upon consultation with Penrith City Council and referring to the proposed CSR developments it was decided that this location would not be suitable. The primary reason being that the recently constructed road would require upgrading to accommodate the increased volumes of traffic travelling between the northern and southern road alignments. • CSR have proposed a number of developments within their land and have subsequently been granted approval for a number of sites. The proposed road network does not encroach upon any CSR proposed or approved development sites.
Old Wallgrove Road (adjacent to Electricity Sub-	• The existing road reserve in the vicinity of the sub-station is in the order of 18m wide. The local constraints consist of: electrical stanchions on both sides of the reserve; the

CONSTRAINTS	CONCEPT DESIGN ACTION
Station)	narrow road reserve and a secure building to the west. • There are two existing stanchions to the east of the road reserve that are offset 5-6m from the road boundary and therefore restrict widening possibilities. To accommodate widening on the east, relocation of the stanchions would be required and it is understood that this would not be a desirable option to utility authorities. • Widening to the west is recommended. There is approximately 38 metres between the existing eastern road boundary and the western HV stanchions. This is considered sufficient to provide for proposed widening and adequate horizontal clearance between the road boundary and electricity stanchion. • A proposed road corridor of 30m is recommended to: provide adequate horizontal clearance between road boundary and western stanchions; and maintain the existing secure building. • Works to be considered would include: relocation of the low voltage over head power lines located to the west of Old Wallgrove Road; and provision of a new road access to the secure building.
Fitzpatrick Development	The western north-south connection linking the Erskine Park Line Road with the future SWP road network for the Hub has been developed to take advantage of the location of the proposed access from Lenore Lane to the Fitzpatrick development.
Blacktown LGA – Concept Master Plan	The road network has been developed in consideration of the Concept Master Plan for the Eastern Creek Employment Area. Existing and proposed conservation areas have not been impacted upon by the proposed road network.

Source: Maunsell 2007 (Working Paper No 1)

2.4 ALTERNATIVES

2.4.1 Road Network Options

The Project to which the Concept Plan relates is the EPLR Network. The alternative to this project is equivalent to the "Do Nothing' option involving no strategic plan for link roads within the NWP with the responsibility for road planning, construction and funding being with the representative Councils and landholders as it currently is.

The benefit of the approval of the Concept Plan for the EPLR Network described in Section 2.2 would be foregone as there would be less stimulus to increase the available stock of employment lands in the M7 Motorway corridor. In addition, there would be less incentive for industry to locate within the NWP resulting in lower employment and investment in Western Sydney.

2.4.2 Alignment and Traffic Design Options

As described in Section 2.3 road alignments within the EPLR Network have been defined at a concept level only. The general location of the road network has been determined in consultation with the major stakeholders and as a result of currently identified engineering and environmental constraints.

A number of link road alignments were proposed by major landholders within the NWP and SWP. Penrith City Council and some landholders expressed a preference for a northern link road. Two specific southern east-west link routes were proposed, one along the Sydney water supply pipeline corridor and one further to the south servicing land planned for future industrial development. These reflected the differing interests of the landholders. A northern link road to the M4 Motorway and north south links to future industrial areas were proposed.

These alternatives were examined in both a traffic access and engineering constraints context. Preliminary constraints and opportunities analysis was undertaken by Maunsell Australia for the RTA (refer Working Paper No 1). The analysis took into account the environmental and engineering criteria described in Section 2.3.

If approval is granted to this Concept Plan and depending on the Minister's determination, it is anticipated that the individual roadway components of the EPLR Network will be subject to further environmental assessment relevant to the Project Approval stage.

2.4.3 Analysis of Future Year Road Network Options

In order to define the road network that needs to be constructed within the NWP and connect to the SWP of the Hub, the RTA developed a preferred network from the assessment of alternative internal and external road link options for a fully developed NWP and SWP, which is designed to accommodate additional traffic that will eventually be generated from the SWP.

The fully developed network assessment process formed the second of three modelling scenarios, as detailed below:

- Modelling Scenario A

  Assessment of Network Option A – Road network without NWP and SWP development (no demand & no road network improvements);

- Modelling Scenario B

  Assessment of Network Options B to B8 – Nine alternative internal and external road link designs for a fully developed NWP and SWP; and

- Modelling Scenario C

  Assessment of Network Option C – The network required within the NWP with connections to the SWP and defined as the EPLR Network. The design is based on the preferred road network (Option B1 or B8), identified in Modelling Scenario B.

Section 2.4.4 provides details of the various network options that were assessed, including a description of the alternative road network elements. A summary of the traffic impacts specific to each of the 2016 future year road network options and details of the preferred option(s) are also included.

The modelling results of the preferred RTA design options for Modelling Scenarios B and C are included in Working Paper No.2 - Section 4.3 and Section 4.4 respectively. The focus was to examine traffic impacts from the NWP and SWP by comparing internal and external link volumes to a 2016 network without NWP and SWP development (Scenario A).

A list of external roads that require upgrading to meet the traffic demand that will be generated from the NWP and SWP (refer Section 4.2).

2.4.4 Road Network Options

The RTA has developed various network options for servicing the fully developed NWP and SWP of the Hub with the aim of designing for the worst case scenario and to develop the appropriate road network for the NWP. The following section provides a brief summary of the traffic impacts specific to each of the alternative road network scenarios considered. Details of the specific network feature for each scenario is listed in Table 2.3 and the corresponding network description is provided in Table 2.4.

The network options within the SWP are the subject of ongoing technical investigations, strategic planning and consultation and consequently assessed separately and are not included in the EPLR Network assessed in this EA.

Table 2.3
Description of Network Features for each of the Year 2016 Network Scenarios

Network Feature	Network Scenario Options									
	B	B1	B2	B3	B4	B5**	B6	B7	B8	C***
Archbold Road	√	√	√	√	√	√	√	√	√	√
East Side Ramps	√	√		√	√	√	√	√	√	√
West Side Ramps	√									
Archbold Road Extension								√		
Southern Route	√	√	√	√	√	√	√	√	√	
Southern Route Extension	√	√		√		√	√	√	√	
Southern Route Interchange	√	√		√		√		√	√	
Direct Connection ("Link 5")	√	√	√		√	√	√	√	√	√
Erskine Park Link Road	√	√	√	√	√	√	√		√	√
North South Link	√	√	√	√	√	√	√	√	√	√
Old Wallgrove Road	√	√	√	√	√	√	√	√	√	√

* Option B5 does not include upgrading /widening of Mamre Road/Erskine Park Road, north of the Southern Route
** Connection to M7 and Wallgrove Road at different locations south of Sydney water supply pipeline – Option B1 is closer to Chandos Rd & Option B8 at the Horsley Drive
*** Option C is the same as Option B1 and B8 in the NWP

Table 2.4
Description of each Network Feature

Network Feature	Description
Archbold Road	Extension from M4 to the Erskine Park Link Road
East Side Ramps	At the interchange of M4 and Archbold Road
West Side Ramps	At the interchange of M4 and Archbold Road
Archbold Road Extension	From Erskine Park Link Road to the Southern Route

Network Feature	Description
Southern Route	From Mamre Road to Old Wallgrove Road, south of the water supply pipeline
Southern Route Extension	From Old Wallgrove Road to Wallgrove Road, south of the water supply pipeline
Southern Route Interchange	Connecting the Southern Route Extension to M7
Direct Connection ("Link 5")	From Old Wallgrove Road to the M7 northbound carriageway
Erskine Park Link Road	From Lenore Lane to Old Wallgrove Road
North South Link	From Lenore Lane to the Southern Route
Old Wallgrove Road	From the Southern Route to Wallgrove Road

Analysis of the Traffic Impacts of Each Modelling Option

The following provides a summary of the alternative network options (refer Table 2.3) for the Year 2016 assuming full development of the Hub based on traffic predictions provided in Working Paper No 2.

Network Option B

Option B comprises the full list of potential network improvements, including west facing ramps at Archbold Road which would allow direct access to/from the proposed development areas through the M4 Motorway via Archbold Road. The additional trips to/from the M4 Motorway facilitated by the west facing ramps would increase traffic slightly on Archbold Road (+200 vehicles) in the peak direction. Correspondingly, there would be a reduction in peak direction traffic on Wallgrove Road. The addition of west facing ramps to the M4 Motorway at Archbold Road was not considered to provide significant access benefits for the Hub.

Network Option B1

Network Option B1 features the full network improvements, but excludes the west facing ramps at Archbold Road. The option is similar to Option B8 with the only difference being the location of the connection with the M7 Motorway south of the Sydney water supply pipeline. The Option B1 connection is at a location north of Chandos Road and the Option B8 connection is at The Horsley Drive.

When comparing Option B1 with Option B3, the inclusion of the Direct Connection redistributes approximately 1,000 vehicles from Old Wallgrove Road and the Southern Route Extension in the AM peak and a similar figure from Old Wallgrove Road in the PM peak.

The network design has good connections to the internal and external road network providing a relatively even distribution of traffic across the main access links to the Hub development in the AM peak, including Erskine Park Link Road (2,732) from the west, Old Wallgrove Road (2,976) from the east and Archbold Road (3,199) from the north.

A similarly even distribution is also evident in the outbound direction during the PM peak, including Erskine Park Link Road (2,685) to the west, Old Wallgrove Road (2,696) to the east and Archbold Road (3,114) to the north.

Option B1 is designed to accommodate traffic that will be generated from a fully developed NWP and SWP. The internal road network provides multiple connections to the adjacent external links including 4 main intersections at Wallgrove Road (2 to the M7) and 1 to the M4, Erskine Park Road and Mamre Road.

It is suggested that of the options evaluated, a road network similar to Option B1 is likely to provide the optimal traffic outcome, based on the multiple external connections that will facilitate an even distribution of trips across the main internal access links to the NWP & SWP developments. With this in mind, the other network designs evaluated in this section will be compared to Option B1.

Network Option B2

Option B2 includes the same network improvements as Option B1 but excludes the direct access to/from the M4 Motorway via Archbold Road, as well as omitting the Southern Route Extension link to the M7 Motorway. In the AM peak period, the omission of the M4 Motorway ramps would reduce traffic on Archbold Road by approximately 400 vehicles. There is a corresponding increase in traffic on Mamre Road, Wallgrove Road and the M7 Motorway.

Removal of the Southern Route Extension results in significant increases in westbound traffic on Wonderland Drive (41%), Old Wallgrove Road (13%) and Direct Connection (45%). A noticeable increase in outbound direction flows on Old Wallgrove Road (46%) and the Direct Connection (48%) is also predicted if eastbound traffic from the Southern Route Extension is rerouted. Eastbound movements accessing the proposed development sites from Lenore and Bakers Lanes via Mamre Road have increased by 21% and 41% respectively, as a result of overall decreased capacity at Wallgrove Road and the M7 Motorway intersections.

The noticeable increase in traffic (18%) on Erskine Park Road is based on the removal of Archbold Road ramps and redistribution due to the omission of the Southern Route Extension to the M7 Motorway. The results appear to be very similar for the PM peak period, where the outbound movements to Wallgrove Road and the M7 Motorway are predicted to decrease with a corresponding increase in westbound movements on Lenore Lane (27%) and Bakers Lane (35%). Erskine Park Road would again be affected with a predicted increase of 24% in northbound direction.

Network Option B3

Option B3 features the same network improvements as Scenario B1, but excludes the Direct Connection and hence eliminates the direct access to/from Wallgrove Road.

The removal of a Direct Connection from Wallgrove Road introduces additional pressures on other east west roads into the proposed development areas during the AM Peak period, particularly Old Wallgrove Road (43%) and Wonderland Drive (42%). The outbound movement on Old Wallgrove Road is also increased substantially (103%) due to the rerouting of trips from the Direct Connection. Correspondingly, the northbound direction on Wallgrove Road between the Direct Connection and Old Wallgrove Road has increased substantially (90%).

In the PM peak period outbound traffic on Old Wallgrove Road and Wonderland Drive is predicted to increase by 39% and 64% respectively. A 100% increase in the volume of inbound direction on Old Wallgrove Road is also predicted. Furthermore, there is a 100% increase in southbound traffic volume on Wallgrove Road between Old Wallgrove Road and the Direct Connection.

Network Option B4

Option B4 features the same network improvements as Option B1 but excludes the Southern Route Extension link to the M7 Motorway and Wallgrove Road. Removal of the Southern Route Extension results in significant increases in westbound traffic on Wonderland Drive (23%), Old Wallgrove (10%) and the Direct Connection (42%). A notable increase in outbound direction flows on Old Wallgrove Road (45%) and the Direct Connection (49%) are also observed as a result of rerouting of eastbound traffic from the Southern Route Extension. Eastbound movements accessing the proposed development sites from Lenore and Bakers Lanes via Mamre Road have increased by 14% and 39 % respectively as a result of overall decreased capacity accessing to/from Wallgrove Road and the M7 Motorway. The notable increase in traffic on Erskine Park Road (12%) is probably due to the redistribution of traffic as a result of removing the Southern Route Extension link to the M7 Motorway and Wallgrove Road.

