PROPOSED REDEVELOPMENT OF ASPHALT, CONCRETE AND CEMENT PRODUCTION FACILITY
QUARRY ROAD, EASTERN CREEK

Traffic and Transport Assessment

November 2006

Reference 06186

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EXECUTIVE SUMMARY

The Hanson Australia site at Eastern Creek has been subject to an historical operation and use for quarrying, concrete production, asphalt production, transport logistics and related activities. It is proposed to relocate these uses to a subdivided part of the site with the cessation of the quarry use and the addition of a masonry plant use.

The detail 'make up' of the traffic movements associated with the existing uses on the site has been established as follows:

- *31% cars and 69% trucks*
- *some 390,000 truck trips per annum (55% light/medium, 43% semi-trailers and 2% B Doubles)*
- *a relatively even spread of activity throughout the day (5.00am – 6.00pm) with some slight peaking in the morning and afternoon.*

Planning for the development of the Eastern Creek Precinct has included detailed traffic generation and road network analyses to ensure a satisfactory traffic outcome for the envisaged development on the precinct lands. Assessment of the proposed Hanson redevelopment has concluded that the consequential traffic generation of the relocated and new uses on the site will only be some 56% to 65% of that which was assumed in the precinct studies. It is therefore apparent that the traffic generation outcome of the redevelopment scheme will be quite satisfactory in the context of the precinct planning and the proposed road system.

The application includes a proposed realignment of the northern site boundary which could serve as the envisaged alignment of the proposed collector road or will not prejudice an alternate alignment at a future date that will provide access for the site. The proposed realignment will not however preclude the satisfactory provision of the collector road and the outcome will not be inconsistent with the nature of the proposed Eastern Creek Precinct road system.

The proposed vehicle access and internal circulation arrangements for the redevelopment will be suitable and appropriate and assessment has shown that the traffic outcome of the construction process will be quite satisfactory. Assessment has also concluded that there will be no requirement for any amelioration measures.

1. INTRODUCTION

This report has been prepared for Hanson Australia Pty Ltd to accompany an application to the Department of Planning for the proposed redevelopment of an existing asphalt, concrete and cement production facility on a site in Quarry Road at Eastern Creek (Figure 1).

The site is located within the 'Eastern Creek Precinct' of the Central Western Sydney Employment Area which is subject to the provisions of SEPP № 59. The development is part of a former larger landholding (Pioneer Concrete) which includes a large quarry and the historical operation including:

* extractive hard rock quarrying with aggregates storage and distribution
* concrete recycling with crushing, screening and blending facilities
* premix concrete production
* asphalt production
* office and laboratory
* transport logistics depot and workshop.

The quarry product has now been largely exhausted and that part of the site, which has been sold, will be subject to filling and redevelopment. It is proposed to relocate the existing/prior uses to the retained site area. Concept approval is sought for the following.

Distribution of uses and development footprints (utilising existing access, right of carriageway and continues use of other existing infrastructure and services).

Stage	Use
1	Concrete Batching Plant
1	Concrete Recycling Plant
1	Asphalt and Emulsion Plant
2	Materials Storage Depot

1	Logistics Operation and Workshop
1	Office and Laboratory
2	Concrete Masonry Plant*

** new use element*

Detail is provided to allow the Minister to approve the boundary realignment, subdivision and Stage 1, pursuant to Section 75(2) of the Act, without the need for further project application and assessment.

The proposal is to be dealt with under Division 3 of the EP and A Act and the Director General's Requirements for the application include:

- ***Traffic and Transport*** *– including details of traffic volumes likely to be generated during construction and operation; an assessment of the predicted impacts of the traffic generated on the safety and capacity of the surrounding road network, including the Old Wallgrove Road/Wallgrove Road intersection; and advice from a suitably qualified geotechnical expert certifying that the site for the proposed roadworks is suitable for these works;*

- ***Consultation*** *– Blacktown City Council, Roads and Traffic Authority*

The purpose of this report is to:

* describe the site, the existing/prior operations and the proposed redevelopment scheme

* describe the road network serving the site and the prevailing traffic conditions

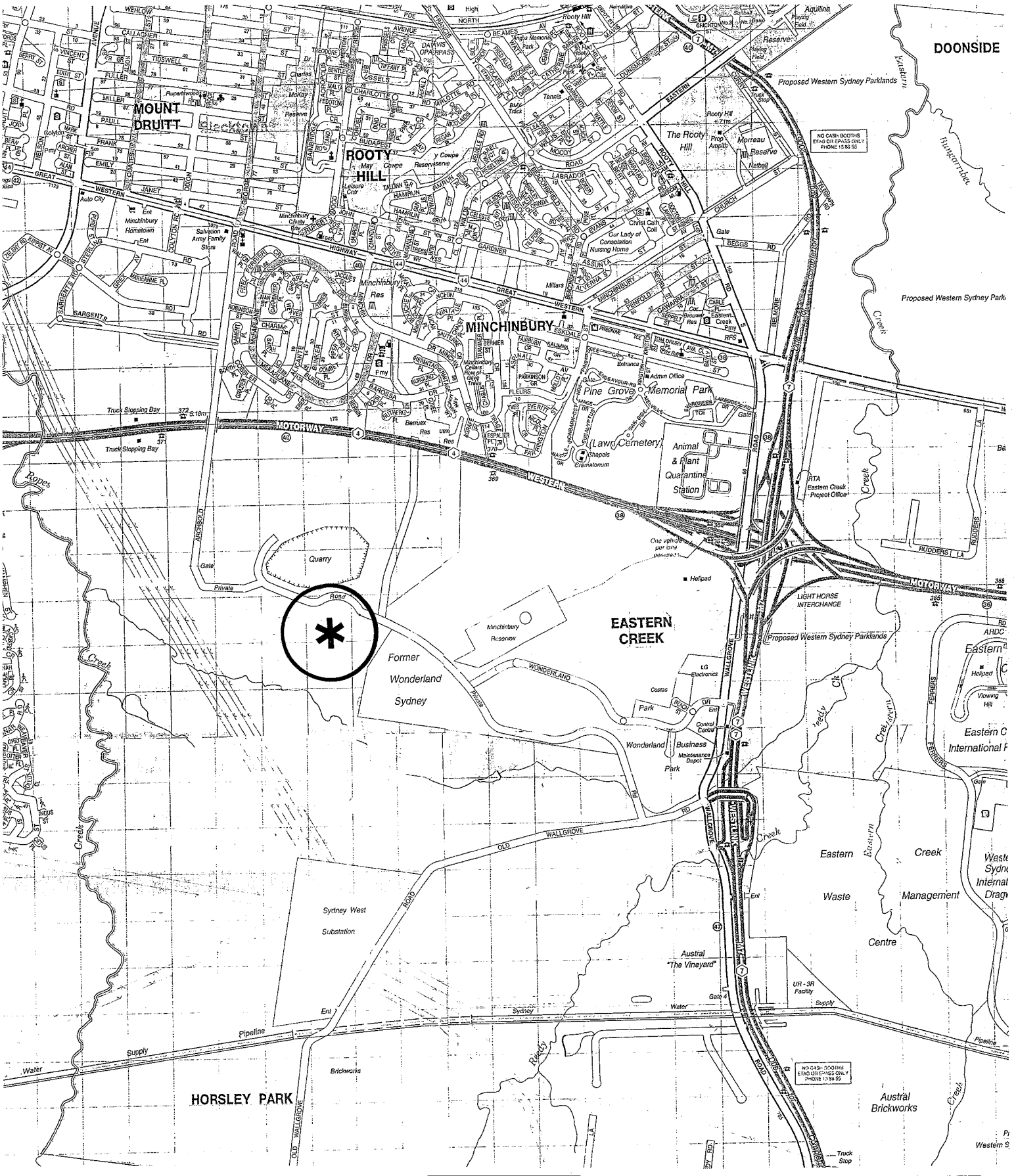
* describe the proposed future road network and projected traffic conditions

* assess the potential traffic and transport implications

* assess the suitability of the proposed vehicle access and internal circulation

* assess the need for amelioration measures

* assess and respond to issues raised by the RTA and Council.



LEGEND

LOCATION

FIG 1

2. PROPOSED DEVELOPMENT SCHEME

2.1 SITE AND CONTEXT

The irregular shaped site (Figure 2) is a consolidation of Lot 11 of DP 558723, Lot 1 of DP 400697 and Lot 2 of DP 262213 which occupies an area of some 27 ha with frontage to a private road (right-of-carriageway) that connects to Old Wallgrove Road. The site, which is situated within the Stage 3 Release Area of the Eastern Creek Precinct, is located in close proximity to the arterial road network including Westlink M7, M4 Motorway and the Great Western Highway.

The site has an undulating nature as indicated on the extract from a survey plan provided overleaf and is bordered along the northern part by the private roadway (Quarry Road) which provides the sole point of vehicle access.

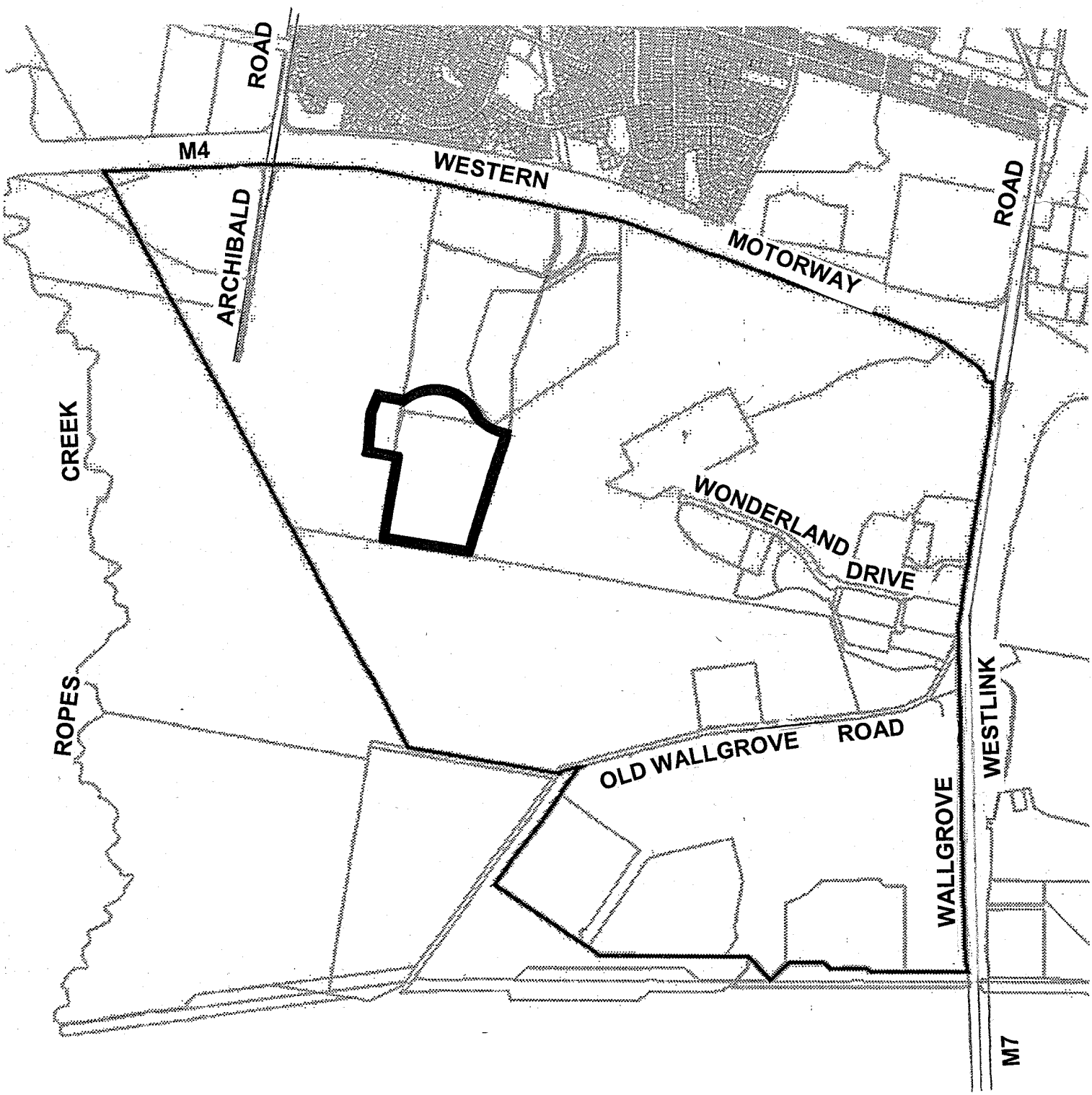
The surrounding landuses include:

