Lot A, Burley Road, Horsley Park

Concept and First Stage Project Application

Transport Report

December 2010

Prepared for

Jacfin Pty Ltd

Halcrow

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This report has been issued and amended as follows:

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3	Fourth Draft for Client review	25/11/10	PT	BM
4	Final Issue	06/12/10	PT	BM

Halcrow
Suite 20, 809 Pacific Highway, Chatswood, NSW 2067 Australia
Tel +61 2 9410 4100 Fax +61 2 9410 4199
www.halcrow.com/australasia

Contents

1 Introduction

This report relates to the transport implications of a proposed Concept Plan for the development of Lot A, Burley Road in the Horsley Park Employment Precinct at Eastern Creek. It also covers a Project Application for development of the first lot on the site.

The Lot A in the Horsley Park precinct is within the Western Sydney Employment Hub in which industrial, warehousing, distribution and other uses are permissible. The site is owned by Jacfin Pty Ltd which has a long history of development within the Hub. The site is located adjacent to a large site owned by Goodman Pty Ltd for a small part of which Concept and Project approvals for initial development have already been granted.

Chapter 2 of this report addresses the proposed Concept Plan. It covers the transport planning background in the area, the expected traffic generation of the site and the proposed major internal road network.

Chapter 3 addresses the Project Application for development of the first lot on the site plus the road which would provide initial access to it.

Chapter 4 lists the study requirements related to Transport considerations provided by the Director General of the Department of Planning pursuant to the Director's acceptance of the concept application within the EP&A Act Part 3A assessment process. It then outlines how these requirements have been addressed in the application.

In parallel with this application, Jacfin has also prepared a concept plan for its land holding in the nearby Ropes Creek Precinct within the Western Sydney Employment Hub. That is the subject of a separate Concept Application. As appropriate the assessment in this report takes the traffic effects of that proposal into account as well.

2 Horsley Park Lot A Concept Plan

2.1 Transport Planning Background

The location of the Horsley Park Lot A Site is indicated on **Figure 1** which shows the whole Western Sydney Employment Hub west of Wallgrove Road. This is divided into three distinct sections as follows:

- West of Ropes Creek – Erskine Park within Penrith LGA
- East of Ropes Creek, north of the water pipeline – Eastern Creek/Ropes Creek within the Blacktown LGA
- South of the water pipeline – Horsley park within the Penrith and Holroyd LGAs.

Over recent years there have been a number of transport studies undertaken for the Hub area. The studies and plans of most relevance to this proposed Horsley Park Concept Plan are as follows:

- Eastern Creek Precinct Plan, Blacktown council, December 2005
- Proposed Erskine Park Link Road Environmental Assessment, RTA, May 2007
- Proposed Erskine Park Link Road Preferred Project Report, RTA, December 2008
- RTA traffic modelling for Erskine Park Link Road design, June 2010, unpublished
- State Environmental Planning Policy (Western Sydney Employment Area) 2009
- Oakdale Central Concept Plan.

The Eastern Creek Precinct Plan is relevant to the Horsley Park area insofar as initial access to the Horsley Park area will only be available through Eastern Creek. The Eastern Creek Precinct Plan relates to only the original Eastern Creek employment land which is generally west of the Ropes Creek precinct and bounded by the M4 Motorway, Wallgrove Road and the water pipeline. This area was the subject of a traffic planning exercise on which basis a road hierarchy plan for the area was produced by Blacktown Council. This is reproduced in **Figure 2** of this report.