The results appear to be very similar for PM peak period where the outbound movements to Wallgrove Road and the M7 Motorway decrease with a corresponding increase in westbound movements on Lenore Lane (17%) and Bakers Lane (33%). Erskine Park Road is again affected with an increase of 12% in the northbound direction.

Network Option B5

The proposed road network for Option B5 is of a similar design to Option B1 however Mamre and Erskine Park Roads have only one lane in each direction. The traffic on Mamre Road decreased as predicted for both northbound (24%) and southbound (17%) directions. A corresponding increase in traffic is predicted on access road links into the proposed development areas via the M7 Motorway and Wallgrove Road.

The situation is very similar in the PM Peak period, with a reduction in traffic on Mamre Road in both directions which results in increased traffic levels on other outbound link roads.

It is noted that the outbound traffic on Bakers Lane increases by 14% in the AM Peak and correspondingly by 16% for the inbound direction during the PM Peak period. This would possibly be due to the redistribution of traffic from Erskine Park Road.

Network Option B6

The proposed road network for Option B6 is of a similar design to Option B1. The only difference is the exclusion of the Southern Route Extension link to the M7 Motorway but maintains the connection to Wallgrove Road.

The notable difference in modeling results between the two options is the increase in northbound and south bound turning traffic at the Southern Route/Wallgrove Road intersection, accessing the proposed development areas in addition to a reduction in traffic on the M7 Motorway in the corresponding section. Redistribution of outbound traffic is also evident on Old Wallgrove Road (37%increase in traffic) from Direct Connection (22% reduction in traffic) and the Southern Route Extension (10% reduction in traffic).

Network Option B7

Option B7 is different from Option B1 with the removal of the Erskine Park Link Road between Lenore Lane and Old Wallgrove Road and the extension of Archbold Road to the Southern Route. The traffic

on the Southern Route is increased accordingly due to the reduction of the east west capacity and directness within the proposed development area. This limits the overall accessibility to the development area from Wallgrove Road and the M7 Motorway in both AM and PM Peak periods.

Network Option B8

The location of the connection with the M7 Motorway south of the Sydney water supply pipeline is the only difference between Options B1 and B8. The M7 Motorway connection in Option B8 is further south than Option B1. The Option B1 connection is at north of Chandos Road and Option B8 is at the Horsley Drive. As Option B8 has a road network identical to Option B1, it would also provide the optimal traffic outcome, based on the multiple external connections that would facilitate even distribution of trips across the main internal access inks to the NWP and SWP developments.

2.5 ROAD NETWORK PROPOSED FOR CONCEPT PLAN

The preferred road network for the NWP and SWP development is similar to Option B1 or B8, as the design is likely to provide the optimal traffic outcome, based on the multiple external connections that will facilitate an even distribution of trips across the main internal access links of the developments.

The following issues are being considered in developing/planning the road network for the SWP of the Hub:

- Land to the south of Sydney water supply pipeline is yet to be rezoned for employment uses; and

- The Hub may be further expanded to the south in future.

The road network for the SWP would be subject to a separate environmental assessment process pending the outcome of these considerations.

As a result, Network C (the EPLR Network), which incorporates the concept of Options B1 and B8 within the NWP, has been selected as the preferred network for the NWP. Network C will meet the traffic demand of NWP and has been designed to connect with the SWP to accommodate additional traffic that will eventually be generated from SWP.

The proposed network meets the network performance measures detailed in Section 4.5 of Working Paper No 2.

3. LOCATION AND SITE DESCRIPTION

This section provides a general description of the proposed development site in terms of land ownership and existing use.

3.1 SITE DESCRIPTION

The Hub comprises over 2000 ha of land divided into 10 Precincts or Areas. It is situated at the junction of the M4 and M7 Motorways within the Blacktown, Penrith and Fairfield LGAs. The Hub has been identified wholly as potential employment lands which need to be protected from further fragmentation and development which is inconsistent with the objective of employment.

The NWP comprises Precincts 1, 2, 6 and 7 which are located together in an area to the south of the M4 Motorway, to the west of the M7 Motorway and to the north of the Sydney water supply pipeline (refer Figure 1.3). This area of the Hub is the basis for the Concept Plan for the EPLR Network. Precincts 1, 2 and 7 are zoned for industrial/employment uses while Precinct 6 is zoned for rural uses and would need to be rezoned to enable employment development.

Precinct 1 comprises the site previously occupied by Australia's Wonderland on Wallgrove Road. It is approximately 59 ha in size and is currently being developed for industrial/employment uses.

Precinct 2 is land to which SEPP 59 applies. It is approximately 645 ha and is currently being developed for employment purposes in accordance with the objectives of the SEPP. There are existing quarry developments in the north-western corner and in the south adjacent to the Sydney water supply pipeline. Current access is from Wallgrove Road and from Old Wallgrove Road.

Precinct 6 is located within the corridor of Ropes Creek which flows northwards through the central portion of the NWP. It is approximately 190 ha and is comprised chiefly of cleared rural land.

Precinct 7 is the Penrith City Council Erskine Park Employment Area within the Penrith LGA. It is approximately 500 ha and has undergone employment development since about 2003. An old quarry in the centre of the area is now being rehabilitated by filling with non-putrescible waste.

The EPLR Network has been designed to service industrial/employment development within all of these precincts not withstanding current zoning. The EPLR Network has been designed to allow connection to the SWP. Proposed road alignments are located within the precincts with the exception of the proposed alignment on Archbold Road north of the M4 Motorway and the improvement to the Old Wallgrove Road/M7 Motorway interchange as shown in Figure 1.2.

3.2 PROPERTY OWNERSHIP

Table 3.1 lists the owner and Lot / DP Numbers for all the lands potentially directly affected by the EPLR Network within the Concept Plan assessed in this EA.

Table 3.1
Property Ownership Details

PROPERTY OWNER	LOT/DP
Austral Bricks	1/233539 2/233539 3/233539 4/233539 4/229769
Dial A Dump ACN 114 843 453 P/L	2/262213 1/400697 W/418612
Jacfin Pty Ltd	5/262213 102/1028252
CSR Limited (Bluescope)	58/1090722
Fitzpatrick Investments P/L (Cottle)	7/253678 8/253678 197/1087837 10/253678
Hartford Lane P/L Australand Industrial No 111 P/L	202/1068492
Sumy P/L (Tesrol Group)	9/241859 11/241859 13/241859 1/650179
Mirvac James Fielding Funds Management Ltd – Old Wallgrove Rd Trust Perpetual Nominees (property custodian on land title).	101/1028252
Sargents Charitable Foundation Ltd	4/5632249 8/240143
EM & KJ Adams	13/752041
Hanson Construction Materials (Pioneer Concrete Qld)	11/558723
Department of Planning	4/262213
Transgrid	8/229769 6/229769
Sydney Water	Easements
Telstra	Easements
Agility	Easements
Integral	Easements

3.3 SURROUNDING LAND USE

Land to the east of the M7 Motorway is within the Western Sydney Regional Parklands under SREP 31 – Regional Parklands. The Parklands stretch for 26km along Eastern Creek and involve an area of approximately 5400 ha. Located within the Parkland area in proximity to the NWP is the Eastern Creek Waste Management Centre managed by WSN Environmental Solutions, the Horsley Park

Waste Management Centre managed by Veolia Environmental Services (Collex) and the Austral Bricks brickworks and sales centre.

To the north of the M4 Motorway at this location are the urban areas of Blacktown and Rooty Hill. Between Precinct 7 and the M4 Motorway are the residential suburbs of St Clare and Erskine Park.

On the western side of Mamre Road, the land is zoned for rural uses and is occupied by rural residential development.

Land use to the south varies from rural to urban residential.

4. DESCRIPTION OF THE PROJECT

The following section provides a description of the Concept Plan for the EPLR Network including proposed routes and staging.

4.1 THE PROPOSED ROAD NETWORK

The Hub comprises over 2000 ha of land in the vicinity of the M4 Motorway and M7 Motorway interchange (refer Figure 1.1). The NWP which comprises Precincts 1, 2, 6 and 7 forms a continuous area to the west of the M7 Motorway and south of the M4 Motorway. Parts of Precincts 1, 2 and 7 have been and are being developed for industrial/employment purposes.

As described in Section 1.2 following technical investigations and stakeholder consultation the RTA has prepared a Concept Plan comprising an EPLR Network within these precincts of the Hub. This network known as the EPLR Network is shown in Figure 1.2.

The network would comprise a four lane divided carriageway, generally within a 40m road reserve, and provide sufficient capacity for traffic generated from the fully developed NWP and SWP.

The need for the EPLR Network and alternative road alignments within it are described in Section 2 of this EA.

4.2 PROPOSED NETWORK ELEMENTS

The EPLR Network comprises the following key elements as shown in Figure 1.2:

- An east-west route (Erskine Park Link Road as an extension of Lenore Lane) connecting Mamre Road and Erskine Park Road to the Old Wallgrove Road interchange with Wallgrove Road and the M7;

- Eastern and western north-south link roads (Old Wallgrove Road and N-S Link respectively) connecting the Erskine Park Link Road to the SWP; and

- A northern access road to Archbold Road connecting the Erskine Park Link Road to the M4 (at a new interchange with east facing ramps only) and Great Western Highway.

In addition there will be additional works required to upgrade roads connecting to the EPLR Network (refer Figure 4.1). These upgrades do not form part of the Concept Plan being reviewed within this EA.

4.2.1 An East –West Route : Erskine Park Link Road from Lenore Lane to Wallgrove Road and the M7 Motorway

This section of the network would extend from Lenore Lane to the Old Wallgrove Road interchange with the M7 Motorway. The route would be located within the Penrith and Blacktown LGAs. This route would extend from Lenore Lane located within Precinct 7 (refer Figure 1.2). The route would pass through land which has previously been significantly modified as a result of land clearing for agricultural purposes. This section of the route would cross Ropes Creek which is the boundary of the

Penrith and Blacktown LGAs. The route would connect with Old Wallgrove Road to the north east of the Sydney West Sub-Station. The existing Old Wallgrove Road/ M7 interchange would be modified and this section would be connected to the modified interchange.

4.2.2 North – South Link Road

This section of the EPLR Network would connect the Erskine Park Link Road to land in the south western portion of Precinct 7 and the SWP.

The route would pass through the eastern section of the Erskine Park Employment Area (Precinct 7) to the Sydney water supply pipeline.

4.2.3 Old Wallgrove Road

The route would follow Old Wallgrove Road in a southerly direction to the Sydney water supply pipeline and connects with the SWP. It would connect to the M7 Motorway and Wallgrove Road and pass the Sydney West Substation.

4.2.4 A Northern Access Road to Archbold Road : Connection from Archbold Road to the Erskine Park Link Road and East Facing Ramps at Interchange with the M4 Motorway

This section of the EPLR Network would provide access from Archbold Road and the M4 Motorway into the NWP. Archbold Road would be extended from the intersection of Sargents Road (500m north of M4 motorway) to connect with the Erskine Park Link Road. East facing ramps at the M4 Motorway would provide access to and from the east on the M4 Motorway. This section of the network is located within the Blacktown LGA and passes to the east of Ropes Creek through Precinct 6 and to the west of the SEPP 59 lands (Precinct 2).

4.2.5 Direct Connection

This connection is essential to relieve the Wallgrove/Old Wallgrove/M7 interchange of excess traffic. The connection would join the intersection of Wallgrove Road and the northbound M7 ramps with Old Wallgrove Road at a point approximately 300 m west of Wallgrove Road.

4.3 INTERSECTIONS AND INTERCHANGES

4.3.1 Intersections

Intersections within the EPLR Network include (refer Figure 1.2):

- North-South Link Road and Erskine Park Link Road;
- Old Wallgrove Road and Erskine Park Link Road;
- Erskine Park Link Road and Archbold Road; and
- Old Wallgrove Road and Direct Connection to M7Motorway.

4.3.2 Connections to Motorways

It is proposed to modify or create interchanges at the following locations where the network connects to either the M4 or M7 Motorways (refer Working Paper No 2):

- Archbold Road connection with the M4 Motorway (east facing ramps); and
- Direct Connection and Old Wallgrove Road connections with the M7 Motorway involving a modification to the existing interchange.

4.4 ROAD DESIGN CRITERIA

For the purpose of the Concept Plan no detailed design has been undertaken of the road, intersections, interchanges and other structures associated with the EPLR Network. Subsequent to environmental assessment and approval of the Concept Plan, as part of the project approval stage detailed planning and design would be undertaken for the various roads within the EPLR Network. It is envisaged that project approval would be undertaken by the relevant local Councils or by the private developers. The staging for construction of these roads is outlined in Section 4.8. As described in Section 1.3, the individual road components within the EPLR Network would be subject to further specific environmental assessment in accordance with the staged implementation programme for the project and the requirements of the *EP&A Act*.