* the 'Pioneer Quarry' site to the north which will be subject to filling and redevelopment

* the undeveloped land to the east which is included in the Stage 3 release area

* the proposed Coles Myer National Distribution Centre site to the south-east

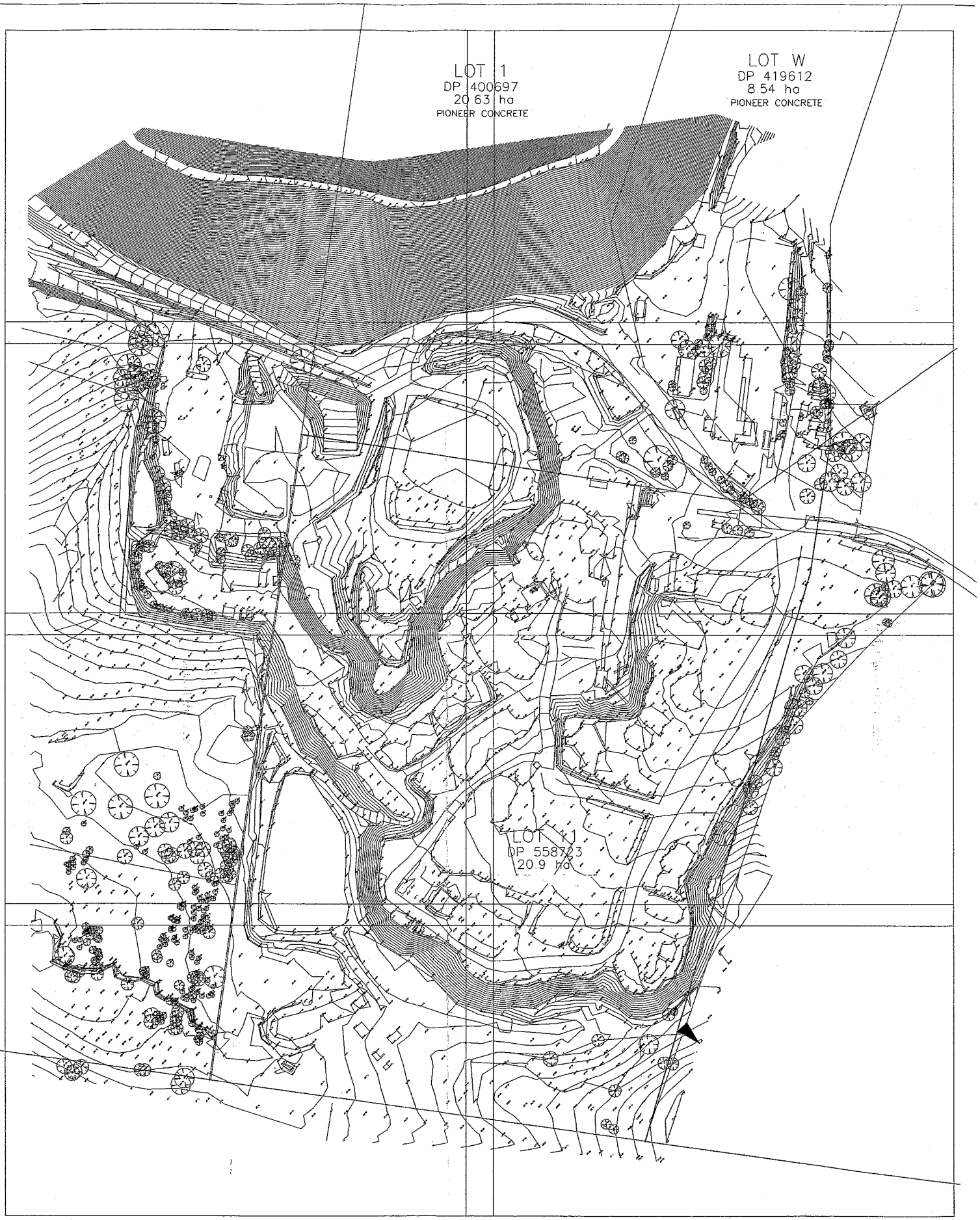
* the undeveloped lands to the west.



LEGEND

SITE

FIG 2



No.	DATE	APP'D	AMENDMENT

L.G.A. BLACKTOWN

CLIENT

LOVEGROVE OXLEY CONSULTANTS
CONSULTING SURVEYORS ENGINEERS & TOWN PLANNERS
LEVEL 1/111 MAIN STREET BLACKTOWN NSW 2148
Telephone (02)9831 4167 Fax (02)9622 9116

DATUM	AHD	DATE OF SURVEY:	REDUCTION RATIO
JOB No	68579	PRIME FILE:	1 : 2000 @ A1

2.2 EXISTING/PRIOR DEVELOPMENT

The historical use and operation of the former large site has included:

* extractive hard rock quarrying including aggregates storage and distribution
* concrete recycling including crushing, screening and blending facilities
* storage of cement and cement products
* asphalt production and sales including bitumen storage
* transport/logistics depot and workshop with fuel storage and weighbridge
* technical laboratories associated with concrete and asphalt production
* offices.

The established total truck movements associated with the uses on the site over recent years is some 390,000 ttpa comprising:

*	quarry	70,000
*	aggregate storage and distribution	45,000
*	premix concrete	80,000
*	asphalt	115,000
*	recycled products	20,000
*	logistics	60,000
	Total	**390,000 ttpa**

The current quantum and nature of the traffic movements into and out of the site has been established by a program of 'automatic' vehicle recording at the point of access in September 2006. The 7 day average total of movements into and out of the site over the survey periods was 1,065 which equates to some 389,000 movements per annum.

The 'make up' of these total movements in terms of vehicle classifications is as follows:

Light vehicles (Classes 1 and 2)	-	45%
Medium vehicles (Classes 3, 4 and 5)	-	30%
Long vehicles (Classes 6, 7, 8 and 9)	-	24%
B Double (Class 10)	-	1%
Total	**-**	**100%**

A schedule of vehicle classifications is provided in Appendix A along with typical day recordings.

The movements of vehicles into and out of the site occurs on a 24 hour basis and is reasonably consistent throughout the day (5.00am to 6.00pm) with some slight peaking during the normal morning and afternoon 'on-street' peak traffic periods. The typical recorded movements during the morning and afternoon peak periods in September 2006 is as follows:

	Morning		**Afternoon**	
	7-8am	**8-9am**	**4-5pm**	**5-6pm**
INBOUND				
Cars	21	9	13	6
Medium	15	14	10	4
Heavy	10	7	2	9
Total	**46**	**30**	**25**	**19**
OUTBOUND				
Cars	6	5	49	24
Medium	21	13	3	3
Heavy	9	9	6	5
Total	**36**	**27**	**58**	**32**
Two-Way Total	**82**	**57**	**83**	**51**

All vehicle access for the site is confined to the private ROW road (Quarry Road) which connects to Old Wallgrove Road and thence Wallgrove Road.

Because the quarry is nearing the end of its extractive life and other uses are operating at reduced levels the current truck movements are significantly less than the normal annualised frequency. In order to establish the normal operational circumstances the recorded truck movements have been 'factored up' to represent the annualised rate to provide the following representative traffic circumstances during the morning and afternoon peak periods.

	Morning		Afternoon	
	7-8am	**8-9am**	**4-5pm**	**5-6pm**
INBOUND				
Cars	21	9	13	6
Medium	27	25	18	7
Heavy	18	13	4	16
Total	**66**	**47**	**35**	**29**
OUTBOUND				
Cars	6	5	49	24
Medium	38	23	5	5
Heavy	16	16	11	9
Total	**60**	**44**	**65**	**38**
Two-Way Total	**126**	**91**	**100**	**67**

2.3 PROPOSED DEVELOPMENT

The site consolidation will involve some minor boundary realignment to facilitate:

* incorporation of the historical, relocated and expanded uses
* the road access.

The relocated facility is envisaged to comprise:

Proposed Use	Approximate Land Area	Approximate Building Area
Concrete Batching Plant	9,300m^2	Office 0 180m^2 Workshop – 200m^2 Fixed Plant – 3,000m^2
Concrete Recycling Plant	34,200m^2	3,000m^2
Asphalt and Emulsion Plant	37,000m^2	Office and lab – 300m^2 Workshop – 700m^2 Asphalt Plant – 7,000m^2 Emulsion Plant – 2,000m^2
Materials Storage and Transfer Depot	15,600m^2	6,000m^2
Logistics Operation and Workshop	15,400m^2	1,400m^2
Office and Laboratory	6,500m^2	2,000m^2
Concrete Masonry Plant	39,000m^2	3,200m^2

Provision is also made for potential future expansion in areas on the northern and southern parts of the site. The principal vehicle access will involve a new internal 'cul-de-sac' roadway connecting to the existing private road. The section of private road along the northern boundary will be constructed as a 'Standard Collector Road' (to SEPP 59 criteria) and dedicated as a public road.

The assessed vehicle movements which will be generated by the redeveloped facility comprise:

* the existing movements less those for the export of quarry product which will cease

* the new movements of quarried aggregates which will be imported (to replace those previously extracted from the quarry fro production of concrete)

* the new movements related to the proposed concrete masonry plant.

The existing export of quarried product involves some 70,000 ttpa or 240 ttpd and the future import of aggregates for the concrete batching plant will involve 40,000 ttpa.

The proposed Concrete Masonry Plant will involve some 25,000 ttpa and the future total truck movements per annum for the proposed development will comprise:

Existing less quarry export (390,000 less 70,000)	320,000
Future import of aggregates	+ 40,000
Future Concrete Masonry Plant	+ 25,000
Total	**385,000 ttpa**

The projected traffic movements associated with the proposed Concrete Masonry Plan during the morning and afternoon peak periods has been established by reference to a recent study[1] undertaken in relation to a comparable plant. The assessed movements in relation to the Concrete Masonry Plant are as follows:

	AM		PM	
	IN	**OUT**	**IN**	**OUT**
Cars	10	6	6	10
Small trucks	12	6	4	4
Large trucks	4	4	4	4
Total	**26**	**16**	**14**	**18**

The future import of quarried material (ie replacing the on-site quarry) will essentially occur at night and will not involve truck movements during the peak periods.

Thus the total make up of projected vehicle movements during the morning and afternoon peak periods consequential to the proposed development will be:

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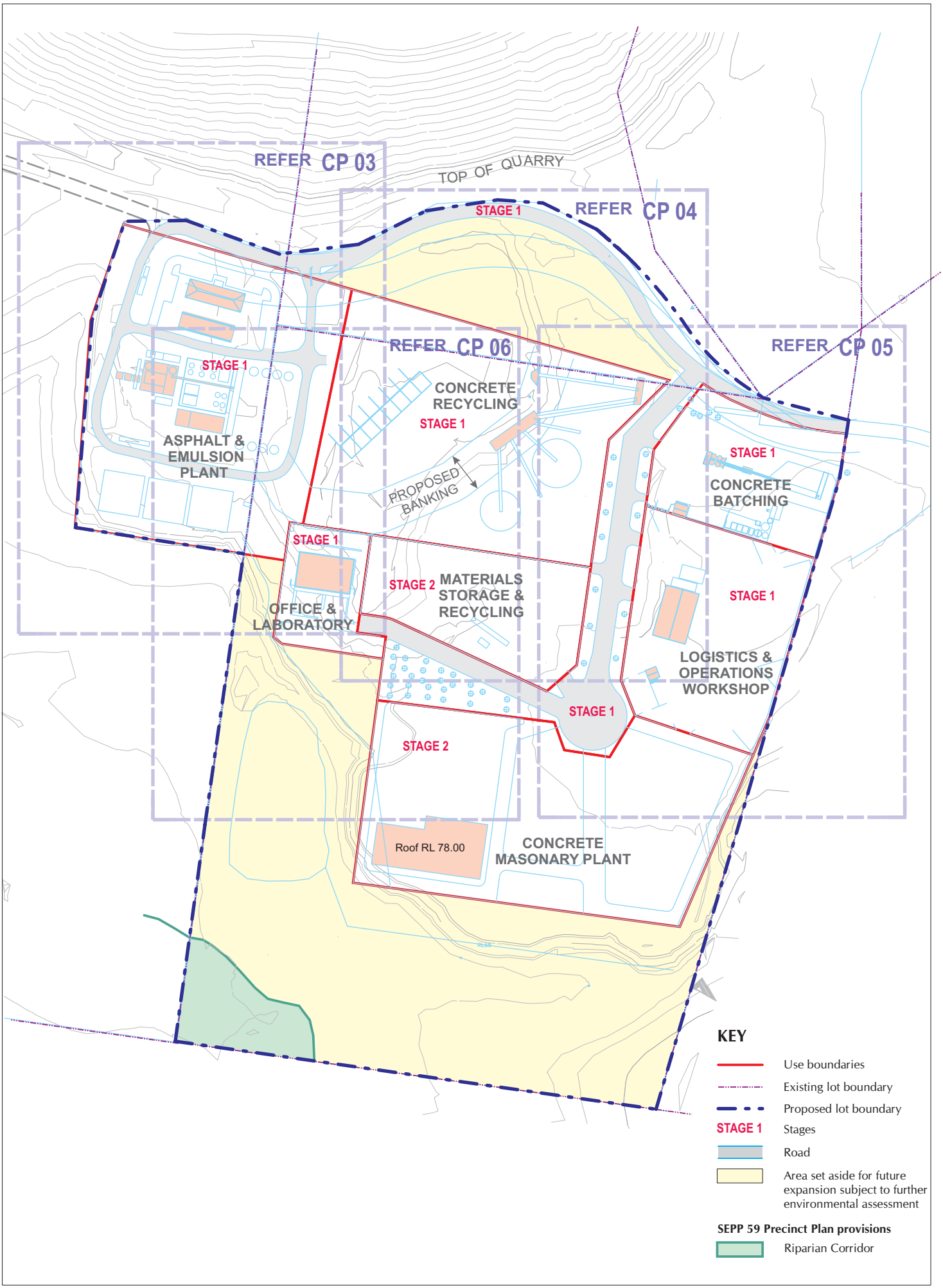
1 *Proposed Expansion of Concrete Products Plant, Prosperity Road, South Nowra Transport and Traffic Planning Associates September 2006*

	Existing		Future	
	AM	**PM**	**AM**	**PM**
INBOUND				
Light	21	13	31	19
Medium	27	18	39	22
Heavy	12	2	16	6
Total	**60**	**33**	**86**	**47**
OUTBOUND				
Light	6	49	12	59
Medium	38	5	44	9
Heavy	10	6	14	10
Total	**56**	**60**	**70**	**78**
Two-Way Total	**116**	**93**	**156**	**125**

Details of the Concept Plan are provided on the diagram prepared by Planning Workshop Australia which accompanies the application and is reproduced in part overleaf.



Central Western Sydney Employment Lands: Wallgrove Rd, Eastern Creek

CONCEPT PLAN - SITE LAYOUT

prepared by urban design workshop
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3. EXISTING ROAD NETWORK AND TRAFFIC CONDITIONS

3.1 ROAD NETWORK

The road network serving the site (Figure 3) comprises:

* *Westlink M7* – a privately owned and operated Motorway, which forms part of the Sydney Orbital Route and connects between the South-Western Freeway at Prestons and the M2 Motorway at Seven Hills

* *M4 Motorway* – a State Road and major arterial route connecting between Sydney and the Blue Mountains crossing

* *Great Western Highway* – a State Highway and arterial route connecting between Sydney and Penrith

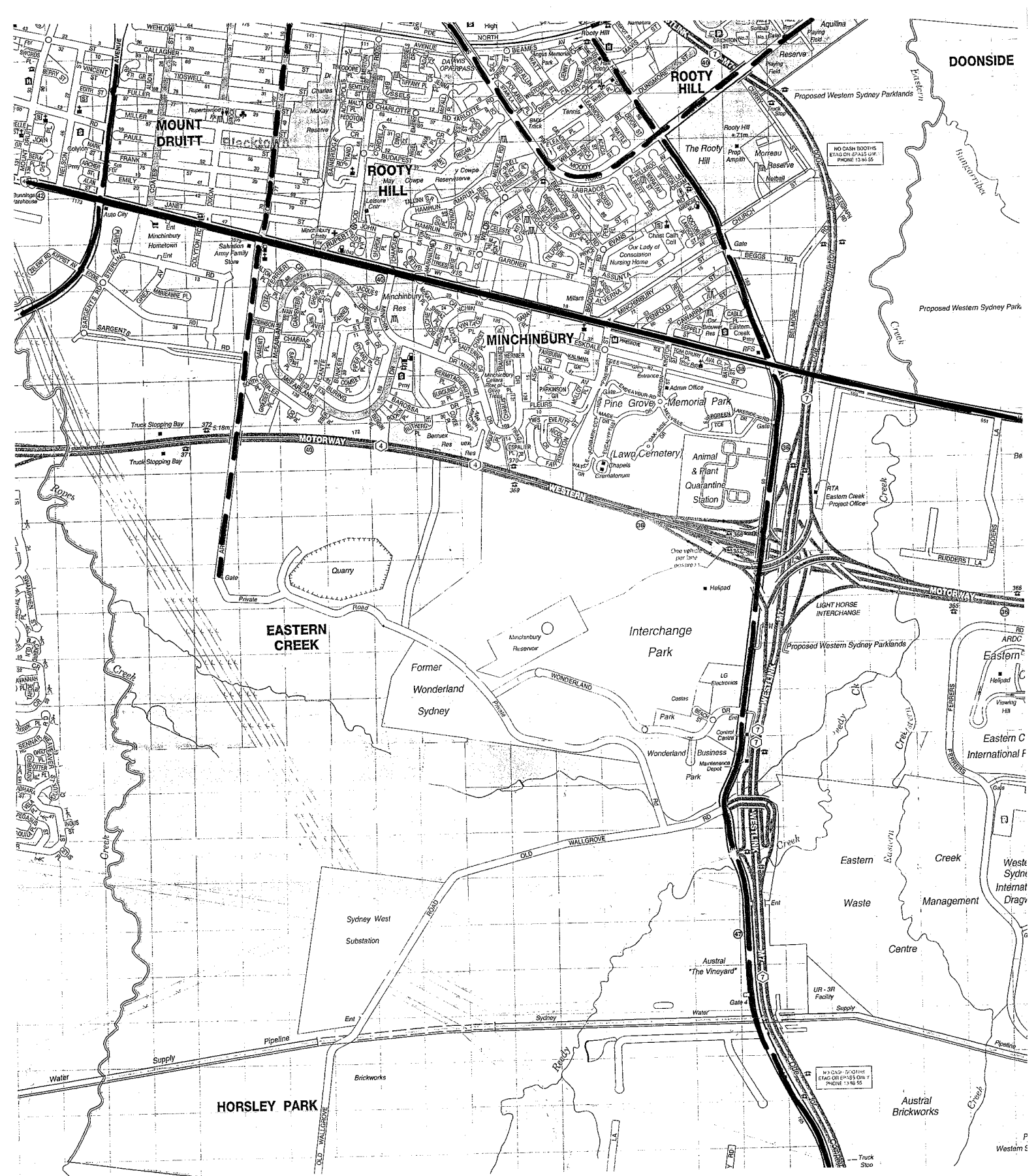
* *Wallgrove Road* – a State Road and sub-arterial route connecting between the Great Western Highway and Elizabeth Drive

* *Archibald Road* – a minor collector road connecting over the M4 to Great Western Highway

* *Old Wallgrove Road* – a local access roadway connecting to Wallgrove Road and the M7.

3.2 TRAFFIC CONTROLS

The principal existing traffic controls on the road system in the vicinity of the site (Figure 4) comprise:



LEGEND

- *ARTERIAL*
- *SUB-ARTERIAL*
- *COLLECTOR*

ROAD NETWORK

FIG 3

* the traffic signals at the Wallgrove Road and Old Wallgrove Road intersection

* the traffic signals at the Wallgrove Road and M7 ramp intersection

* the traffic signals at the Wallgrove Road and Wonderland Drive intersection and at the M7/M4 ramp intersections

* the traffic signals along the Great Western Highway at the Wallgrove Road and Archibald Road intersections