The proposed network alignment within the Concept Plan has been designed to comply with the general requirements of the RTA Road Design Guide. Specific criteria to be adopted include:

- 4 lane divided carriageway;
- Design speed of 80 km/hr;
- Lane Widths – 3.5m - 4.5m outside land (measured to face of kerb) and 3.5m inside lane (measured to face to kerb);
- Shared use path for pedestrians and cyclists – 3.0m wide;
- Raised Median – 5.0m – 7.0m wide; and
- Cut and fill batters.

The concept alignment plan adopts the following geometric criteria in accordance with the RTA Road Design Guide (refer Working Paper No 2):

- Minimum Horizontal Curve Radi: 280m;
- Max Vertical Grade: 6%;
- Min Vertical Grade: 0.5%; and
- Road Reserve: 40m, except along Old Wallgrove Road adjacent to the Transgrid substation where the road reserve is limited to 30m.

A typical cross section is shown in Figure 4.2.

4.5 SHARED PATHWAY

The EPLR network includes a shared pedestrian and cycle path. Design of this would be in accordance with Principle No 7 – Improve Cycle Access of *"Integrated Land Use and Transport – Improving Transport Choice, Guidelines for Planning and Development."* The shared path design would be consistent with the RTA Bicycle Guidelines and the DoP's Planning Guidelines for Walking and Cycling. The proposed shared path would be linked with the M7 cycleway at the Wallgrove Road/Old Wallgrove Road intersection.

4.6 BUS ACCESS ARRANGEMENTS

The EPLR Network would facilitate bus access via the NWP lands in a manner consistent with the Ministry of Transport plan to improve bus access between the Blacktown and Mt Druitt centres. The Erskine Park Link Road would act as an east west spine road between either side of the NWP lands off which buses could penetrate further into the local road network if required. This road would be at least 4 lanes wide in order to facilitate bus and general traffic movement.

Only a small proportion of total trips into and out of the site are predicted to be by bus and as such dedicated bus only lanes would not be warranted.

Bus stops would be located with regard to:

- Traffic safety for vehicles and passengers;
- Accessibility, especially for mobility impaired people; and
- Design and layout of pedestrian links and facilities;

The Liverpool to Parramatta T-way runs along roads to the east of the site.

4.7 ENVIRONMENTAL MONITORING AND REPORTING

Approval of the Concept Plan would not in itself authorise the commencement of any construction of the roads which comprise the EPLR Network. As such there would be no immediate requirement for environmental monitoring and reporting.

The subsequent environmental assessment process for each specific road component of the EPLR Network would precede the commencement of any construction works. Specific environmental monitoring and reporting programmes would be developed in the course of detailed road design and environmental assessment during the project approval stage. These would be undertaken during the implementation of the EPLR Network.

4.8 IMPLEMENTATION STAGING

The RTA has identified an EPLR Network that would provide the best traffic outcome with appropriate connections to the external road network. The proposed road network provides road corridors for the key link roads within the NWP. It is anticipated that road construction would be staged to suit the Hub development and be a four lane road similar to the recently constructed Lenore Lane.

Staging of implementation of the EPLR Network would be largely driven by the rate of development in the precincts. Consequently staging would be flexible being determined by the rate and timing of developments within the precincts and the demand for transport infrastructure generated by those developments. As precincts are being released there will be project approval applications for roads in the network to service the proposed developments. In general applications for project approvals would address the road requirements to service the precincts together with the necessary ancillary works. These would take into account more localised features and the interaction of the stages of the network with existing and proposed connecting roads.

Connections to the external road network would be required early in the staging strategy to provide unimpeded access in and out of the NWP as development occurs. Identified improvements to the external road network would need to be incorporated in the staging strategy to match the development of the EPLR Network.

5. ENVIRONMENTAL ASSESSMENT AND RISK ANALYSIS

This section describes the existing environment of the development site and provides a preliminary assessment of the potential impact of the EPLR Network.

5.1 LIMITATIONS

This assessment is a preliminary analysis at Concept Plan stage only. Information used in this assessment is based on a desk top evaluation of publicly available information including aerial photography and other environmental databases. It is not intended to be a comprehensive environmental assessment. The more detailed level of assessment would be undertaken during the project approval stage.

This level of assessment is consistent with the requirements of the Director General as presented in Appendix A of this report.

5.2 PLANNING & STRATEGIC

5.2.1 Existing Conditions

Section 1.5 of this EA describes the relationship of the Hub and the EPLR Network with the relevant planning policies.

This comprised:

- The NSW Government Metropolitan Strategy for Sydney;
- SEPPs including:
  - No 59 – Central Western Sydney Economic and Employment Area;
  - No 19 – Bushland in Urban Areas;
  - No 55 – Remediation of Land;
  - Major Projects 2005; and
  - State Environmental Planning Policy (Infrastructure) 2007.
- SREPs including:
  - No 20 – Hawkesbury Nepean River ((No 2 -1997); and
  - No 31 – Regional Parklands.
- LEPs including:
  - Blacktown LEP 1988;
  - Penrith City LEP 1994 (Erskine Park Employment Area);
  - Penrith LEP 1991 (Environmental Heritage Conservation);
  - Penrith City LEP No 201 (Rural Lands);
  - Draft Penrith LEP 1999 (Flora and Fauna Conservation) and
  - Fairfield LEP 1994.

- Development Control Plans including:
  - Blacktown DCP 1992;
  - Penrith DCP (Erskine Park Employment Area); and
  - Fairfield City Wide DCP 2006.

5.2.2 Assessment

The Hub is identified in the NSW Government Metropolitan Strategy as one of a small number of areas in Sydney that were considered to deserve any early classification of strategic industrial importance due to their location close to major transport infrastructure.

The Minister for Planning's agreement to consider the Hub as a potential State Significant site was announced in the context of the Metropolitan Strategy. The EPLR Network, designated a project to which Part 3A of the *EP&A Act* applies, is aimed at ensuring the provision of transport infrastructure for the lands within the Hub. As such the project is consistent with the objectives and actions of the strategy.

The route selection criteria set out in Working Paper No 1 Section 3.4 included existing property boundaries, easements and opportunities for future development. Consultations were undertaken with land holders and those planning developments within the NWP. Land use constraints were identified (refer Working Paper No 1 Table 2.) in relation to property boundaries, Ropes Creek, the Sydney Water Supply Pipeline, Aboriginal sites, Old Wallgrove Road, electricity transmission easements, the EPEA Biodiversity Corridor, Lenore Lane and the associated access road, the Fitzpatrick Development and the Concept Master Plan for the EPEA.

The assessment undertaken has found that the only potential land use conflict between the proposed EPLR Network and existing and surrounding land uses is the need to traverse the Biodiversity Corridor and Biodiversity Area identified in the Erskine Park Biodiversity Management Strategy. The proposed road network alignment has been selected to minimise impacts on these areas and a comprehensive ecological survey would be undertaken during the project approval stage.

The RTA assumptions relating to the proposed developments within the Hub, including location, amount of developed area and anticipated land use activity are provided in Working Paper No 2.

SEPPs

The lands to which SEPP 59 applies include Precinct 2 of the NWP. The lands are zoned as Employment Lands and development for industrial /employment purposes is permissible with consent. The development of the EPLR Network is consistent with the objectives of SEPP 59 and is a land use which is permissible with consent.

SEPP 19 applies to the Blacktown, Penrith and Fairfield LGAs in respect of land which comprises or adjoins bushland zoned or reserved for open space. The EPLR Network is consistent with this policy in that route selection has included consideration of biodiversity constraints with the aim of minimum disturbance to existing bushland. Subsequent road design and environmental assessment would be in accordance with the aims of this policy.

SEPP 55 - The historical use of the precincts serviced by the EPLR Network and the results of a preliminary soil contamination assessment undertaken for some areas within the precincts have been evaluated and it is concluded that there is no indication that the land might be contaminated.

If the Concept Plan for the EPLR Network is approved, it is recommended that site specific soil contamination assessments be undertaken as part of the detailed design and environmental assessment of the component roads within the network prior to final approval.

SREPs

SREPs do not apply to approved projects under Part 3 A of the *EP&A Act*. However they do apply for the purposes of determining permissibility of the project. As described in Section 1.5.3 road development is permissible with consent under SREP 31. In addition the project is consistent with the objectives of the SREPs 20 and 31

If the Concept Plan is approved, site specific assessment in terms of the requirements of both SREPs would be undertaken as part of the environmental assessment undertaken during the project approval stage.

LEPs and DCPs

LEPs do not apply to approved projects subject to assessment under Part 3A of the *EP&A Act* except for the purposes of determining permissibility. As described in Section 1.5.4, the development for roads is permissible with consent under all the relevant zoning.

To enable industrial employment development to be undertaken within Precinct 6 of the Hub rezoning of the lands within the precinct would be required. Development for this purpose would not be consistent with the objectives of the current zoning.

The requirements of the DCPs are most relevant to the detailed design and environmental assessment of the road components within the EPLR Network. Detailed design and environmental assessment would be undertaken during the project approval stage and would be taken into account at that time.

5.3 TOPOGRAPHY, GEOLOGY AND SOILS

5.3.1 Existing Conditions

Topography

The topography of the NWP lands varies from gently sloping on broad ridge crests and broad alluvial filled gullies to areas of moderate relief with low hills. The topography is dominated by the local stream systems with drainage in the west to South Creek outside the site, to Ropes Creek which is central within the site and to Reedy Creek in the south east.

Slopes generally are less than 5% but up to 10%. Crests and ridges are broad and rounded. Outcrops of rock and shale do not occur naturally on the surface.

Geology

The NWP and much of the Cumberland Plain are located on the Bringelly Shale Formation a member of the Wianamatta Group of Triassic Age (Bannerman & Hazelton 1990) The Wianamatta Group consists of three formations of which the Bringelly Shale is stratigraphically the highest. In areas west

of Sydney, sedimentary rocks have been gently folded to form a basin-like structure with the Bringelly Shale generally occupying the centre.

The Bringelly Shale typically comprises claystone, siltstone, laminate and sandstone units with minor occurrences of coal, carbonaceous claystone and tuff. The various units are typically dark grey or black but also include light grey claystone units possibly caused by leaching.

The Bringelly Shale, with a maximum thickness of 257 m at Razorback, near Campbelltown, grades upwards from a lagoonal-coastal marsh sequence at the base to increasingly terrestrial, alluvial plain sediments towards the top of the formation. The formation was deposited in a broad, low-lying coastal plain consisting of swamplands cut by meandering estuarine and alluvial channels. The Bringelly Shale is underlain by the Triassic Hawkesbury Sandstone Formation.

Soils

The development site predominantly consists of two soil landscapes. According to Bannerman & Hazelton (1990), the dominant geological formation occurring at the site is the Blacktown Soil Landscape, a member of the Wianamatta Group, which occurs extensively on the Cumberland Plain. The South Creek soil landscape occurs along many of the drainage depressions of the Cumberland Plain. The geological formation of the South Creek landscape is Quaternary alluvium derived from Wianamatta Group shales and Hawkesbury Sandstone.

Blacktown Soil Landscape

The Blacktown Soil Landscape (Bringelly Shale) occurs in the north west corner of the site. This group usually occurs on gently undulating rises over Wianamatta Group shales. The soils range from shallow to moderately deep and are hard setting, mottled textured clay soils including red brown podsolic soils on the crests grading to yellow podsolic soils on the lower slopes and drainage lines. The Blacktown soil materials have moderate erodibility, low fertility and poor soil drainage with localized salinity or sodicity.

South Creek Soil Landscape

The South Creek Soil Landscape consists of floodplains, rivers and streams of the Cumberland Lowlands including within the Ropes Creek corridor within the NWP lands. The landscape is flat to gently sloping alluvial plain with occasional terraces or levees providing low relief up to 10 m. The soils are often deep, layered sediments overlying bedrock or relict soils. Structured plastic clay and rod or yellow podsolic soils are the predominant soil groups. The main limitations of this soil landscape are the risk of erosion and frequent flooding with saline conditions in clay subsoils.

Salinity

Salinity has been recognised as a regional problem in Western Sydney and the Western Sydney Regional Organisation of Councils has published a Draft Salinity Code of Practice which would be taken into account in the final design of the components of the EPLR Network. Areas requiring consideration as part of this Code include:

- Identification of hazard areas and processes on site;

- Site water balance;
- Site drainage;
- Vegetation retention; and
- Implementation of building controls or engineering responses where appropriate.

Acid Sulphate Soils

Acid sulphate soils are typically formed in coastal areas below about RL5, along estuaries and rivers. Recently there has been evidence to suggest that pyrite, which can potentially become oxidized during disturbance to form acid sulphate soils, may be present at elevations as high as RL 12. The site, however, is above RL 40 which means that it is well above all the previous areas where acid sulphate soils have been found.

The then Department of Land and Water Conservation prepared a series of Acid Sulphate Soil Risk Maps for the Sydney Metropolitan and Suburban Areas. The maps, however, do not extend further west than Prospect/Parramatta indicating that the risk is confined to the main river systems and coastal regions. On this basis it is considered that there is a very low risk to acid sulfate soils being found on the site.