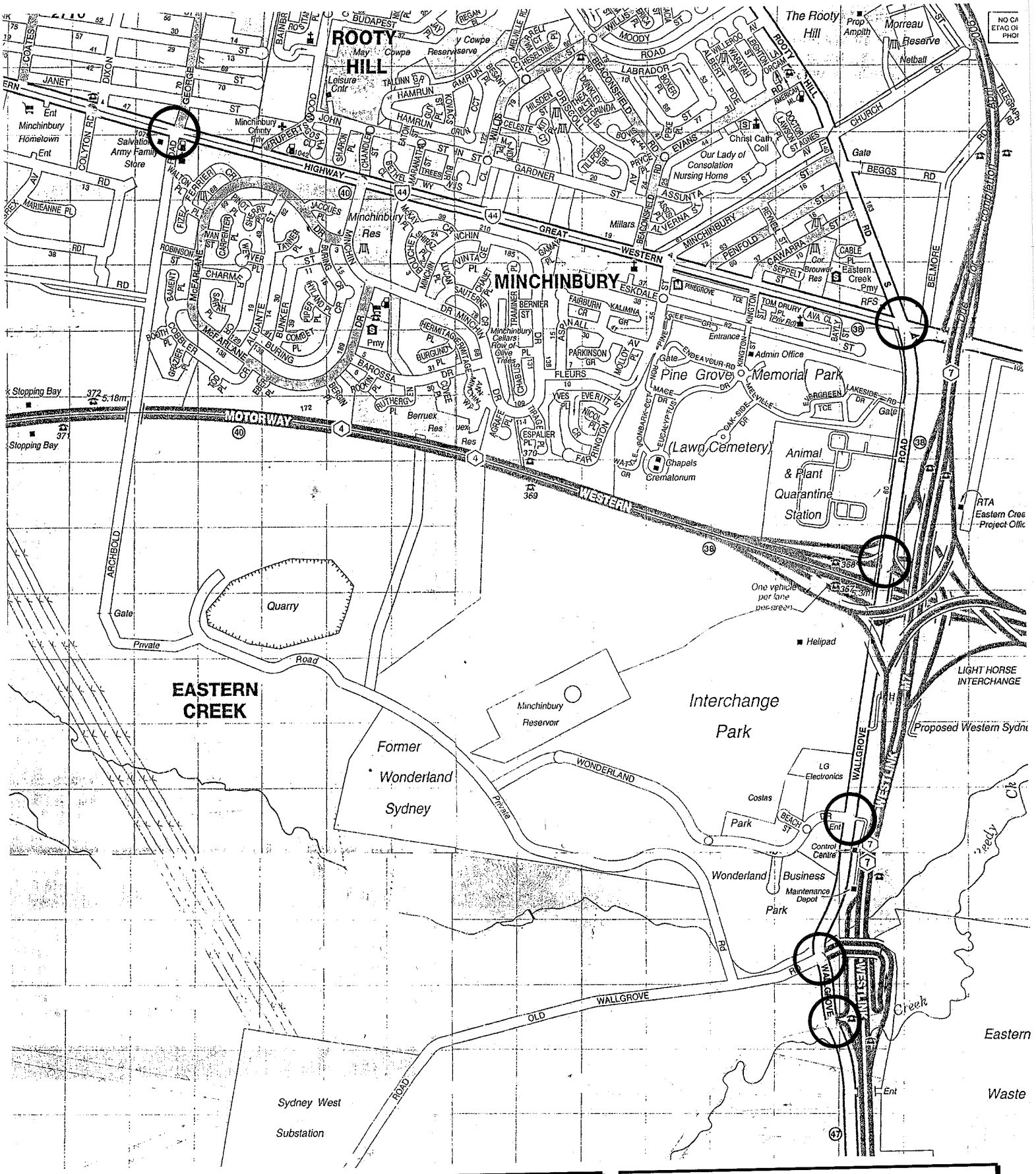
* the GIVE WAY sign control on Quarry Road at Old Wallgrove Road

* the approved 'B Double' truck routes along Wallgrove Road and Old Wallgrove Road.

3.3 TRAFFIC CONDITIONS

The opening of the Westlink M7 Motorway has resulted in significant relief to the road network which serves Eastern Creek. In particular, it has allowed for the redistribution of traffic flows out of Wallgrove Road and eased conditions at the major M4 and Great Western Highway intersections.

Vehicle access to/from Old Wallgrove Road is facilitated by the traffic signals at the Wallgrove Road intersection and the ramps to/from the M7. These connections along with the new interchanges between the M7 and M4 and Great Western Highway ensure ready access to/from the arterial road system.



LEGEND

TRAFFIC CONTROLS

FIG 4

4. FUTURE ROAD NETWORK AND TRAFFIC CONDITIONS

4.1 ROAD NETWORK

The proposed network for the Eastern Creek Precinct development, as identified in the SEPP 59 Precinct Plan document, is reproduced in Figure 5. Access road connections for the area will involve:

* 4 connections along Wallgrove Road including the existing Old Wallgrove Road and Wonderland Drive connection

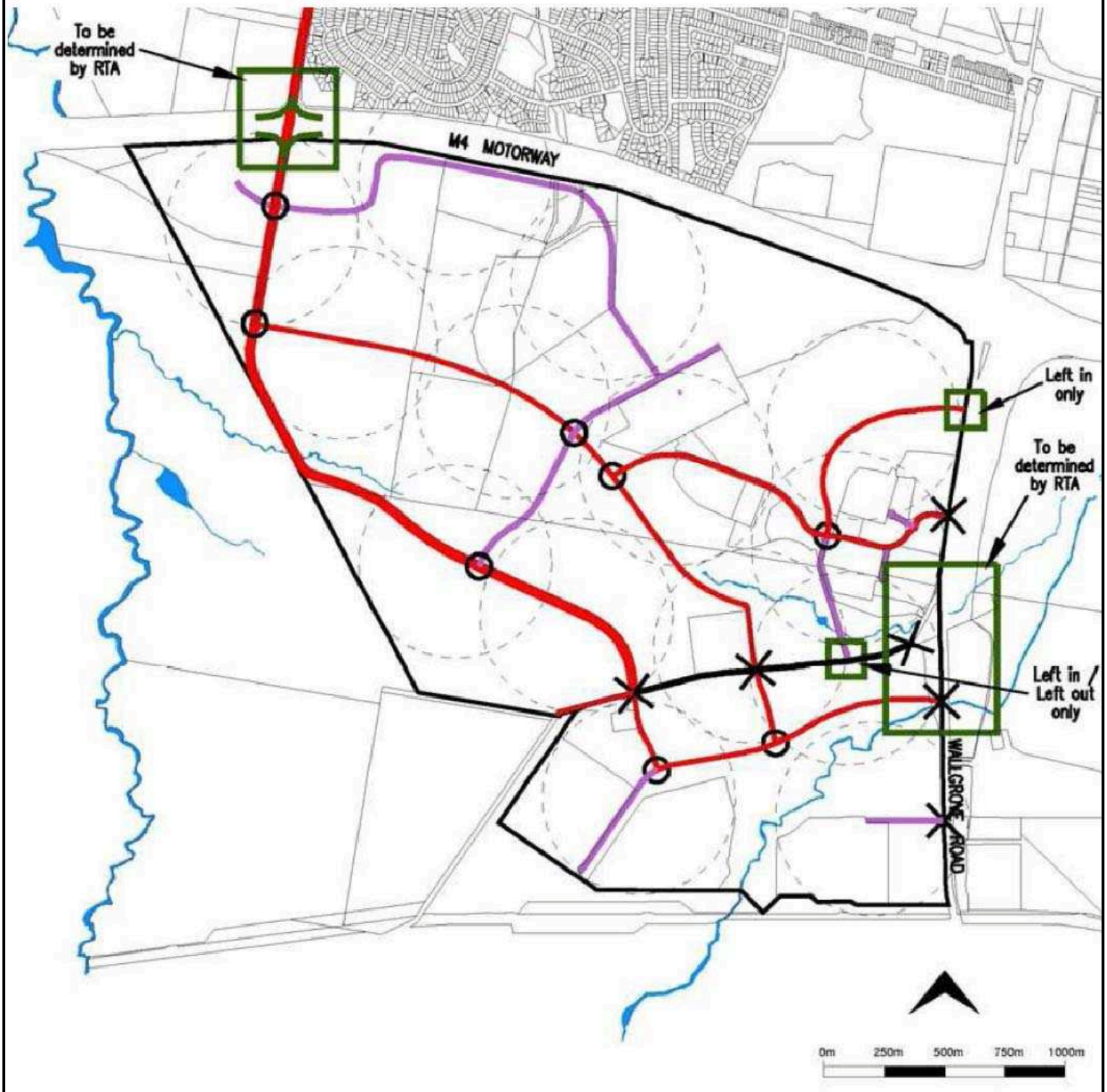
* connection along Archibald Road to Great Western Highway and potential ramp connection to/from the M4.

The exact outcome in relation to the major road network connections is still subject to assessments and negotiations involving the RTA, Blacktown City Council and the Dept of Planning.

Old Wallgrove Road will become a 'Sub-Arterial Road' with a 'Main Collector Road' extending westerly and then northerly linking to Archibald Road. There will be a number of 'Standard Collector Roads' including the existing Quarry Road route past the site which will connect to Old Wallgrove Road to the south-east and Archibald Road to the north-west.

The extract from the Precinct Plan document reproduced overleaf specifies the following format for a Standard Collector Road:

Road Reserve	-	23.75 metres
Carriageway	-	15.5 metres (1 travel lane + parking lane in each direction)
Pedestrian	-	3.75 metres
Pedestrian/Cycle	-	4.5 metres



LEGEND

- Sub-arterial Road
- Local Road
- Main Collector Road
- Standard Collector Road

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FUTURE ROAD NETWORK AND TRAFFIC CONTROLS

FIG 5

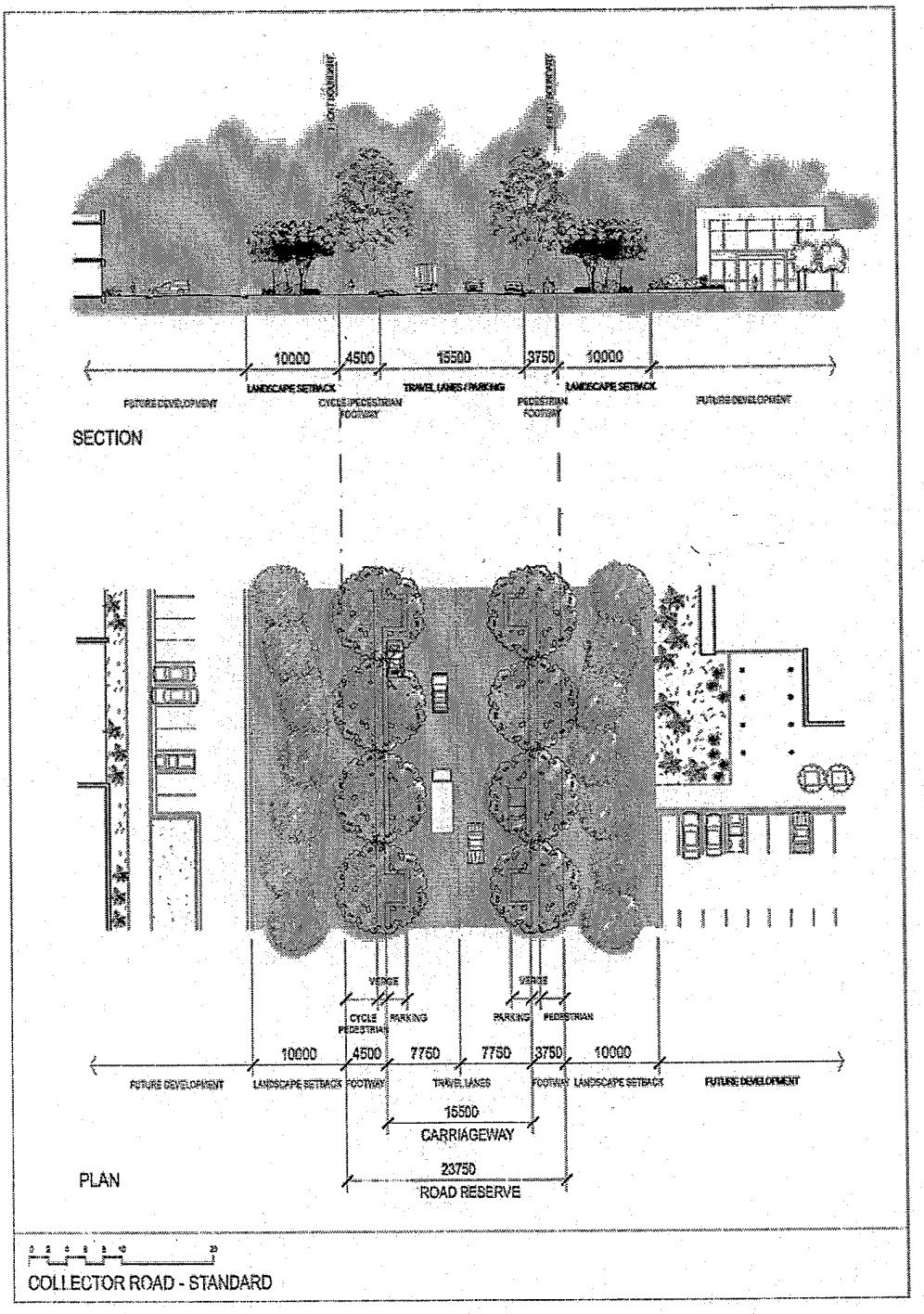

Figure 25 - Typical Standard Collector Road

4.2 TRAFFIC CONTROLS

The proposed traffic controls on the road network under the Precinct Plan (Figure 5) will comprise:

* traffic signal control at the connections to Wallgrove Road

* traffic signal control at the intersection of the collector road (past the site) and Old Wallgrove Road

* roundabouts at the intersection of the collector road (past the site) and Archibald Road as well as at the connections will other collector and local access roads.

4.3 TRAFFIC CONDITIONS

An assessment[2] has been undertaken in relation to the traffic implications of the envisaged development in the Eastern Creek Precinct. That assessment established the projected traffic generation circumstances of development based on parameters provided by the authorities (Blacktown City Council and RTA).

The projections are that there will be some 30,500 employees within the precinct and there will be some 8,700 vtph generated in the morning peak and some 10,000 vtph in the afternoon peak. An extract from that assessment is reproduced overleaf indicating the projected make-up of the various sites and their traffic generations.

It is noted that the 'Pioneer Site' was specified as 47.4 ha with 45.4 ha of developable area and there would be 2,216 employees engaged on the site generating some 634 vtph (AM) to 728 vtph (PM) in the peak periods.

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[2] *Eastern Creek Precinct*
Traffic Management Assessment
Sims Varley May 2005

Table 2: Eastern Creek Traffic Generation

Land Parcel	Land Area (ha)		Number of Employees		Rate of Peak Hour Vehicle Trips per Employee		Total Trips Assuming Reduction in Car Mode Split as per SEPP 59				Netanal
							AM Peak Hour		PM Peak Hour		
	Gross Area[1]	Developable Area[1]	Employees per Developable Area (ha)[2]	Total Number of Employees	AM Peak Hour Factor[3]	PM Peak Hour Factor[3]	Outbound[4]	Inbound[4]	Outbound[4]	Inbound[4]	Zone#
					0.286	0.329	15%	85%	85%	15%	
Lot 11											
Hartford Lane	58.0	16.6	63.0	1,046	299	344	45	254	292	52	927
Hartford Lane – Lot 11		16.6	63.0	1,046	299	344	45	254	292	52	928
Eastern Creek Business Pk		16.8	63.0	1,058	303	348	45	257	296	52	929
Total	58.0	50.0		3,150	902	1,035	135	766	880	155	
Stage 1 & 2											
Australand	40.0	31.8	45.0	1,431	410	470	61	348	400	71	933
Total	40.0	31.8		1,431	410	470	61	348	400	71	
Stage 3											
Sargents	26.4	22.4	48.8	1,093	313	359	47	266	305	54	973
Fitzpatrick	94.0	74.0	48.8	3,611	1,034	1,186	155	878	1,008	178	920
Pioneer	48.4	45.4	48.8	2,216	634	728	95	539	619	109	930
Tesrol	32.0	32.0	48.8	1,562	447	513	67	380	436	77	974
Jacfin	127.0	107.1	48.8	5,226	1,496	1,717	224	1,271	1,459	258	931
Hartford Lane	119.7	30.0	48.8	1,464	419	481	63	356	409	72	936
Austral Bricks	150.7	120.0	48.8	5,856	1,676	1,924	251	1,425	1,635	289	932
Total	598.2	430.9		21,028	6,018	6,908	903	5,115	5,872	1,036	
Ropes Creek											
Fitzpatrick	134.8	50.0	48.8	2,440	698	802	105	594	681	120	934
Jacfin	104.9	50.0	48.8	2,440	698	802	105	594	681	120	935
Total	239.7	100.0		4,880	1,397	1,603	209	1,187	1,363	240	
TOTAL	935.9	612.7		30,489	8,726	10,016	1,309	7,417	8,513	1,502	

1. Gross and developable area provided by Blacktown Council
2. Employees per ha rates provided by Blacktown Council as adopted from SGS report (March 2005)
3. Peak hour trip factors adopted from RTA, Guide to Traffic Generating Developments - Table 3.4
4. Ratio of inbound to outbound trips based on standard ratios in RTA, Guide to Traffic Generating Developments
5. Peak hour trip factor with SEPP 59 car mode split reduction assumes all peak hour vehicle trips (i.e. journey to work + work trips) will reduce by 10%

The proposed development site (which is part of the identified Pioneer Site) will be some 27 ha of developable land and application of the 'employees per ha' criteria would suggest (under the assessment assumption) that there will be some 1,318 employees engaged and the detail projected distribution of trips generated by the potential site development is assumed as:

AM			PM		
IN	**OUT**	**Total**	**IN**	**OUT**	**Total**
320	56	376	65	367	432

Assessment of the proposed development by Hanson Australia indicates that the projected traffic generation of the site (consequential to the application) will be:

AM			PM		
IN	**OUT**	**Total**	**IN**	**OUT**	**Total**
116	93	209	156	125	281

It is apparent that the traffic generation of the development will be substantially less than that assumed in the study which underlies the road network planning for the development of the Eastern Creek Precinct (ie some 56 to 65%) and the generation will be far more directionally balanced (ie IN/OUT). On that basis, the operational outcome on the road system will be significantly better than that which was indicated in the planning processes.

A particular benefit of the planned road system will be the ability for traffic generated by the site to access to/from the west rather than the current constraint of only being able to access to/from the east.

The road network traffic modelling[3] undertaken for the precinct planning included numerous potential scenarios in relation to road links and connections with the arterial road system. The model output from those assessments (see Appendix B)

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[3] *Eastern Creek Precinct*
Traffic Management Assessment
Sims Varley May 2005

indicates a potential total vehicle flow along the collector road fronting the site of some 1,000 vph (2 way) during the morning and afternoon peak periods.

These flows included the projected site generation of some 400 vph and it is apparent that the other projected volumes using the roadway would represent some 600 vph (2 way). Such volumes will not present any difficulty for site generated movements to ingress and egress the site particularly when spread over 3 access points and have the flexibility to approach/depart the east and west.

5. PROPOSED ROAD NETWORK, ACCESS AND INTERNAL CIRCULATION

5.1 ROAD NETWORK

The application includes a proposed minor realignment of the northern boundary of the site to follow the historical 'right of way' and allow a more orderly and economic use of the land. The roadway along this boundary will ultimately be developed as a 'Standard Collector Road' reflecting the cross section indicted in the Precinct Plan.

The proposed realignment of the boundary will not preclude the provision of this standard collector road in a geometry which accords the appropriate road design standards (albeit will an alignment which varies somewhat from indicated in the Precinct Plan Road Network Diagram). The road patterns which are contained in the Precinct Plan Diagram do however adopt curvilinear alignments on a number of the proposed road reflecting boundary outcomes and introducing some 'interest' to the road network layout.

5.2 ACCESS

The principal site access will be provided by a new access cul-de-sac located in the eastern part and providing access for:

* the Concrete Batching Plant
* the Logistics Operation and Workshop
* the Concrete Recycling Facility
* the Materials Storage and Transport Depot
* the Concrete Masonry Plant
* the office and laboratory.

The new 4 metre wide access will intersect with the collector road in a location where there will be suitable sight distances available. The geometry of the intersection will be designed to suitably provide for all vehicles requiring to operate through the intersection.

Secondary accesses will be provided for the Asphalt Plant element on the western part of the site. This 6.5 metre wide access system will operate in a one-way clockwise arrangement for trucks while cars will be able to use the immediate connecting sections as two-way.

These secondary access connections will be located on the collector road where there will be suitable sight distances available and the design geometry will accommodate all vehicles requiring to access the site. There will also be suitable separation between the secondary accesses.

5.3 INTERNAL CIRCULATION

The new access road will have a 14 metre wide industrial type carriageway with a cul-de-sac bulb suitable to allow for the turnaround of B Double vehicles. Separate accesses to the various use elements, including carparking areas, will be located along the cul-de-sac.

The secondary access road system will be in the form of 2 attached crescents, with a 6.5 metre wide carriageways. Truck movements will be constrained to one-way clockwise movements while the sections connecting with the Collector Road will allow two-way movement for cars.

The design of the access roads will accord with the requirements of:

- AS 2890.1 and 2
- Austroads
- Council's DCP's

6. TRAFFIC

6.1 OPERATIONAL TRAFFIC

The operational traffic characteristics will very largely reflect that of the existing traffic movements generated by the site uses in that:

* the 'make up' of vehicle movements will comprise some:

    - 32% cars
    - 20% medium vehicles
    - 46% long vehicles
    - 2% B Double vehicles

* the movements will occur on a 24 hour basis with a relatively consistent spread of flows between 5.00am and 6.00pm

* there will be some slight 'peaking' during the normal morning and afternoon on-street peak traffic periods

* the total traffic generation (two-way) in the morning and afternoon peak periods will be some 200 to 300 vtpa as follows:

	AM	**PM**
IN	116	156
OUT	93	125
Total	**209**	**281**

6.2 TRAFFIC IMPLICATIONS

The proposed road system to serve the developing 'Eastern Creek Precinct' and its connections to the arterial road system has been established out of a detailed assessment of the projected landuse elements and employee densities. Assessment of the proposed redevelopment of the asphalt, concrete and cement production facility has indicated that the traffic outcome for the site will only be some 60% of that assessed for the site in the road network planning process. It is also apparent that the directional distribution of movements (ie IN/OUT) will be far more balanced and without the dominant IN (AM) / OUT (PM) characteristics.

It is apparent therefore that the traffic outcome will be quite satisfactory both in a 'precinct sense' and in a 'local access' sense. There will be three points of vehicle access on the bounding Collector Road with the majority of movements occurring through the proposed new access cul-de-sac.

The access points will be designed to suitably accommodate all vehicles requiring to access the site and the access movements will not experience any operational difficulty or undue delays.

6.3 CONSTRUCTION TRAFFIC

During the construction process the following circumstances will prevail:

* there will be no export of extractive product out of the quarry (which will be closed)

* the proposed Concrete Masonry Plant will not be operational

* the necessary concrete will be manufactured on-site

* much of the existing on-site machinery will be employed (ie excavation and leveling)

* the road materials and roadmarking plant will be derived from the site.

Hence the external traffic generation associated with the construction works will be at a significantly lower order than that which would occur in normal circumstances. While there will be additional movements generated by construction workers and materials delivery etc these movements will very largely be no greater than that associated with the quarry extraction and Concrete Masonry Plant elements (which will not occur at this time).