5.3.2 Assessment

Topography

Construction activities associated with the development of sites within the NWP and the EPLR Network would result in minor changes to the topography of the NWP lands. The preliminary alignment plans (refer Working Paper No 1) indicate areas of cut and fill to meet road geometric requirements. In the context of the development of NWP this alteration to the topography would be minor.

Geology

As indicated above there would be some excavation for construction of roads forming the EPLR Network. The extent of the sub-surface activity would have a localised minor impact which is unavoidable given the topography of the NWP site and the requirement to minimise road grade.

Soils

The construction of roads forming the EPLR Network has the potential to result in sediment movement from the site due to the surface soil erosion, changes in surface and groundwater salinity and impacts due to the disturbance and exposure of contaminated soils.

Earthwork activities would result in the potential for sediment movement, via surface waters, following the removal of ground cover, as the soil would be exposed to erosive elements before being stabilised by revegetation or structures and pavement.

During the course of road construction measures can be implemented in order to minimise sediment movement. During the course of the detailed design of individual road components of the network as

part of the project approval stage environmental assessment of these measures would need to be undertaken. The measures would then be incorporated into individual Soil and Water Management Plans as part of a Construction Environmental Management Plan (EMP).

Measures would likely include the installation of silt fences, maintenance of buffer zones at water courses, prompt revegetation and stabilisation of disturbed areas outside the road alignment, restriction of equipment and vehicle movement off the alignment and daily inspection to monitor the effectiveness of the measures adopted.

Implementation of these measures would ensure that on completion of road construction there would be no exposed unvegetated areas within the road corridor

5.4 SURFACE WATER

5.4.1 Existing Conditions

Regional Description

The proposed development site falls within the Hawkesbury-Nepean catchment, which covers an area of 22,000 square kilometers. The Hawkesbury-Nepean River System drains a large catchment to the west and north of Sydney, from Goulburn in the south west to Lithgow in the west and the Broken Bay Plateau in the north. The river system is utilised for a wide range of activities including:

- Water supply for industrial, agricultural and domestic purposes;
- Recreational activities including swimming, fishing, water skiing, boating etc; and
- Discharge point for sewerage treatment plants and other industrial activities.

The Hawkesbury-Nepean River is the main recreational water resource for Sydney's western suburbs. The catchment sustains a rich and diverse fauna - a consequence of the extensive sandstone environments largely unsuited for development (NSW EPA, 1995).

The many dams and weirs along the river have reduced freshwater flows, changed flood patterns and interfered with the migration of fish and other aquatic animals (Recher *et al*., 1993). In the freshwater creeks and rivers of the Hawkesbury-Nepean system the native fauna has declined, while introduced species have increased.

Surface Hydrology

The NWP site is located within the catchments of the South Creek, Ropes Creek and Eastern Creek. Land in the west of the NWP drains westward into South Creek through a number of small creeks. South Creek enters the Hawkesbury / Nepean River at Windsor.

The central portion of the NWP site drains into Ropes Creek which in turn enters South Creek north of St Marys. Land to the east of the NWP site drains into Reedy Creek which enters Eastern Creek on the eastern side of Wallgrove Road to the north of the Eastern Creek Waste Management Centre. Eastern Creek then flows into South Creek at Vineyard.

At this time the main portion of the NWP site is undeveloped and on these areas the runoff regime is typical of cleared rural land and bushland. Where development has taken place the surface hydrological characteristics would have been altered depending on the design of the development.

Flooding

The major portion of the NWP site is elevated with gentle slopes towards the drainage lines. Flood prone land is restricted to small areas adjacent to minor drainage lines and creeks and to the Ropes Creek and Reedy Creek corridors.

Water Quality

Upstream of the NWP site, Ropes Creek and Reedy Creek flow through areas occupied by agricultural properties, low density residential areas and some industrial development. The creek line drains west ward into South Creek draining directly from areas on the site now occupied by industrial development. South Creek drains from Ingleburn in the south of Sydney through agricultural and low density residential areas.

The water quality in the creeks reflects the impact of human land uses in the upper catchment including agricultural and industrial development, urbanisation and the invasion of weed/alien species. In addition some sections of creekline have been artificially altered in terms of flow and channel shape. In order to improve conditions along the creeks and provide green corridors, conservation and biodiversity areas have been established including bush restoration and regeneration programmes.

5.4.2 Assessment

Surface Hydrology

The construction of the roads within the EPLR Network would result in changes to the local hydrology as a result of earthworks, the establishment of kerbing and guttering and pipe outlets for drainage water. In the context of the overall development of the NWP lands these changes would be minor. In the course of the detailed design (project approval stage) of the individual road components the impacts could be minimised by local drainage measures and by the incorporation of these into the surface water drainage plans for the adjacent developments.

In terms of the overall site hydrology the establishment of the EPLR Network would not in itself impact on flows in the creek systems draining the site.

Flooding

The routes within the EPLR Network would impact on areas subject to flooding at two crossings of Ropes Creek and at the crossing of minor drainage lines which flow into Ropes and Reedy Creeks.

Bridge works would facilitate the crossing of Ropes Creek by the Erskine Park Link Road which would be designed to accommodate the 1:100 year flood recurrence interval.

The detailed design and flooding assessment of these crossings would be undertaken at the time of the environmental assessment and detailed design (project approval stage) of the individual road components within the EPLR Network.

Water Quality

There is a potential for adverse impacts on water quality during both construction and operation of the EPLR Network. Surface disturbance during construction activities could result in increased sediment movement from disturbed areas into water courses and creeks. As described in Section 5.2 the adoption of Soil and Water Management Plans incorporated in Construction Environment Management Plans (EMP) for the specific road components of the network would be aimed at minimising sediment movement and water quality impacts.

The potential for spills of fuel and chemicals exist during road construction. Measures for the containment of spills and treatment of affected areas would be an important element of the Construction EMP.

During roadway operations there is also the potential for spills of liquid and chemicals and for the flow during rain events off the roadway surfaces of other contaminants. During the project approval stage mitigation and management measures would be considered as part of the environmental assessment and detailed design of the roads of the EPLR network.

Monitoring of the water quality in streams draining from the NWP lands would be undertaken during construction and operational phases to provide a basis for ongoing management.

In the context of the potential for water quality impacts on the larger creek system and the Hawkesbury – Nepean River System, the contribution from the EPLR Network construction and operational phases would be negligible.

Objectives

The objectives for the project approval stage (s) would be:

- Planning and implementation of local drainage measures and incorporation of these into the surface water drainage plans for adjacent developments;
- Detailed design and flooding assessment of the two crossings of Ropes Creek and the minor drainage lines which flow into Ropes and Reedy Creeks;
- Incorporation of a Soil and Water Management Plan in the Construction EMP including measures for the containment of spills; and
- Monitoring of water quality in streams draining from the NWP lands.

5.5 GROUNDWATER

5.5.1 Existing Conditions

Groundwater Flow

Within the Bringelly Shale groundwater flow occurs through either the rock matrix (primary intergranular flow) or through defects such as joints and bedding planes (secondary flow). The intergranular flow in most sedimentary rocks is extremely low and the Bringelly Shale beneath this site

is no exception. Because the pore spaces are almost completely occluded the majority of the flow occurs along high angle joints and horizontal bedding planes. These high angle joints also provide the predominant pathway for recharge from the shallow alluvial clays into the fractured bedrock system.

Groundwater flow would approximate the surface drainage patterns. In the west of the Hub site flow would be towards South Creek and in the central areas towards Ropes Creek. In the east groundwater flow would be towards Reedy and Eastern Creeks.

The Bringelly shale has a weathered mantle which essentially comprises clay for which a low primary hydraulic conductivity would be expected. Beneath the weathered mantle the relatively fresh bedrock is variably fragmented to fractured. In the bedrock the primary hydraulic conductivity of the rock is extremely low and, in the absence of defects or jointing water transmissivity will be negligible. Nevertheless quite high flows may occur along fractures, joints and bedding defects.

The shape of the piezometric surface within the soils and bedrock around South Creek, Ropes Creek and Reedy/Eastern Creek is expected to be subdued reflection of the surface topography. Local perched water tables may occur adjacent to the creek systems and it is possible that these local perched water tables would be dependent upon prevailing weather conditions. Piezometric levels within the bedrock strata are likely to change slowly with time because the highly impermeable surficial clay soils should result in most rainfall being directed to surface runoff rather than into the groundwater system.

Groundwater Quality

Groundwater associated with the Wianamatta Shale is characterised by high salinity (Wooley, 1980; Krumins *et.al,* 1998) and high ammonia concentrations (>10mg L^{-1}, Qld, 1942). Naturally occurring high levels of these parameters reflect the deposition of organic-rich sediment in low-energy coastal environments and may be incorrectly attributed to leachate contamination.

The notes accompanying the Penrith 1:100,000 Series Geological Sheet indicate that there are not many registered groundwater bores in the Wianamatta group rocks probably because of the relatively high salinity of the groundwater. The data indicates that the natural groundwater within the Bringelly Shale has relatively high salinity and the groundwater from these strata is generally unsuitable for agricultural or domestic uses.

The results of the other investigations (Waste Service NSW 2003) confirm the historical information on groundwater quality with total dissolved solids generally in the 10,000 – 20,000 mg/L range.

5.5.2 Assessment

Potential sources of groundwater contamination are from any existing contamination on site and spills and leakages into the soil of oils, fuel and other chemicals stored on site.

At this time no areas of contaminated soil have been identified on the NWP site so surface disturbance and excavation would not result in any release of contaminants which could be transported to the groundwater system. This would be confirmed at the environmental assessment and detailed design (project approval) phase of the road components of the EPLR Network.

The drainage and contamination controls which would be incorporated into the design of the roads at the project approval stage would aim to prevent the release and potential infiltration into the ground surface of any contaminated stormwater.

On this basis the proposed construction and operation of the EPLR Network would have limited potential to lead to groundwater contamination.
The local flow and level of groundwater in the general area of the site could be impacted by activities on the NWP site including structures associated with the EPLR Network. While the structures and paving would result in lower infiltration of stormwater into the soil and potentially to groundwater, this would be small in comparison to other inputs to local and regional groundwater. As groundwater is not used locally for any purpose and is rarely used regionally, there would be no local impact.

5.6 TERRESTRIAL ECOLOGY

5.6.1 Existing Conditions

The EPLR Network is to be located within an area which has experienced extensive land clearing and disturbance as a result of past agricultural activities and current industrial development.

A review has been undertaken of the ecological information currently available on the area within which the EPLR Network is to be located. The review was undertaken by Maunsell Australia utilising Commonwealth DEWHA and NSW DECC databases, aerial photography and previously published reports (refer Working Paper No 1).

The area within which the EPLR Network is proposed was identified as having been extensively disturbed by previous land clearing, construction of the Sydney water supply pipeline, quarrying, urban expansion, agricultural activities and grazing. Natural areas were identified as generally being restricted to remnant vegetation along Ropes Creek and isolated remnant patches.

The remnant vegetation within the area has been identified as comprising the endangered ecological communities:

- Cumberland Plain Woodland (*TSC Act 1995* & *EPBC Act 1999*); and
- River Flat Eucalypt Forest (*TSC Act 1995*).

Previous studies identified these communities to comprise Grey Box Woodland (a sub unit of Cumberland Plain Woodland) and Swamp Oak Forest (a sub unit of River Flat Eucalypt Forest) (refer Working Paper No 1).

Threatened flora and fauna species recorded within the study area included:

- *Hypsela sessiliflora*;
- *Grevillia juniperina subsp. Juniperina* (Juniper-leaf Grevillia); and
- *Meridolum comeovirens* (Cumberland Land Snail).

Figure 5.1 provides mapping of these communities and species based on available information.

A number of other threatened fauna and flora species listed under the *TSC Act* and *EPBC Act* were identified to have potential habitat within the study area and are listed in Working Paper No 1.

5.6.2 Assessment

The northern section of the EPLR Network which comprises the Erskine Park Link Road and a section of Old Wallgrove Road is located to the north of the Sydney water pipeline and traverses Precincts 2, 6 and 7. Within the Penrith LGA a Biodiversity Corridor is being established within Precinct 7 providing a link between South Creek and Ropes Creek riparian corridors. The purpose of establishing a biodiversity corridor has been identified as "To ensure the longterm sustainability of remnant natural ecological systems and native species while securing economic development opportunities for the area and advancing the strategic goals of Penrith City Council" (HLA Envirosciences 2005)

The proposed Erskine Park Link Road traverses the biodiversity corridor at Ropes Creek which comprises River Flat Eucalypt Forest. The route would also involve the removal of trees identified as Cumberland Plain Woodland species. Figure 5.1 shows the extent of these communities within this section of the network. A known population of Grevillea juniperina subsp. Juniperina is located adjacent to the route. Within Precinct 2 the route has been selected to avoid areas designated as conservation areas and riparian zones.