The existing private access road more than adequately accommodates the existing movements of vehicles accessing the site (including a significant percentage of heavy vehicles). It is apparent that the access movements during the construction phase can be suitably accommodated on this roadway particularly with the advantage provided by the traffic signal control at the Wallgrove Road intersections.

7. CONSULTATION PROCESS

Consultation has been undertaken with the Roads and Traffic Authority and Blacktown City Council in relation to the road network and traffic issues associated with the proposal. The issues which have arisen in this process are addressed specifically in the following:

Roads and Traffic Authority

1. Proposed means of vehicle access to/from the site.

Response: Assessment provided in the Traffic Impact Report.

2. Daily and peak traffic movements likely to be generated by the development and the increase in level and type of traffic associated with the proposal.

Response: Assessment provided in the Traffic Impact Report.

3. Impact of the proposed development on arterial road network and intersections.

Response: Assessment is provided in the sense that the impact of envisaged development on the site is contained within the studies undertaken for the precinct planning. The traffic generation resultant to the application will be less than the existing/former movements generated by the site use and considerably less than that assessed for the precinct planning studies. It is apparent therefore, that the traffic can be accommodated with the existing and proposed road networks.

4. Details of the anticipated route of trucks on the major arterial and local road network.

Response: Trucks will arrive and depart in all possible directions with volumes/ directions varying in response to produce demand etc. The truck movements will be relatively evenly spread, however specific routes cannot be nominated at this time as details of the final road network provisions are not resolved (eg M4 ramps and Erskine Park Link).

5. Contributions.

Response: Not a traffic impact issue.

6. The need to ensure that the site lies into the future road layout for the SEPP 59.

Response: Assessment provided in the Traffic Impact Report.

Blacktown City Council

3(i) Requires Traffic Report. Needs to have regard for the traffic generated by the Dial-a-Dump site and provide an assessment of traffic volumes, sight distance, suitability of access road to cater for vehicle volumes, impact of truck movements in peak commuter periods and safety issues.

Response: The Traffic Impact Report assesses the development generated traffic. The Dial-a-Dump traffic is not assessed because it is not an approved development and the projected traffic is not known. Nonetheless, it is quite apparent that the proposed access road with one 'traffic lane' in each direction will accommodate the demands (which will be significantly less than that assumed for the precinct planning process). The road design issues are dealt with separately to the Traffic Impact Assessment.

3(ii) Objection to the proposed road alignment.

Response: The road design issue is dealt with separately.

3(iii) Impact of road realignment on the wider road network.

Response: The proposed road alignment is assessment in the Traffic Impact Report and there will be no impact.

3(iv) Upgrade of access road.

Response: The access road will be upgraded to reflect the collector road standard as specified in the precinct plan.

3(v) Private internal roads.

Response: The internal roads will be private roads.

8. ISSUES

A number of specific issues have been identified during the assessment process and these are addressed in the following for clarity:

* Non-Conformance with indicated location of the collector road

  It is quite apparent that the indicated location of the collector road on the Precinct Plan is purely nominal, generalized and schematic. The ultimate alignment of this road will be influenced by a number of design, property and development factors.

  It is noted that the road alignments generally indicated on the Precinct Plan are far from straight (even the 'main collector' road). Assessment of the proposed alignment has confirmed that it will be compliant with normal road design criteria (sight distance etc) for a 60 kmph speed which would be the maximum appropriate for the nature and function of this road.

* Suitability of 10 metre road width

  A 10 metre road width will only apply in the circumstance of access being limited to the existing users (ie no through road or other major development). The 10 metre width will more than adequately cater for this need, in fact a 7.0 metre with shoulders would be more than adequate for the nature and volume of vehicles.

  In the circumstance of the collector road function being needed then the road carriageway would be constructed to conform with the standard collector road as specified in the Precinct Plan.

* Suitability of access intersection arrangements

  In the context of a 10 metre wide road with constrained use there is no issue. The circumstances of the access intersections relevant to the collector road

outcome can be appreciated with the concept sketch overleaf which indicates the main intersection outcome with the collector road.

This intersection arrangement reflects a very normal and acceptable treatment with appropriate provision for:

- truck turning
- passing of right-turning vehicles
- bus stops
- sight distance.

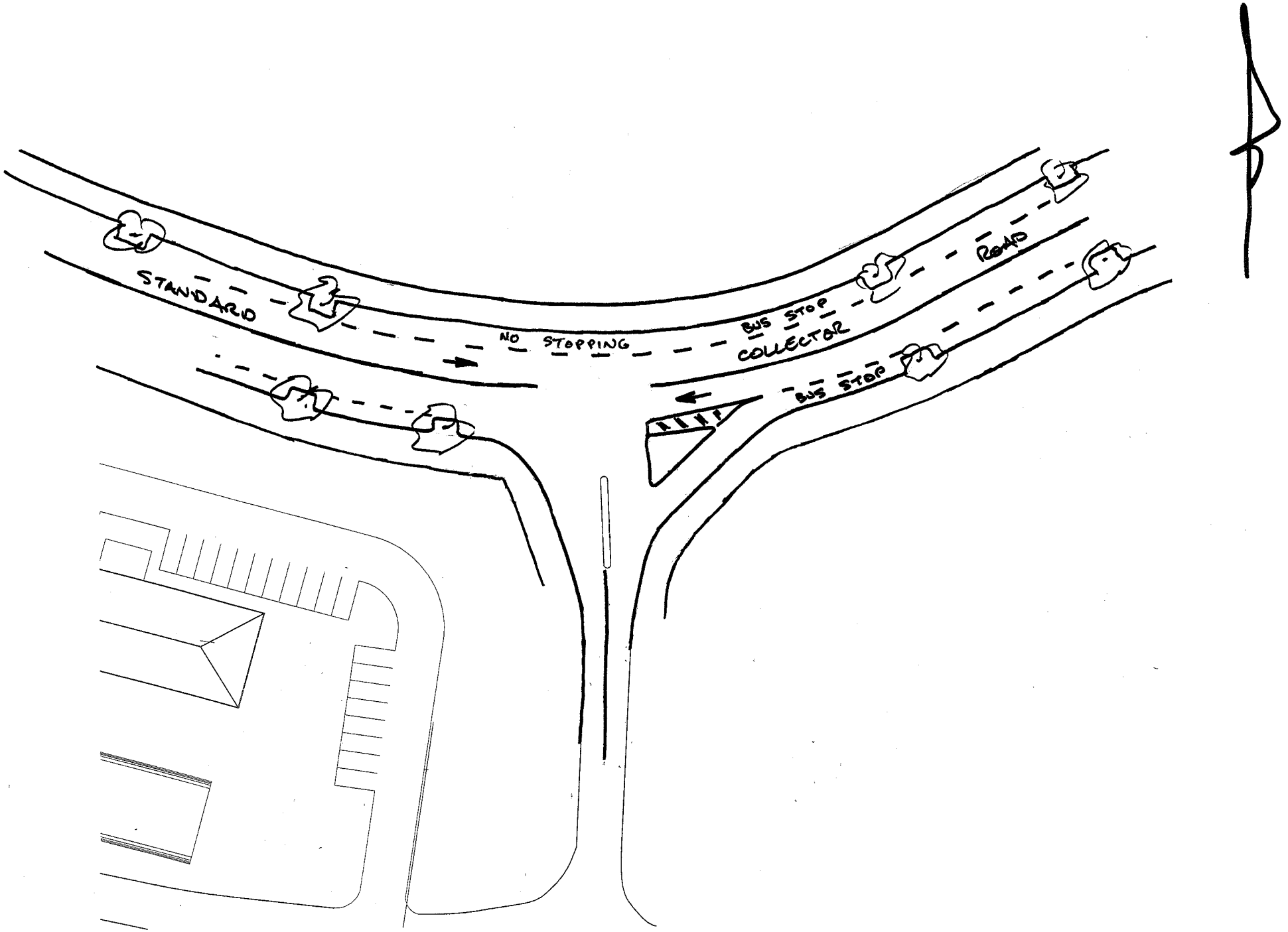
* Traffic generation of future development of northern and southern parts of the site.

  These areas would be subject to a future development application/s. Irregardless:

  - these areas only represent some 30% of the site (not all developable land anyway)
  - the projected generation of the currently proposed development is only some 60% of that assessed for the site in the Precinct Plan
  - it is inconceivable that any future development on these parts of the site would result in a total traffic generation which exceeded that assessed for the Precinct Plan.

* Interaction with dial-a-dump

  - it is understood that there is no approval to the Development Application for Dial-a-dump nor are details are not known
  - Dial-a-dump will be able to use their existing access provisions
  - while the magnitude of the Dial-a-dump filling will be significant it will also be spread over a 20 year period.


STANDARD
NO STOPPING
BUS STOP
COLLECTOR
ROAD
BUS STOP

9. AMELIORATION MEASURES

Assessment in relation to the potential traffic implications of the proposed redevelopment has concluded that there will be no requirement for amelioration measures. This is very largely a consequence of the fact that:

* the uses are essentially already existing

* the traffic generation of the site will be substantially less than that which was assessed for the Eastern Creek Precinct studies.

Appendix A

VEHICLE CLASSIFICATIONS AND TYPICAL TRAFFIC PROFILES

LENGTH (indicative)	CLASS	VEHICLE TYPE	AXLES AND AXLE GROUPS		AUSTROADS CLASSIFICATION
			AXLES	GROUPS	PARAMETERS
		LIGHT VEHICLES			
SHORT Up to 5.5m	1	SHORT VEHICLE SEDAN WAGON, 4WD, UTILITY, LIGHT VAN, BICYCLE, MOTORCYCLE etc 	2	1 or 2	d(1) < = 3.2m and Axles = 2
MEDIUM 5.5m to 14.5m	2	SHORT VEHICLE TOWING eg TRAILER, CARAVAN, BOAT etc 	3, 4, or 5	3	Groups = 3 d(1) > = 2.1m, d(1) < = 3.2m d(2) > = 2.1 and Axles = 3, 4, or 5
		HEAVY VEHICLES			
	3	TWO AXLE TRUCK OR BUS 	2	2	d (1) > 3.2m and Axles = 2
	4	THREE AXLE TRUCK OR BUS 	3	2	Axles = 3 and Groups = 2
	5	FOUR AXLE TRUCK 	>3	2	Axles > 3 and Groups = 2
LONG 11.5m to 19.0m	6	THREE AXLE ARTICULATED VEHICLE RIGID VEHICLE AND TRAILER, OR 3 AXLE ARTICULATED VEHICLE 	3	3	d(1) > 3.2m, Axles =3 and Groups = 3
	7	FOUR AXLE ARTICULATED VEHICLE RIGID VEHICLE AND TRAILER, OR 4 AXLE ARTICULATED VEHICLE 	4	>2	d(2) < 2.1m or d(1) < 2.1m or d(1) > 3.2m Axles = 4 and Groups > 2
	8	FIVE AXLE ARTICULATED VEHICLE RIGID VEHICLE AND TRAILER, OR 5 AXLE ARTICULATED VEHICLE 	5	>2	d(2) < 2.1m or d(1) < 2.1m or d(1) > 3.2m Axles = 5 and Groups > 2
	9	SIX AXLE ARTICULATED VEHICLE RIGID VEHICLE AND TRAILER, OR 6 (OR MORE) AXLE ARTICULATED VEHICLE 	6 >6	>2 3	Axles = 6 and Groups > 2, or Axles > 6 and Groups = 3
MEDIUM COMBINATION VEHICLE 17.5m to 36.5m	10	B-DOUBLE B DOUBLE OR HEAVY TRUCK AND TRAILER 	>6	4	Groups = 4 and Axles > 6
	11	DOUBLE ROAD TRAIN DOUBLE ROAD TRAIN, OR HEAVY TRUCK WITH TWO TRAILERS 	>6	'5 or 6	Groups = 5 or 6 and Axles > 6
LONG COMBINATION VEHICLE Over 33.0m	12	TRIPLE ROAD TRAIN TRIPLE ROAD TRAIN, OR HEAVY TRUCK AND THREE TRAILERS 	>6	>6	Groups > 6 and Axles > 6
-	13	ALL OTHER VEHICLES	-	-	-