The North South Link Road traverses the Biodiversity Corridor within Precinct 7 adjacent to the Sydney water pipeline. The section of the route which traverses the Biodiversity corridor is currently a grassed area. The extent of clearing would be limited to a small area of Cumberland Plain Woodland in the northern section of this link.

The Archbold Road connection would involve removal of Cumberland Plain Woodland primarily located adjacent to the M4 Motorway. Within the EPLR Network this is the area which would involve the most extensive impact on this community. This community is already dissected by a roadway however further clearing would be required for road widening and establishment of on/off ramps to the M4 Motorway.

Cumberland Plain Land Snails have been recorded throughout the study area but not along or adjacent to the proposed routes except in the vicinity of Old Wallgrove Road. Habitat however exists for this and other fauna species in areas potentially impacted (refer Working Paper No 1). Detailed investigations would be required during the environmental assessment and detailed design (project approval) phase.

The route of the EPLR Network has been selected to limit disturbance to known populations/species and minimise impact where creek crossings are required (refer Figure 5.1). Where potential impacts are identified mitigative measures would be incorporated in detailed design and offsets identified.

During the project approval stage the following measures are suggested for each road within the EPLR Network:

- Targeted surveys for threatened flora and fauna species likely to occur within the road easement;

- Conduct of vegetation surveys in accordance with the requirements of the Erskine Park Biodiversity Management Strategy;

- Review the requirement for a Referral under the *EPBC Act*;

- Retention where possible of patches of remnant vegetation;

- Protection of identified populations located in close proximity to the proposed alignment through the construction and operational phases through implementation of an EMP. This would include the *Grevillea juniperina* subsp. *Juniperina* population identified adjacent to the proposed Erskine Park Link Road;

- Maintenance of the habitat corridor created by the riparian vegetation of Ropes Creek and associated tributaries. The design should provide for movement of ground-dwelling and arboreal fauna;

- Evaluation of the need for a Compensatory Habitat Package and development and implementation of that package; and

- Monitoring of the impact on the terrestrial ecosystems.

5.7 AQUATIC ECOLOGY

5.7.1 Existing Conditions

The EPLR Network would involve crossing Ropes Creek. This creek forms part of the catchment of the Hawkesbury-Nepean River system. Table 5.1 provides details of species which have the potential to inhabit the Hawkesbury Nepean Catchment listed in the *Fisheries Management Act* and the *EPBC Act*. None of these species are considered to have potential habitat within the area which would be affected by this Project.

Table 5.1
Threatened Species in the Hawkesbury Nepean Catchment

Common Name	Scientific Name	*FM Act*	*EPBC Act*
Fish			
Silver Perch	*Bidyanis bidyanis*	V	
Macquarie Perch	*Macquaria australasica*	V	E
Trout Cod	*Maccullochella macquariensis*	E	E
Australian Grayling	*Prototroctes maraena*	P	V
Invertebrate			
Adams Emerald Dragonfly	*Archaeophya adamsi*	V	
Sydney Hawk Dragonfly	*Austrocordulia leonardi*	E	

E = Endangered V=Vulnerable P=Protected

There are no known threatened aquatic populations or aquatic endangered Ecological Communities listed under the FM or EPBC Acts for the Hawkesbury Nepean Catchment.

5.7.2 Assessment

Bridge design during the project approval stage for the roads within the EPLR Network would include measures to minimise impacts on Ropes Creek and associated riparian vegetation. The design and method of construction would meet the requirements of the NSW Department of Primary Industries (DPI). The construction would be guided by DPI Fisheries Policies and Guidelines on Bridge Culverts and Causeways and would not impede river flow and fish passage. The sections of the road/bridge on either side of the creek would maintain a corridor for wildlife movement along the creeks. Full span bridging structures would be adopted to minimise impacts to Ropes Creek and the associated riparian vegetation (River Flat Eucalypt Forest). In addition consultation would be undertaken with the DoP and the DPI (Fisheries) in relation to the riparian buffer required for Ropes Creek.

Aquatic habitats would be assessed for classification according to the DPI (Fisheries) Fish Habitat Scheme, which assesses the waterway on their potential for fish habitat. The waterways class will be used to assist in the determination of the appropriate type of bridge required and whether inclusion of a fishway is required within a development (NSW Fisheries 1999).

Monitoring of water quality would be undertaken during road construction and the initial periods of operation.

5.8 AIR QUALITY

5.8.1 Existing Conditions

The regional air quality in Western Sydney is impacted by emissions from a variety of sources both in the region and elsewhere in the Sydney Basin. The primary emission of concern in relation to earthmoving and construction activities is Particulate Matter (PM_{10}) including dust and other particulates from motor vehicle emissions. The DECC operate an air quality monitoring station at St Marys which would be considered representative of the conditions at the NWP site. Concentrations of PM_{10} are measured continuously at this site using a Tapered Element Oscillating Microbalance (TEOM) and summaries of these data are published in quarterly air quality monitoring reports by the DECC (NSW EPA, 2003). Monitoring data from the DECC's St Marys site for 2003 are shown below in Table 5.2.

Table 5.2
DECC Monitoring Data for the Area

Month	PM_{10} concentrations by TEOM ($\mu g/m^3$) at St Marys	
	Average	**Maximum 24-Hour Value**
January 2003	29	*71*
February 2003	19	31
March 2003	20	*211*
April 2003	16	*57*
May 2003	11	30
June 2003	7	28
July 2003	13	32
August 2003	15	31
September 2003	18	42
October 2003	13	23
November 2003	18	35
December 2003	19	41
Annual 2003	**17**	**211**

The annual average PM_{10} concentration recorded in 2003 at the St Marys site by TEOM was 17 $\mu g/m^3$ respectively. This is below the DECC air quality goal of 30 $\mu g/m^3$.

Maximum 24-hour concentrations were above the DECC 50 $\mu g/m^3$ goal on several occasions at the St Marys site. The highest 24-hour average PM_{10} concentration were generally measured in the warmer months of the year. Bushfires were reported in January and March of 2003 at locations that would have influenced PM_{10} measurements at St Marys.

Total Suspended Particulate Matter (TSP) concentrations are not measured at the St Marys site and a value of 43 $\mu g/m^3$ has been assumed to represent the existing annual average TSP concentration compared to the DECC goal of 90$\mu g/m^3$. This value has been derived from the annual average PM_{10} data.

5.8.2 Assessment

Air Pollution Sources

Potential air quality impacts during construction would largely result from dust generated during earthworks and other engineering activities. The total amount of dust generated would depend on the silt and moisture content of the soil, the types of operations being carried out, exposed areas, frequency of water spraying and speed of machinery. The detailed approach to construction would depend on decisions that would be made by the successful contractor and subtle changes to the construction methods and sequences are expected to take place during the project approval stage.

During operation air quality impacts would be due to emissions from vehicles using the road network. These emissions would primarily comprise carbon monoxide (CO), oxides of nitrogen (NO_x) and particulate matter (PM_{10}). The distance from roads to sensitive receptor locations would be important for determining whether adverse air quality impacts would be observed.

Methods for Minimising Air Emissions during Construction

Procedures can be implemented for the management and control of dust emissions during construction. The aim of the procedures is to minimise the emission of dust.

Dust can potentially be generated from three primary sources as follows:

- Wind blown dust from exposed areas and from locations where there is no vegetation cover;
- Dust generated by excavation, earthworks and machinery activities; and
- Vehicle traffic on unsealed roads.

Tables 5.3 and 5.4 list the different sources of wind blown and activity generated dust respectively, and the control procedures that can be typically employed.

Table 5.3
Control Procedures for Wind Blown Dust

Source	Control Procedures
Exposed areas disturbed by removal of vegetation	Disturb only the minimum area necessary. Reshape, topsoil and rehabilitate completed areas as soon as practicable after the completion of works.
Material stockpiles	Maintain water sprays on stockpiles and use sprays to reduce the risk of airborne dust as required.

On hot, dry, windy days (worst case emission conditions with respect to dust) the amount of dust from wind erosion can be high, and can be controlled using water sprays. It may be possible to suspend dust generating activity near sensitive receptors during periods of high winds.

Table 5.4
Control Procedures for Activity Generated Dust

Source	Control Procedures
Dust from vehicles travelling on unsealed surfaces	Watering of active roads and traffic areas using water carts to minimise the generation of dust. The number of active unsealed roads should be minimised and clearly defined. Obsolete unsealed roads should be rehabilitated.
Topsoil stripping	Access tracks used by topsoil stripping equipment during their loading and unloading cycle should be watered.
Topsoil stockpiling	Establishment of a cover crop over topsoil stockpiles that are not to be used in less than 6 months. This would minimise the potential for dust emissions due to wind erosion.

These measures would ensure that dust emissions are subject to a high level of control. Monitoring would be undertaken to assess the effectiveness of the measures.

If possible, the time during which construction activities are taking place near sensitive receptor locations should be minimised. Also, large buffer distances between activities and sensitive receptor locations should be maintained if possible.

Factors Contributing to Adverse Air Quality Impacts during Operation

Factors which influence emissions from vehicles include the mode of travel, the grade of the road and the mix or type of vehicles on the road.

Pollutant emissions form one aspect of roads which can determine the extent of adverse air quality impacts. Other factors include:

- The proximity of the road to sensitive receptor locations. The closer the road is to sensitive receptors, the higher the potential for adverse air quality impacts;
- The proximity of the road to other roads and emission sources. Cumulative impacts may be important in these circumstances; and
- The presence of temperature inversions. These meteorological conditions are associated with a stable atmosphere and poor dispersion conditions in which plume spreading is slow. Adverse air quality impacts may occur when high traffic volumes coincide with poor dispersion conditions.

In the course of the environmental assessment and detailed design of the component roads of the EPLR Network as part of the project approval stage, dispersion modeling of vehicle emissions from selected road sections would be undertaken and assessed in accordance with the relevant regulatory guidelines. The EMP for the construction phase would include measures to control dust emissions.

5.9 NOISE

5.9.1 Existing Conditions

The noise environment of the NWP is currently affected by a number of noise sources. Current noise levels with the NWP lands would range from those representative of rural environments to those experienced in industrial areas. Traffic noise from the major roadways to the north, east and west of the site and associated with industrial development at the site would be one of the major features of the acoustic environment. Noise associated with quarrying and landfilling would be an important local contributor at nearby locations. There are a number of construction activities occurring in Precincts 1, 2 and 7 which also contribute to the noise environment. It is also likely that operations at industrial/employment developments with in the other precincts of the Hub would contribute to local noise.

Potentially sensitive receptors to noise emissions are residences in Erskine Park and rural residences along Mamre Road.

5.9.2 Assessment

At the level of a Concept Plan it is not possible to estimate noise levels emanating from the construction and operation of the EPLR Network. This section identifies the potential sources and the measures which could be adopted to minimise impacts.

Noise Sources

Noise emissions would arise from a number of different sources depending on the stage of the development (construction or operation) and on the location.

In the construction stage noise sources may include bulldozers, scrapers, excavators, trucks, rollers and graders. These activities would be temporary and the potential for impacts to be observed would be limited to the construction period. During operations noise sources would generally be predominantly from vehicles using the road network.

Methods for Minimising Noise Emissions during Construction

Measures that can be implemented to manage and control noise emissions during construction. The aim of the procedures is to minimise noise.

Noise mitigating measures may include:

- Mobile equipment fitted with noise control equipment;
- Smart reversing alarms used on equipment on which reversing alarms are required to avoid annoyance from tonal repetitive noises that apply for conventional alarms;
- Shielding of noisy activities from sensitive receptor locations where practicable; and
- All, or particularly noisy, construction activities could be limited to day-time hours only (7 am to 6 pm).

Objectives of noise management measures would generally include controlling short-term intrusive noise impacts for residential receivers and maintaining amenity noise levels for residential areas and other land uses.

Factors Contributing to Adverse Noise Impacts during Operation

Factors which may contribute to adverse noise impacts on sensitive receptor locations include:

- The proximity of the noise sources or roads to the sensitive receptors;
- Meteorological conditions. The way in which temperature varies with height and the way in which wind speed and wind direction vary with height can lead to changes in noise levels so that levels will be higher or lower than they would be in so-called neutral conditions; and
- Traffic volumes, vehicle speeds, traffic mix and road type.

In the course of detailed design and environmental assessment (project approval stage) of the component roads of the EPLR Network an assessment of impacts as required by the Industrial Noise Policy (INP) would be undertaken.

During the project approval stage "Environmental Criteria for Road Traffic Noise" (DEC, 1999) would be considered in an assessment of noise impacts for the project operation. An assessment would take into account traffic volumes, vehicle speed and traffic mix among other factors to determine whether road traffic noise criteria would be exceeded at sensitive receptor locations.

5.10 HERITAGE

5.10.1 Aboriginal Heritage

Existing Conditions

The EPLR Network is located within the Cumberland Plain. Hundreds of Aboriginal sites predominantly open artefact scatters have been recorded within the Plain. Several predictive models have been utilised to explain Aboriginal site location on the Cumberland Plain (Navin Officer 2005). Sites are predicted to be most likely located near watercourses with availability of water being an important factor influencing distribution of sites across the landscape. Diversity of economic resources such as food and to a lesser extent elevation were also considered to play a role in site location.