DEFINITIONS: Group - axle group where the axles are less than 2.1m apart
Groups - number of axle groups
Axles - number of axles on the vehicle (maximum axle spacing of 10m)
d(1) - distance between first and second axle of vehicle
d(2) - distance between second and third axle of vehicle

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Classification Data

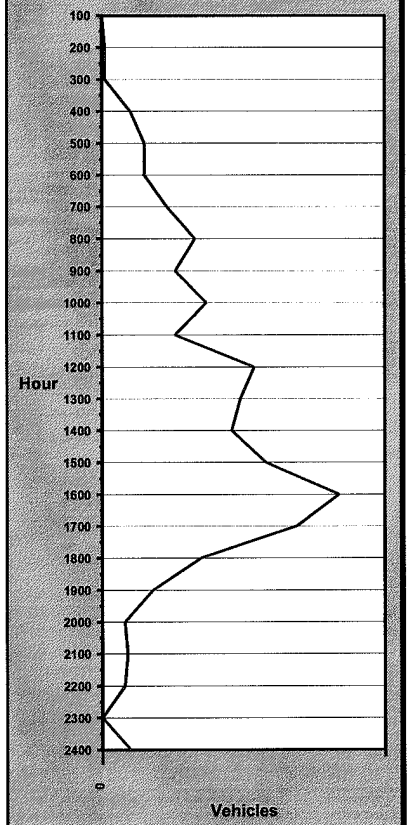
Count Number	**629** Ref : **TTP**
Street	**HANSON PRIVATE ROAD, EASTERN CREEK : From ARCHBOLD ROAD to OLD WALGROVE ROAD : EAST BOUND**
Location	Week 1 about 30-40 metres east of Hansons Cement Plant, avoid impact of speed hump on speed *Carriageway*

MON 11-SEP-06

Start Date	11-SEP-06
Start Time	1200
Duration	14 DAYS
Interval	1 HOUR

Weekly 50th Percentile Speed	**57**
Weekly 85th Percentile Speed	**69**
Five Day ADT	**686**
Seven Day ADT	**531**

Time	00	01	02	03	04	05	06	07	08	09	10	11	12	13	Total
Midnight - 1am	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1am - 2am	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
2am - 3am	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
3am - 4am	0	2	0	0	0	0	0	0	1	7	0	0	0	0	10
4am - 5am	1	0	0	0	0	0	0	0	0	14	0	0	0	0	15
5am - 6am	0	0	0	0	1	0	0	1	3	10	0	0	0	0	15
6am - 7am	1	2	0	1	3	1	1	0	1	12	1	0	0	0	23
7am - 8am	1	3	0	6	14	4	0	1	0	4	0	0	0	0	33
8am - 9am	1	5	0	3	8	1	0	0	0	8	0	0	0	0	26
9am - 10am	3	6	0	4	15	5	0	0	0	4	0	0	0	0	37
10am - 11am	0	1	0	6	9	2	0	0	0	8	0	0	0	0	26
11am - Midday	4	18	0	5	12	6	0	0	1	8	0	0	0	0	54
Midday - 1pm	3	11	0	8	12	3	0	0	1	11	0	0	0	0	49
1pm - 2pm	2	16	0	6	8	2	1	0	0	10	1	0	0	0	46
2pm - 3pm	2	38	0	4	7	1	0	0	1	4	1	0	0	0	58
3pm - 4pm	0	71	1	4	3	1	0	0	0	4	0	0	0	0	84
4pm - 5pm	2	45	1	0	5	1	0	0	1	14	0	0	0	0	69
5pm - 6pm	0	26	0	0	1	0	0	0	0	8	0	0	0	0	35
6pm - 7pm	0	9	0	0	0	0	0	0	1	8	0	0	0	0	18
7pm - 8pm	0	5	0	0	0	0	0	0	0	3	0	0	0	0	8
8pm - 9pm	0	5	0	0	0	0	0	0	0	4	0	0	0	0	9
9pm - 10pm	0	8	0	0	0	0	0	0	0	0	0	0	0	0	8
10pm - 11pm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11pm - Midnight	0	5	1	0	0	0	0	0	0	4	0	0	0	0	10
Total	20	277	3	47	99	27	2	2	10	145	3	0	0	0	635
% of Total	3	44		7	16	4			2	23					



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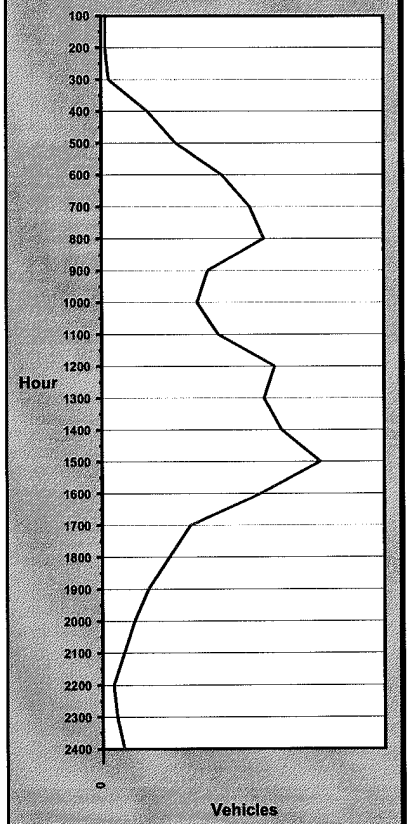
Duration	14 DAYS
Interval	1 HOUR

Weekly 50th Percentile Speed	**51**
Weekly 85th Percentile Speed	**62**
Five Day ADT	**692**
Seven Day ADT	**534**

Time	00	01	02	03	04	05	06	07	08	09	10	11	12	13	Total
Midnight - 1am	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
1am - 2am	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
2am - 3am	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
3am - 4am	1	12	0	0	0	0	0	0	0	0	0	0	0	0	13
4am - 5am	0	21	0	0	0	0	0	0	0	0	0	0	0	0	21
5am - 6am	1	29	0	0	2	0	0	0	0	1	1	0	0	0	34
6am - 7am	0	18	0	5	8	3	0	1	0	7	0	0	0	0	42
7am - 8am	0	21	0	8	5	2	0	0	0	10	0	0	0	0	46
8am - 9am	0	9	0	3	9	2	0	0	2	5	0	0	0	0	30
9am - 10am	0	5	0	2	9	4	0	0	0	7	0	0	0	0	27
10am - 11am	4	1	0	5	14	3	0	1	1	4	0	0	0	0	33
11am - Midday	0	11	0	10	11	6	0	0	0	11	0	0	0	0	49
Midday - 1pm	2	16	0	1	15	2	0	1	0	9	0	0	0	0	46
1pm - 2pm	4	13	0	5	12	3	0	0	0	14	0	0	0	0	51
2pm - 3pm	5	22	1	5	6	1	0	0	0	21	1	0	0	0	62
3pm - 4pm	2	29	0	0	5	1	0	0	1	7	0	0	0	0	45
4pm - 5pm	2	11	0	1	9	0	0	0	0	2	0	0	0	0	25
5pm - 6pm	2	4	0	0	3	1	0	0	0	9	0	0	0	0	19
6pm - 7pm	3	3	0	0	0	0	0	0	0	7	0	0	0	0	13
7pm - 8pm	0	3	0	0	0	0	0	0	0	6	0	0	0	0	9
8pm - 9pm	1	0	0	0	1	0	0	0	0	4	0	0	0	0	6
9pm - 10pm	1	1	0	0	0	0	0	0	0	1	0	0	0	0	3
10pm - 11pm	0	1	1	1	0	0	0	0	0	1	0	0	0	0	4
11pm - Midnight	2	1	0	0	0	0	0	0	0	3	0	0	0	0	6
Total	30	235	2	46	109	28	0	3	4	129	2	0	0	0	588
% of Total	5	40		8	19	5		1	1	22					



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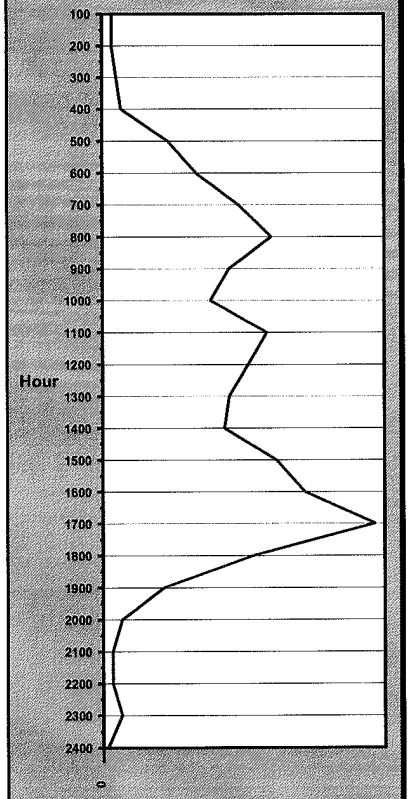
THU 14-SEP-06

Start Date	11-SEP-06
Start Time	1200
Duration	14 DAYS
Interval	1 HOUR

Weekly 50th Percentile Speed	**57**
Weekly 85th Percentile Speed	**69**
Five Day ADT	**686**
Seven Day ADT	**531**

Time	00	01	02	03	04	05	06	07	08	09	10	11	12	13	Total
Midnight - 1am	0	2	0	0	0	0	0	0	0	0	0	0	0	0	**2**
1am - 2am	0	2	0	0	0	0	0	0	0	0	0	0	0	0	**2**
2am - 3am	0	3	0	0	0	0	0	0	0	0	0	0	0	0	**3**
3am - 4am	0	1	0	0	0	0	0	0	0	3	0	0	0	0	**4**
4am - 5am	0	2	0	0	0	0	0	0	0	12	0	0	0	0	**14**
5am - 6am	2	1	0	0	4	1	0	0	3	9	0	0	0	0	**20**
6am - 7am	1	5	0	2	4	0	0	0	2	15	0	0	0	0	**29**
7am - 8am	1	5	0	9	9	3	0	0	4	5	0	0	0	0	**36**
8am - 9am	0	5	0	7	3	3	0	0	0	9	0	0	0	0	**27**
9am - 10am	1	6	0	0	7	3	0	0	1	5	0	0	0	0	**23**
10am - 11am	0	8	1	7	8	1	0	0	2	8	0	0	0	0	**35**
11am - Midday	0	9	0	4	5	1	0	0	0	11	1	0	0	0	**31**
Midday - 1pm	0	5	0	3	9	0	0	0	1	9	0	0	0	0	**27**
1pm - 2pm	1	9	0	1	10	0	0	0	0	5	0	0	0	0	**26**
2pm - 3pm	1	19	0	2	7	1	0	0	1	6	0	0	0	0	**37**
3pm - 4pm	1	28	0	1	11	1	0	0	0	1	0	0	0	0	**43**
4pm - 5pm	1	48	0	1	2	0	0	0	0	6	0	0	0	0	**58**
5pm - 6pm	1	23	0	2	1	0	0	0	0	5	0	0	0	0	**32**
6pm - 7pm	0	7	0	0	0	0	0	0	0	6	0	0	0	0	**13**
7pm - 8pm	0	2	0	0	0	0	0	0	0	2	0	0	0	0	**4**
8pm - 9pm	0	2	0	0	0	0	0	0	0	0	0	0	0	0	**2**
9pm - 10pm	0	2	0	0	0	0	0	0	0	0	0	0	0	0	**2**
10pm - 11pm	0	1	0	0	0	0	0	0	0	3	0	0	0	0	**4**
11pm - Midnight	0	0	0	0	1	0	0	0	0	0	0	0	0	0	**1**
Total	10	195	1	39	81	14	0	0	14	120	1	0	0	0	**475**
% of Total	2	41		8	17	3			3	25					