Navin Officer undertook archaeological sub-surface testing within lands owned by CSR within Precinct 7 of the NWP. A total of 285 items were recovered from 68 of 218 test pits excavated (Navin Officer 2005). The artefactual remains were indicative of low intensity occupation suggesting transient camps and activities peripheral to a base camp or main occupation area. A limited number of activities were indicated by the artefact types including generalised stone knapping, production of microblades and microliths (spear barbs) and a low incidence of discard. Artefacts were found to be present in all of the differentiated landform units across the study area. The main watershed ridgeline was considered to have high potential for presence of subsurface archaeological material. The spurline crest was considered to have moderate to high potential for presence of subsurface archaeological material. The category for locally elevated ground adjacent to a watercourse was considered to have high

potential for subsurface material. Potential deposits in these areas were considered likely to have high scientific potential. The lower catchment valley floor has the potential for presence of subsurface archaeological material and could be classed as moderate to high.

The Precinct Plan for Precinct 2 within the Hub includes the designation of Conservation Areas which include areas of high archaeological sensitivity. With the exception of ridge tops the range of archaeological sensitive landscapes within Precinct 2 are included in the designated Conservation Areas. Plans of Management are to be prepared for management of the Conservation Areas. The EPLR Network does not impact on the designated Conservation Areas.

J McDonald Cultural Heritage Management Pty Ltd investigated the Aboriginal archaeological and cultural heritage values within the Eastern Creek Business Park in Precinct 1 of the Hub. The study defined archaeological management zones within the area with a representative sample of each of the archaeological units included in the designated Conservation Areas. The Conservation Areas have a high potential for archaeological deposits and/or high cultural/social sensitivity (Eastern Creek Business Park Stage 3 Precinct Plan Blacktown City Council 2004). These Conservation Areas have been included in the planning of the Business Park.

Similar heritage studies have not been undertaken for other lands within the NWP. However in general terms the principles derived form the above investigations have been assumed to apply to these lands.

The EPLR Network falls within the boundaries of the Deerubbin Local Aboriginal Land Council, Darug Custodians Aboriginal Corporation and the Darug Tribal Aboriginal Corporation. The consultation process with the Aboriginal community has commenced in accordance with the RTA Draft Aboriginal Heritage Guidelines. This process has been initiated with the RTA having placed an advertisement inviting registrations of interest from Aboriginal groups or peoples with cultural attachment to the area. A briefing session has been provided in relation to the Concept Plan for the EPLR Network and the proposed environmental assessment process (refer Section 1.7).

Assessment

The alignment of the roads within the EPLR Network have been selected to avoid disturbance to those areas with a known and/or potential archeological and cultural/social significance (refer Section 2.4).

During the project approval stage of the individual component roads of the EPLR Network detailed investigations would be undertaken in relation to Aboriginal archaeology and cultural/social significance. This would involve further consultation with the Aboriginal community and surface and sub-surface investigations.

5.10.2 Non Aboriginal Heritage

Existing Conditions

A desktop search of the NSW Heritage Office – State Inventory and the relevant Council LEPs was undertaken. Southbridge House located approximately 200m to the south of Old Wallgrove Road is the only site in proximity gazetted as a heritage item on the Blacktown LEP.

Assessment

The routes of the roads within the EPLR Network have been selected to avoid heritage sites. Consequently there are no known items of Non Aboriginal heritage value located on the routes within the EPLR Network. During the project approval stage for each of the roads detailed site investigations would be undertaken. If any sites are located consultation would be undertaken with the NSW Heritage Office.

5.11 VISUAL ANALYSIS

5.11.1 Existing Conditions

The NWP comprising Precincts 1, 2, 6 and 7 is located in the broad valleys which drain from the south to the north. The land varies from gently undulating and moderate hills with slopes up to 10%. The majority of the area has been cleared in the past for grazing and rural residential purposes.

In recent years there has been intensive industrial/employment development in the Erskine Park Employment Area (Precinct 7) and in Precincts 1 and 2 to the east. Industrial development in Precinct 1 has replaced the area previously occupied by Australia's Wonderland Park and its associated parking areas. Quarrying activity continues in the north west of Precinct 2. An old quarry in Precinct 7 is being rehabilitated by land filling of non-putrescible waste.

A large electricity substation dominates the southern portion of Precinct 2 while the Sydney water supply pipeline runs along the southern boundary.

The overall cleared land appearance of the area is broken by corridors and sections of vegetation, chiefly bushland, along Ropes Creek, in the south west and east of Precinct 7 and in the north and central portions of Precinct 2. Much of this land is to be protected as biodiversity areas and corridors which would form a backdrop against which the industrial development would be viewed. In addition the rehabilitation of the quarry areas, in particular Precinct 7, will eventually add to the bushland appearance of parts of the site.

In the east a section of the NWP is visible from the M7 Motorway and Wallgrove Road. To the west part of the area is visible from Mamre Road. There are viewing locations for Precinct 7 from residential areas along the southern edge of the Erskine Park urban area. The bulk of the central portion of the NWP land is not visible from outside the area.

5.11.2 Assessment

In the case of the western and eastern portions of the NWP lands, construction of industrial/employment developments and associated infrastructure including roads results in major changes to the visual character of the area. Dominant features visually however are the developments themselves, comprising large buildings rather than the associated roadways and infrastructure.

It is expected that similar impacts would be experienced as development takes place in the more central areas of the NWP area except it would be less visible from the major adjacent roadways. The impact would be lessened by the retention of "green" areas of bushland including the Ropes Creek

corridor and other biodiversity protection areas and by extensive landscape plantings which are being implemented in association with some of the development.

In this context the EPLR Network would not be a major visual impact in the overall development. However it is possible that roadwork construction would precede construction of the industrial/employment developments and there would be a period of time during which road construction would be the major visible feature on some areas. This impact is unavoidable. It could be ameliorated by the prompt revegetation of disturbed areas. These measures would be incorporated in the detailed design of the road components of the network and subject to environmental assessment during the project approval stage.

The objectives for the project approval stage (s) would be:

- Retention of green areas of bushland including the Ropes Creek Corridor and other biodiversity protection areas;
- Extensive landscape plantings; and
- Prompt revegetation of disturbed areas.

5.12 SOCIO-ECONOMICS

The socio-economic impact of the EPLR Network has to be assessed at both the regional and the local level. At the regional level, as a component of the Hub, the EPLR Network would contribute to employment growth and economic output in Western Sydney. At the local level, the construction of the EPLR Network would impact on land holders whose land is directly affected by acquisition and those who would be indirectly affected by loss of amenity through visual, noise, air quality and disturbance impacts. In addition some landholders of lands within the NWP would benefit through having access provided to lands which, subject to the zoning of the land, could be developed for industrial/employment purposes.

5.12.1 Western Sydney

Existing Conditions

The NSW Government's Metropolitan Strategy provides a background to and a direction for employment in Western Sydney. The central Sydney City area traditionally dominated Sydney's employment up until the 1970's and 80's when employment dispersed to suburban locations.

Western Sydney has over the last 25 years increased its stock of jobs due to two factors. The first is the consumption demands of the population which has moved into new housing in the western suburbs. The associated demand for goods and services has resulted in increased associated employment. The second is the decentralisation of manufacturing and warehouse related employment drawn by the need for larger sites and improved infrastructure coupled with the increased value of land in closer proximity to central Sydney.

An emphasis has developed over time on trade and business related to Sydney Airport and Port Botany. As part of the Sydney Orbital the opening of the M7 Motorway has linked key areas in Western Sydney, including the Hub, with these locations.

There has been a continuing shift in manufacturing, transport and distribution activities to Western Sydney with a concentration of manufacturing activity in Bankstown, Blacktown and Fairfield including the Hub.

Economic growth in NSW generally has led to improvements in employment rates in Western Sydney over the past 10 years. However variation exists between some LGAs in the region with unemployment rates above the Sydney average. The Metropolitan Strategy aims to address this issue with Western Sydney jobs growth to be over 230,000 by 2031.

Assessment

The Metropolitan Strategy has addressed the need for the provision of further employment lands in Western Sydney. The estimates presented in the Strategy indicate that it will be necessary to identify, zone and develop between 4000-7500 ha of employment lands. The Hub contains approximately 1500 ha of zoned industrial land and has the potential to generate over 1000 ha of additional employment land. This land needs to be protected from fragmentation and inappropriate development and to be provided with the appropriate infrastructure.

A key consideration when the Minister for Planning agreed to consider the Hub as a potential State significant site was to ensure the provision of infrastructure to service the existing and future employment lands, including the link roads to the M4 and M7 Motorways.

Creating access to these employment lands in the Hub will effectively add to the available stock of employment lands in the M7 corridor and contribute to promoting jobs and investment in Western Sydney.

5.12.2 Local Effects

Existing Conditions

Section 3 of this EA sets out the landholders whose land would be directly affected by acquisition for the purpose of constructing the EPLR Network. As described in Section 1, consultations have been undertaken with all these landholders regarding the Concept Plan for the EPLR Network. In addition to the directly affected landholders there would be occupants of residences in areas adjacent to or near to the component roads of the EPLR Network.

As described previously these include:

- Residents of Erskine Park potentially impacted by construction and operation of the western section of the Erskine Park Link Road; and

- Residents backing onto Archbold Road between the M4 Motorway and Great Western Highway potentially affected by construction and operation associated with Archbold Road.

Assessment

It is envisaged that the lands which would comprise the areas required for the EPLR network could be broadly classified into two categories being either lands that would be within the Hub or lands outside the Hub.

Whilst the appropriate authority responsible for land acquisition has not as yet been defined, it is anticipated that the authority responsible for the acquisition of land required for the road infrastructure works would be finalised during the Project Approval stage.

- Lands required for roads that are within the Hub area

  Required lands which are, at the time that road development occurs, within the designated Hub area, may be subject to either a dedication requirement (with or without compensation) by the relevant development approval authority or be subject to acquisition by the appropriate authority in accordance with the *Land Acquisition (Just Terms Compensation) Act 1991*.

- Lands required for road that are outside Hub area

  At the time that road development is required it is considered appropriate that the required lands which are, at that time, outside the designated Hub area would be acquired by the appropriate authority in accordance with the provisions of the *Land Acquisition (Just Terms Compensation) Act 1991*. As stated above, the authority responsible for the coordination of the road construction and or acquisition of land has, at present, not been determined.

Acquisition of land, if required, may be undertaken by the acquiring authority by either purchase by agreement with the affected land owners or by compulsory acquisition in accordance with the provisions of the *Land Acquisition (Just Terms Compensation) Act 1991*. A guide as to some of the provisions relating to compensation is included in the extract of the *Land Acquisition (Just Terms Compensation) Act 1991* as shown in Appendix B.

5.13 ENVIRONMENTAL RISK ANALYSIS

The environmental assessment undertaken of the proposed EPLR Network has identified a number of potential impacts associated with the project. Key potential impacts were adopted as environmental constraints to the road network design and alignment. They relate chiefly to ecological, biological and heritage matters. They are documented in Working Paper No 1 together with recommendations to avoid or minimise the impacts.

The key known constraints associated with flora and fauna and their habitats for the proposed network are the presence of:

- Endangered Ecological Communities;
- Threatened and migratory species;
- Potential habitat for threatened and migratory species;

- Ropes Creek crossing; and
- Biodiversity areas/corridors.

Other identified environmental impacts are not related specifically to the road alignment but rather to the construction and operation of the road network. These include soil erosion, water quality, noise, air emissions and visual impacts. Mitigation measures aimed at avoiding or minimising these impacts have been developed and are described elsewhere in Section 5 of this EA. The measures would be implemented in the project approval stage of the components of the road network and include the adoption of Construction EMPs.

Based on this concept investigation into environmental and engineering constraints, it is considered that it is feasible to locate a road network that not only serves the NWP of the Hub, but can be located to have minimal impact on the existing natural and built environment and also service the SWP, south of the Sydney Water supply pipeline. The level of investigation undertaken in this report would be sufficient to seek concept plan approval. It is concluded that with the proper application of the proposed mitigation measures the identified impacts would be controlled or minimised. No significant residual impacts have so far been identified as likely to result from the proposed development. It should be noted that other environmental risks may be identified during detailed ecological and cultural surveys during the Project Approval Stage.

5.14 CUMULATIVE IMPACT

Cumulative impacts can result from the interaction between impacts arising from activities associated with other projects with impacts resulting from the construction and operation of the EPLR Network. The impacts are both time and location dependent, i.e the timing of the impacts must be such that they are cumulative and the areas on which they impact must be such that they are cumulative.

At the Concept Plan level and in view of the extended timeframe over which the roads in the EPLR Network would be constructed, it is not possible to be specific about the nature and scale of potential cumulative impacts. However it can be assumed that construction of roadways and construction of industrial/employment developments within areas of the NWP would take place at or near the same time. Consequently there is the potential for cumulative impacts in terms of construction, sediment movement, noise, dust emissions, traffic and disturbance.