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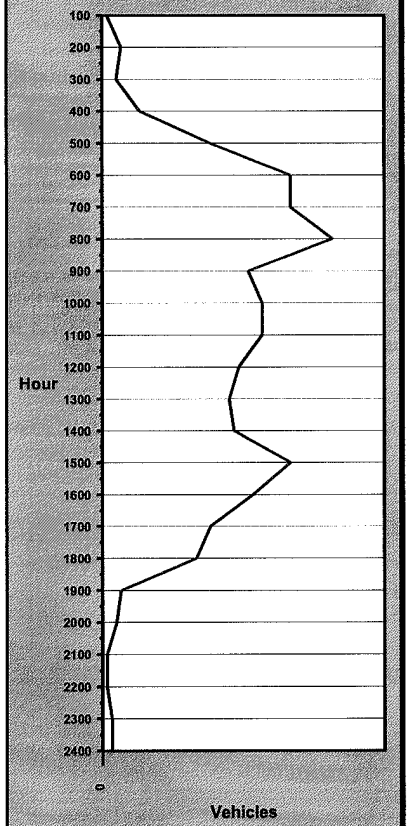
Midnight - 1am	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
1am - 2am	0	0	0	0	0	0	0	0	0	4	0	0	0	0	4
2am - 3am	0	1	0	0	0	0	0	0	0	2	0	0	0	0	3
3am - 4am	0	6	0	0	0	0	0	0	0	2	0	0	0	0	8
4am - 5am	0	23	0	0	0	0	0	0	0	0	0	0	0	0	23
5am - 6am	0	33	0	0	2	0	0	0	1	4	0	0	0	0	40
6am - 7am	1	23	0	9	2	1	0	0	1	3	0	0	0	0	40
7am - 8am	1	24	0	10	8	2	0	0	2	1	1	0	0	0	49
8am - 9am	1	8	0	2	7	1	0	0	2	10	0	0	0	0	31
9am - 10am	0	12	1	3	6	3	0	0	1	8	0	0	0	0	34
10am - 11am	0	7	0	8	7	1	0	0	2	9	0	0	0	0	34
11am - Midday	0	9	0	2	5	1	0	0	0	12	0	0	0	0	29
Midday - 1pm	0	6	0	1	13	0	0	0	1	6	0	0	0	0	27
1pm - 2pm	1	8	0	2	9	0	0	0	0	8	0	0	0	0	28
2pm - 3pm	1	8	0	2	11	1	0	0	2	15	0	0	0	0	40
3pm - 4pm	0	12	1	1	6	1	0	0	2	9	0	0	0	0	32
4pm - 5pm	0	8	0	0	3	1	0	0	4	7	0	0	0	0	23
5pm - 6pm	0	3	0	1	1	1	0	0	1	13	0	0	0	0	20
6pm - 7pm	0	1	0	0	0	0	0	0	0	3	0	0	0	0	4
7pm - 8pm	0	1	0	0	1	0	0	0	0	1	0	0	0	0	3
8pm - 9pm	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
9pm - 10pm	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
10pm - 11pm	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2
11pm - Midnight	0	0	0	1	1	0	0	0	0	0	0	0	0	0	2
Total	5	195	2	42	83	13	0	0	19	119	1	0	0	0	479
% of Total	1	41		9	17	3			4	25					

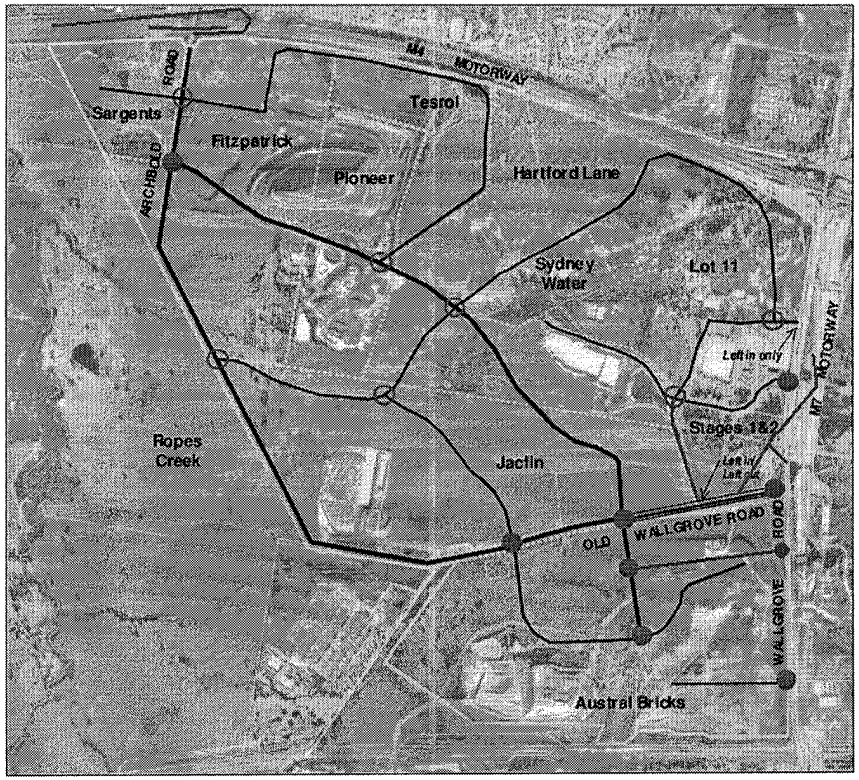


Data displayed has been compiled from pneumatic traffic count processes and is subject to the documented limitations

Appendix B

EXTRACT FROM EASTERN CREEK PRECINCT TRAFFIC ASSESSMENT

Option 3A - Access south of Old Wallgrove Road with Recommended Regional Infrastructure



Option 3 A

- Austral Bricks access connection to Old Wallgrove Road
- Eastern Creek Business Park connection to Old Wallgrove Road
- No Connection through Sydney Water
- Introduction of access onto Wallgrove Road at the site of the programmed M7 northbound carriageway offload ramps, some 200 metres south of Old Wallgrove Road
- Widening of Archbold Road to 4 lanes
- Introduction of Archbold Road onload and offload ramps at the M4 Motorway
- Introduction of onload ramp to M7 northbound carriageway from Old Wallgrove Road and Wallgrove Road

Figure E26: Option 3A - AM Peak Plot

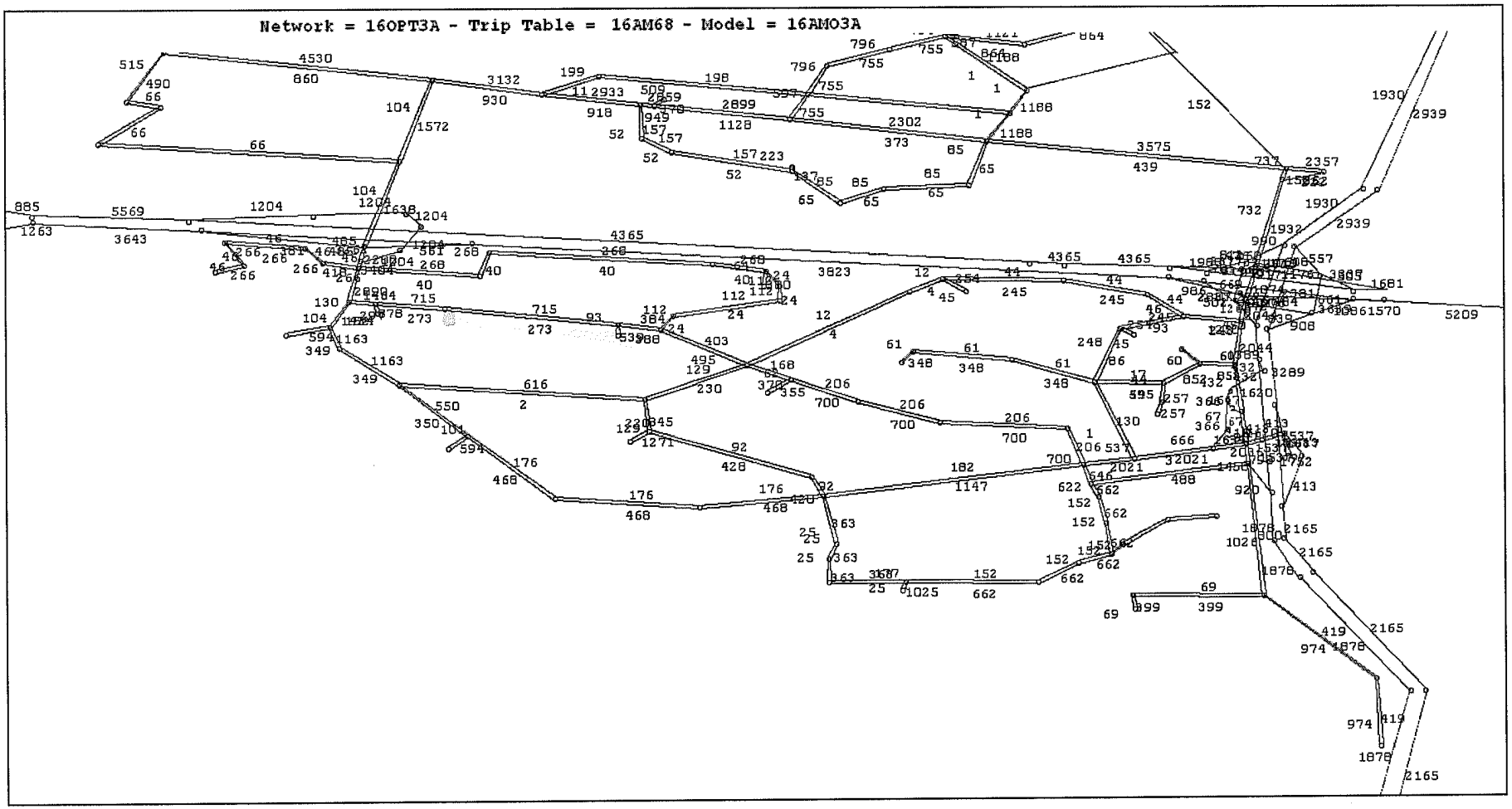


Figure E28: Option 3A - PM Peak Plot