This EA has included general methods by where these construction impacts may be controlled. At the project approval stage for the EPLR Network these measures in specific terms would be incorporated into the EMP and cumulative impact assessment would be part of the environmental assessment undertaken at that time.

Similarly, operation of the EPLR Network and the adjoining developments would take place concurrently. Impacts that may be cumulative would be noise, air emissions and drainage/water quality. These impacts cannot be assessed at this time and would be examined in the environmental assessment undertaken at the project approval stage.

5.15 ECOLOGICALLY SUSTAINABLE DEVELOPMENT

5.15.1 Background

This section reviews the EPLR Network development in accordance with the principles of Ecologically Sustainable Development (ESD). *The EP&A Regulation 2000* sets out four principles of ESD to determine whether a proposed development can be sustained by the environment.

The four principles which are to some extent inter-related:

- The Precautionary Principle;
- Inter-Generational Equity;
- Conservation of Biological Diversity and Ecological Integrity; and
- Improved Valuation and Pricing of Environmental Resources.

The following sections present a summary of the proposed development in the context of these principles. These matters are dealt with throughout the relevant sections of the EA.

5.15.2 Precautionary Principle

a) the "precautionary principle", namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by:

> *(i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and*
> *(ii) an assessment of the risk-weighted consequences of various options,*

Potential threats of environmental damage with regard to the EPLR Network are related to noise, air quality, biology and water quality. Other potential impacts relate to heritage, visual character and socio-economic effects. The impact of the Concept Plan for the EPLR Network on all of the environmental factors is addressed in Section 5 of this report. The assessment undertaken involves evaluation of all factors at the Concept Plan stage.

As described in Section 1.2, following approval of the Concept Plan, as part of the project approval stage detailed design should be undertaken of the individual component roads of the EPLR Network. At that time a specific environmental assessment would be undertaken. A description of the existing environment would be prepared and an environmental impact assessment undertaken based on scientific investigation and computer modelling. As a precautionary measure, safeguards and mitigation measures would be proposed in respect of key impacts. These have been foreshadowed in this EA. The safeguards and measures would be proposed in order to reduce potential threats of environmental damage.

The environmental management practices and controls would be incorporated in an EMP including provision for environmental monitoring and contingency planning. These practices and controls would ensure that there would be a high level of environmental protection in the event that a situation related

to the construction or operation of the roads within the EPLR Network caused a threat to the environment.

5.15.3 Inter-Generational Equity

b) "inter-generational equity", namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations,

The EPLR Network is designed in recognition of the need to prevent environmental damage both on the NWP site and in adjoining areas. The remnant native vegetation on the site would be protected and enhanced through a restoration programme. Other measures would be incorporated in the detailed road design to prevent impacts on flooding, the noise environment in adjacent areas and on local and regional air quality.

The EPLR Network incorporates provision for public transport and a shared pedestrian and cycle pathway and would result in reduced greenhouse gas emissions, lower fuel usage and improved road safety compared to the road alternative.

These proposals are consistent with the principle of Inter-Generational Equity namely that the present generation and this Project would enhance the health, diversity and productivity of the environment potentially impacted by this proposal, they are maintained or enhance for the benefit of future generations.

5.15.4 Conservation of Biological Diversity and Ecological Integrity

c) "conservation of biological diversity and ecological integrity", namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration,

Previous use has disturbed the proposed development site. Remnant vegetation remains in designated areas within the NWP lands. The EPLR Network has been designed to minimise disturbance to these communities and to the ecology. While there would be some impact on native vegetation communities the EA proposes protection of these core areas and a programme of revegetation.

Erosion and pollution control measures would minimise any potential impacts on water quality which could impact on the creeks draining the NWP lands.

5.15.5 Improved Valuation, Pricing and Incentive Mechanisms

d) "improved valuation, pricing and incentive mechanisms", namely, that environmental factors should be included in the valuation of assets and services, such as:

> *(i) polluter pays, that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,*
> *(ii) the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,*
> *(iii) environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those best*

placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.

The construction and operating costs of the EPLR Network would include the establishment and maintenance of environmental controls, site environmental management and environmental monitoring.

The purpose of the Concept Plan is to facilitate development of the Hub through the provision of the EPLR Network while preventing environmental damage. It incorporates provision for pedestrians, public transport and cycelways.

6. DRAFT STATEMENT OF COMMITMENTS

This section describes the commitments made by the RTA in relation to development of the Concept Plan for the EPLR Network in terms of detailed design, assessment and implementation.

6.1 REQUIREMENTS

The Director General's Requirements (refer Appendix A) require that environmental management, mitigation and monitoring measures be included in the EA.

In the context of the Draft Statement of Commitments it must be noted that the RTA, while Proponent of this Concept Plan would not be the Proponent of the individual road components for the project approval stage. Hence the Statement of Commitments detailed in this section relates to the project approval stage which would be undertaken by others (eg relevant Councils or private developers).

6.2 ENVIRONMENTAL ASSESSMENT

Concept Plan Stage

The Director General may require the RTA to prepare a report on the submissions and any proposed changes to the project to minimise its environmental impact. The Minister, if he approves the Concept Plan, may outline the procedures for further environmental assessment of the roads within the EPLR Network.

Project Approval Stage

In the course of the project approval stage of the individual component roads of the EPLR Network, specific environmental assessment of each of these roads would be undertaken in accordance with the Minister's Determination and the requirements of the *EP&A Act*. At that stage alignment and traffic design options would be subject to detailed evaluation and refinement.

6.3 ROAD DESIGN

The design of each road and the planning of road construction would incorporate the environmental mitigation measures foreshadowed in Section 5 of this EA.

Specifically the measures relate to:

- Soil erosion and sediment movement control;
- Soil contamination assessment and management;
- Surface water drainage planning and control;
- Flood mitigation;

- Surface water quality management;
- Groundwater quality protection;
- Protection of biodiversity corridors and areas, conservation areas and areas containing endangered ecological communities and threatened flora and fauna species;
- Control of dust emissions during construction;
- Noise control and mitigation;
- Site revegetation and landscaping;
- Protection of indigenous and non-indigenous heritage sites; and
- Monitoring and reporting.

6.4 ENVIRONMENTAL MANAGEMENT AND MITIGATION

The environmental assessment described in Section 5 of this EA identified environmental management and mitigation measures which are recommended to minimise environmental impacts resulting from the construction and operation of the EPLR Network. These measures to be undertaken during the project approval stage by others are summarised in this Section:

- Prepare Construction EMP incorporating individual Soil and Water Management Plans at the project approval stage;
- Road design and flooding assessment;
- Pollution control measures to deal with spills of liquid and chemicals during road operation;
- Contaminated land assessment;
- Incorporation of drainage and contamination controls into the road design;
- Targeted surveys for threatened flora and fauna species;
- Review of the requirement for a Referral under the *EPBC Act*;
- Retention, where possible of patches of remnant vegetation;
- Maintenance of the habitat corridor for Ropes Creek and associated tributaries;
- Evaluation of the need for a Compensatory Habitat Package and develop and implement that Package if required;
- Assessment of aquatic habitats according to the DPI (Fisheries) Habitat Scheme to determine the appropriate bridge design for Ropes Creek;

- Review of riparian buffer zone requirements for Ropes Creek;
- Dispersion modeling of vehicle emissions from selected road sections for the road operational phase;
- Assessment of noise impacts associated with road network operations in accordance with the INP;
- Detailed investigation and consultation with the Aboriginal community in relation to Aboriginal archaeology and cultural/social significance;
- Detailed investigation of non-Aboriginal heritage sites;
- Development of mitigation measures in relation to landscaping and visual impact; and
- Action in relation to land acquisition of directly affected lands.

6.5 ENVIRONMENTAL MONITORING

The environmental assessment described in Section 5 of this EA identified monitoring which is recommended to assess the construction and operation of the EPLR Network. These are summarised below:

- Monitoring of the effectiveness of the measures included in the Construction EMP;
- Monitoring of water quality in streams draining from the Hub lands;
- Monitoring of terrestrial ecosystems during construction and operation;
- Water quality monitoring of local streams during construction and initial periods of operation;
- Dust monitoring during roadway construction; and
- Noise monitoring as required by the INP.

7. JUSTIFICATION AND CONCLUSION

This section provides justification for the EPLR Network in terms of need, economic and environmental considerations.

7.1 JUSTIFICATION

The objective of the Project is a road network which links industrial lands within the NWP of the Hub with Erskine Park/Mamre Roads and the M4 and M7 Motorways as well as provide a connection to the SWP of the Hub. On 5 December 2005 the Minister for Planning announced that he had agreed to consider the Hub a potential State Significant site as part of the NSW Government's Metropolitan Strategy. A key consideration in this decision was to ensure the provision of infrastructure to service existing and future employment lands in Western Sydney.

Connections to the Motorways are critical for the majority of developments within the Hub providing direct motorway access to Sydney Airport, Port Botany and the national highway network. To date planning of new roads within the NWP linking with the Motorways has been based on individual precinct and landholder requirements in the absence of a strategic link road plan in particular for those precincts located west of the M7 Motorway and south of the M4 Motorway.

Traffic modelling undertaken to examine traffic impacts associated with the development of lands within the NWP for industrial employment purposes demonstrates the need for a comprehensive road network. In addition creating access to the designated existing and future employment lands within the NWP would effectively add to the available stock of employment lands in the M7 Motorway corridor and contribute to promoting employment and investment in Western Sydney.

Investigations undertaken by the RTA have found that a network of access roads, rather than one link road connected to motorways and main roads would be required to service these lands if developed for industrial employment. The RTA has identified in general terms the routes for roads that would form the EPLR Network. A number of alternative link road alignments were examined and subjected to engineering and environmental constraints and opportunities analysis. In addition consultation has been undertaken with key stakeholders.

An environmental assessment of the EPLR Network has been undertaken at Concept Plan stage. The assessment has found that in general terms the environmental effects of the proposed development would be adequately ameliorated by the procedures and mitigation measures set out in this EA.

The assessment undertaken identified key environmental constraints and measures have been recommended to avoid or minimise disturbance in relation to threatened and endangered flora and fauna at the detailed design (project approval) stage. These recommendations include the conduct of targeted ecological surveys at that stage. The road alignment has been selected to minimise disturbance to the "Biodiversity Corridor" and a Biodiversity Area identified in the Erskine Park Management Strategy. Bridging structures are recommended to minimise impacts to Ropes Creek and associated riparian vegetation.

A comprehensive indigenous heritage survey is recommended at the detailed design (project approval) stage to avoid impacting sites which have not been identified in previous surveys.

When the detailed design of the individual components of the EPLR Network is undertaken by others, detailed environmental assessment(s) of the specific roads would be undertaken in accordance with the requirements of the *EP&A Act*. The mitigation measures foreshadowed in this EA would be incorporated in the road development together with other measures arising from the individual environmental assessment(s).

7.2 CONCLUSION

Approval of the Concept Plan for the EPLR Network is considered to be justified based on its strategic importance to the development of the Hub and the economic and employment benefits that would be facilitated by it.

The environmental assessment of the EPLR Network at the Concept Plan level is presented in this EA. The EPLR Network would not result in unacceptable environmental impacts and would increase social and economic benefits for the local, regional and State communities.

8. REFERENCES

This section lists the references used to prepare the EA.

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FIGURES

APPENDICES

APPENDIX A

Director General's Requirements

NSW GOVERNMENT
Department of Planning

Contact: Caitlin Bennett
Phone: 02 9228 6197
Fax: 02 9228 6352
Email: caitlin.bennet@planning.nsw.gov.au
Our ref: ICU/01243
Your ref:

Mr John Brewer
General Manager
Strategic Network Planning
NSW Roads and Traffic Authority
PO Box 973
Parramatta NSW 2124

Attn: Suresh Surendran

Dear Mr Brewer

Western Sydney Employment Hub – Erskine Park Link Road Concept Plan (MP 06_0166)
Director-General's Requirements for Environmental Assessment

On 11 January 2007, Director-General's requirements for environmental assessment were issued for the subject project. In the interim period, the Department of Planning in consultation with affected Councils has reviewed these requirements. In accordance with s.75F(3) of the *Environmental Planning and Assessment Act 1979,* the Director-General's requirements for environmental assessment have been modified. A copy of the modified requirements is attached.

The modified Director-General's requirements will be placed on the Department's website along with other relevant information which becomes available during the assessment of the project. As a result, the Department would appreciate it if all documents that are subsequently submitted to the Department are in a suitable format for the web.

Prior to exhibiting the environmental assessment, the Department will review the document to determine if it adequately addresses the modified Director-General's requirements. The Department may consult with other relevant government agencies in making this decision. If the Director-General considers that the environmental assessment does not adequately address the requirements, the Director-General may require the proponent to revise the environmental assessment to address the matters notified to the proponent. Following this review period the environmental assessment will be made publicly available for a minimum period of 30 days.

If you have any enquiries about these requirements, please contact Caitlin Bennett, Senior Environmental Planning Officer, Major Infrastructure Assessments on 02 9228 6197 or via email (caitlin.bennet@planning.nsw.gov.au).

Yours sincerely

15.9.07

Chris Wilson
Executive Director
As delegate for the Director-General

Director-General's Requirements

Section 75F of the Environmental Planning and Assessment Act 1979

Project	Concept Plan for the future development of a road network connecting employment areas in the Fairfield, Blacktown and Penrith LGAs with the M7 & M4 motorways and Mamre Road known as the Erskine Park Link Road Network.
Location	Western Sydney Employment Hub – Fairfield, Blacktown and Penrith local government areas.
Proponent	NSW Roads and Traffic Authority
Date issued	15 September 2007
Expiry date	15 September 2009
Special Provision	On 9 June 2006, the Minister for Planning declared by order in the gazette, pursuant to Section 75B(1) of the *Environmental Planning and Assessment Act 1979* (the Act) that the project is a project to which Part 3A of the Act applies. On 22 December 2006, the Minister for Planning authorised the preparation of a Concept Plan under section 75M of the Act.
General requirements	The Environmental Assessment must include: • an executive summary; • a description of the proposal, staging and the components of the nominated route options which may be subject to subsequent approval(s), including: – proposed alignments and corridor width (including ancillary infrastructure); – intersections, interchanges and other infrastructure; – facilities for cyclists and pedestrians and linkages to the M7 cycleway; and – hierarchy of the network; • details of the framework for the staging, assessment, and implementation of the project; • an assessment of the environmental impacts of the proposal, with particular focus on the key assessment requirements specified below; • justification for undertaking the proposal with consideration of the benefits and impacts of the proposal; • a draft Statement of Commitments detailing measures for environmental mitigation, management and monitoring for the proposal; and • certification by the author of the Environmental Assessment that the information contained in the assessment is neither false of misleading.
Key Issues	The environmental assessment must include assessment of the Concept Plan on the following key issues • **Planning and Land Use** – the environmental assessment must provide an assessment of the suitability of the proposed route alignments with respect to potential land use conflicts with existing and future surrounding land uses. The assessment shall also have consideration of the Metropolitan Strategy and any Precinct Plan prepared under *State Environmental Planning Policy No.59 – Central Western Sydney Economic and Employment Area*, with any departures from these strategies/plans to be identified and justified. • **Traffic and Transport** – the environmental assessment must identify the traffic and transport objectives of the proposal and shall demonstrate how the proposed network would achieve these objectives and meets the relevant network performance measures. This shall be supported by an analysis of the alternatives to the proposed network. The assessment should also clearly identify any implications on the surrounding network as a result of the project. The assessment is to also demonstrate the

	consistency of the project against any strategic transport management strategies and/or objectives that are relevant to the Employment Area or surrounding region, including relevant public transport, cyclist and pedestrian network strategies. • **Flora and Fauna** – the environmental assessment must provide an appropriate level of assessment on the potential impacts on flora and fauna (aquatic and terrestrial). The assessment must identify the biodiversity constraints to the proposed alignments and identify the measures to mitigate these impacts through the subsequent stages. • **Heritage** – the environmental assessment must provide an appropriate level of assessment on the potential impacts to Aboriginal and non-Aboriginal heritage items by the proposed concept. The assessment must identify the constraints to the proposed alignments as a result of Aboriginal and non-Aboriginal cultural significance and identify the objectives to mitigate these impacts through the subsequent stages. • **Noise** – the environmental assessment must identify the likely noise impacts (construction and operation) as a result of the project and the noise performance objectives that are to be achieved through the subsequent stages of the project to mitigate any potential impacts. • **Urban Design** – the environmental assessment must include an assessment of the visual impacts of the proposed alignments and identify the objectives to mitigate these impacts through the subsequent stages. • **Hydrology** – the environmental assessment must identify the potential impacts of the alignments on surface hydrology and flooding behaviour. The assessment must specify the hydraulic objectives are that are to be achieved through the subsequent stages of the project to mitigate these impacts. • **General Environmental Risk Analysis** – notwithstanding the above key environmental requirements, the Environmental Assessment must include an environmental risk analysis to identify potential environmental impacts associated with the project, proposed mitigation measures and potentially significant residual environmental impacts after the application of the proposed mitigation measures. Where additional key environmental impacts are identified through this environmental risk analysis an appropriately detailed impact assessment of these additional key environmental impacts must be included in the Environmental Assessment.
Consultation	You should undertake an appropriate and justified level of consultation with relevant parties during the preparation of the EA, including: • local, State or Commonwealth government authorities and service providers; and • the public (including community groups, affected landowners) - document all community consultation undertaken. The EA must describe the consultation process, document all community consultation undertaken to date and identify the issues raised.

TABLE 1 APPENDIX A
RESPONSE TO DG'S REQUIREMENTS

COMPONENT	REQUIREMENTS	RESPONSE IN EA
General requirements	The Environmental Assessment (EA) must include	
	(1) an executive summary;	Executive Summary
	(2) a description of the proposal, staging and the components of the nominated route options which may be subject to subsequent approval(s), including: - proposed alignments and corridor width; - intersections, interchanges and other infrastructure; - facilities for cyclists and pedestrians and linkages to the M7 cycleway; and - hierarchy of the network. details of the various components and stages and/or hierarchy of the network;	Section 4 Working Paper No 2
	(3) Details of the staging, assessment and implementation of the project;	Section 4.8
	(4) An assessment of the environmental impacts of the proposal, with particular focus on the key assessment requirements specified below;	Section 5
	(5) Justification for undertaking the proposal with consideration of the benefits and impacts of the proposal;	Section 7
	(6) a draft Statement of Commitments detailing measures for environmental mitigation, management and monitoring for the proposal; and	Section 6
	(7) Certification by the author of the EA that the information contained in the report is neither false nor misleading.	Certification
Key Issues	**The environmental assessment must include assessment of the Concept Plan on the following issues:** • **Planning and Land Use**	Sections 1.5, 3 & 5.2.2 Working Paper No 1 (Sections 2.5 & 3.4) Working Paper 2 (Section 3.2)

COMPONENT	REQUIREMENTS	RESPONSE IN EA
	• **Traffic and Transport** • **Flora and Fauna** • **Heritage** • **Noise** • **Urban Design** • **Hydrology** • **General Risk Analysis**	Sections 2 & 4 Working Paper No 2 (Section 4.5) Sections 5.6 & 5.7 Working Paper No 1 (Section 2.5) Section 5.10 Working Paper No 1 (Section 2.5) Section 5.9 Section 5.11 Sections 5.3 – 5.5 Sections 5 & 7 & Working Paper No 1
Consultation	Undertake an appropriate and justified level of consultation with relevant parties during the preparation of the EA, including: • Local, State or commonwealth Government Authorities and service providers; and • The public (including community groups, affected landowners) – document all community consultation undertake. The EA must describe the consultation process, document all community consultation undertaken to date and identify the issues raised.	Section 1.7

APPENDIX B

Property Acquisition

EXTRACT FROM THE LAND ACQUISITION (JUST TERMS COMPENSATION) ACT 1991

Relevant matters to be considered in determining amount of compensation.

55

In determining the amount of compensation to which a person is entitled, regard must be had to the following matters only (as assessed in accordance with this Division):

(a) the market value of the land on the date of its acquisition;
(b) any special value of the land to the person on the date of its acquisition;
(c) any loss attributable to severance;
(d) any loss attributable to disturbance;
(e) solatium;
(f) any increase or decrease in the value of any other land of the person at the date of acquisition which adjoins or is severed from the acquired land by reason of the carrying out of, or the proposal to carry out, the public purpose for which the land was acquired.

Market Value

56. (1) In this Act:

"market value" of land at any time means the amount that would have been paid for the land if it had been sold at that time by a willing but not anxious seller to a willing but not anxious buyer, disregarding (for the purpose of determining the amount that would have been paid):

(a) any increase or decrease in the value of the land caused by the carrying out of, or the proposal to carry out, the public purpose for which the land was acquired; and
(b) any increase in the value of the land caused by the carrying out by the authority of the State, before the land is acquired, of improvements for the public purpose for which the land is to be acquired; and
(c) any increase in the value of the land caused by its use in a manner or for a purpose contrary to law.

(2) When assessing the market value of land for the purpose of paying compensation to a number of former owners of the land, the sum of the market values of each interest in the land must not (except with the approval of the Minister responsible for the authority of the State) exceed the market value of the land at the date of acquisition.

Special Value

57. In this Act

"special value" of land means the financial value of any advantage, in addition to market value, to the person entitled to compensation which is incidental to the person's use of the land.

Loss attributable to severance

58. In this Act:

"Loss attributable to severance" of land means the amount of any reduction in the market value of any other land of the person entitled to compensation which is caused by that other land being severed from other land of that person.

Loss attributable to disturbance

59. In this Act:

"Loss attributable to disturbance" of land means any of the following:

(a) legal costs reasonably incurred by the persons entitled to compensation in connection with the compulsory acquisition of the land;

(b) valuation fees reasonably incurred by those persons in connection with the compulsory acquisition of land;

(c) financial costs reasonably incurred in connection with the relocation of those persons (including legal costs but not including stamp duty or mortgage costs);

(d) stamp duty costs reasonably incurred (or that might reasonably be incurred) by those persons in connection with the purchase of land for relocation (but not exceeding the amount that would be incurred for the purchase of land of equivalent value to the land compulsorily acquired);

(e) financial costs reasonably incurred (or that might reasonably be incurred) by those persons in connection with the discharge of a mortgage and the execution of a new mortgage resulting from the relocation (but not exceeding the amount that would be incurred if the new mortgage secured the repayment of the balance owing in respect of the discharged mortgage);

(f) any other financial costs reasonably incurred (or that might reasonably be incurred), relating to the actual use of the land, as a direct and natural consequence of the acquisition.

Solatium

60. (1) In this Act:
"solatium" means compensation to a person for non-financial disadvantage resulting from the necessity of the person to relocate his or her principal place of residence as a result of the acquisition.

(2) The maximum amount of compensation in respect of solatium is;

(a) except as provided by paragraph (b)-$15,000; (*see note at end of Extract*) or

(b) such higher amount as may be notified by the Minister by notice published in the Gazette.

(3) In assessing the amount of compensation in respect of solatium, all relevant circumstances are to be taken into account, including:

(a) the interest in the land of the person entitled to compensation; and

(b) the length of time the person has resided on the land (and in particular whether the person is residing on the land temporarily or indefinitely): and

(c) the inconvenience likely to be suffered by the person because of his or her removal from the land; and

(d) the period after the acquisition of the land during which the person has been (or will be) allowed to remain in possession of the land.

(4) Compensation is payable in respect of solatium if the whole of the land is acquired or if any part of the land on which the residence is situated is acquired.

(5) Only one payment of compensation in respect of solatium is payable for land in separate occupation.

(6) However, if more than one family resides on the same land, a separate payment may be made in respect of each family if:

a. the family resides in a separate dwelling-house; or
b. the Minister responsible for the authority of the State approves of the payment.

(7) If separate payments of compensation are made, the maximum amount under subsection (2) applies to each payment, and not to the total payments.

Special provision relating to market value assessed on potential of land.

61. If the market value of land is assessed on the basis that the land had potential to be used for a purpose other than that for which it is currently used, compensation is not payable in respect of:

(a) any financial advantage that would necessarily have been forgone in realising that potential; and

(c) any financial loss that would necessarily have been incurred in realising that potential.

Special provision relating to acquisition of easements or rights, tunnels etc.

62. **(1)** If the land compulsorily acquired under this Act consists only of an easement, or right to use land, under the surface for the construction and maintenance of works (such as a tunnel, pipe or conduit for the conveyance of water, sewage or electrical cables), compensation is not payable except for actual damage done in the construction of the work or caused by the work.

(2) If land under the surface is compulsorily acquired under this Act for the purpose of constructing a tunnel, compensation is not payable (subject to subsection (1)) unless:

(a) the surface of the overlying soil is disturbed; or

(b) the support of that surface is destroyed or injuriously affected by the construction of the tunnel; or

(c) any mines or underground working in or adjacent to the land are thereby rendered unworkable or are injuriously affected.

(3) If the land compulsorily acquired under this Act consists of or includes an easement or right to use the surface of any land for the construction and maintenance of works (such as canals, drainage, stormwater channels, electrical cables, openings or ventilators), the easement or right is (unless the acquisition notice otherwise provides) taken to include a power, from time to time, to enter the land for the purpose of inspection and for carrying out of any additions, renewals or repairs. Compensation under this Part is payable accordingly.

Note in respect to Solatium

In accordance with Section 60(2)(b) the maximum amount of Solatium was increased to $21,150 effective from the 1 March 2006. The maximum Solatium amount is usually regularly adjusted in accordance with the CPI changes.