WESTERN SYDNEY EMPLOYMENT HUB

LOT A, BURLEY ROAD, HORSLEY PARK - CONCEPT & FIRST STAGE PROJECT APPLICATION

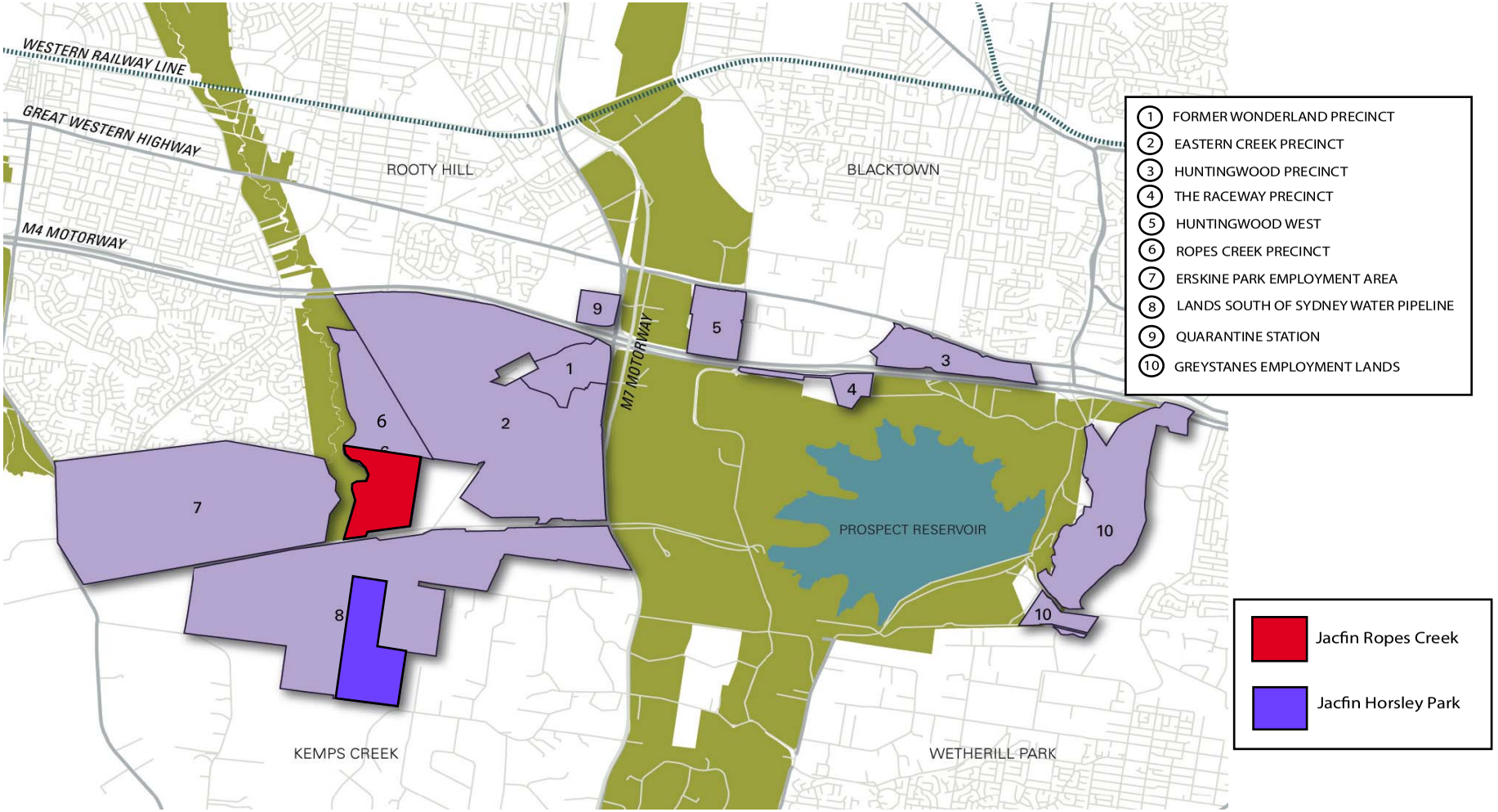

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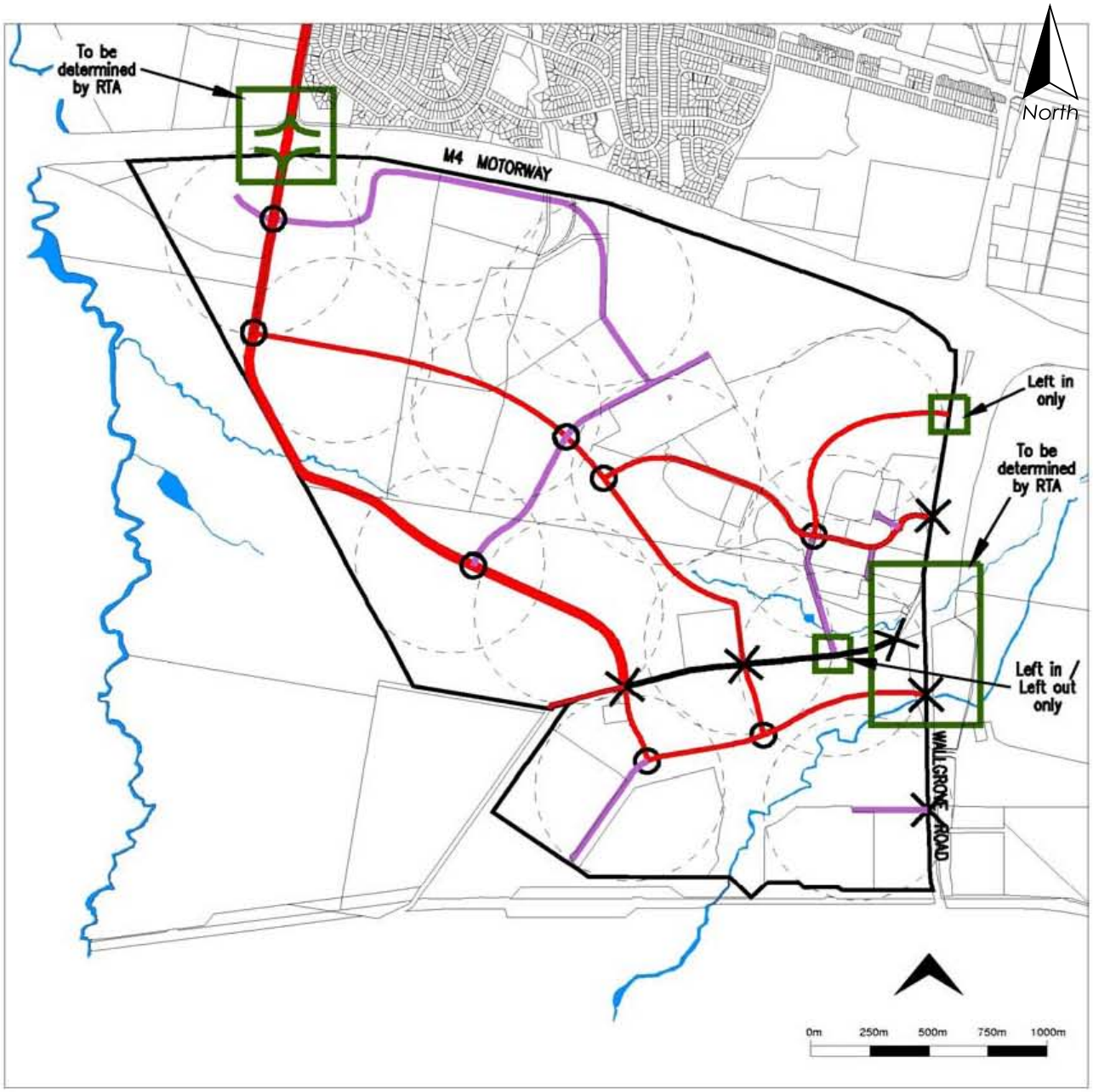
Figure 1

Filename: CTLRLTdi01(H).ai

Date: 27 July 2010

LOT A, BURLEY ROAD, HORSLEY PARK - CONCEPT & FIRST STAGE PROJECT APPLICATION



Sub-arterial Road

Local Road

Main Collector Road

Standard Collector Road

Traffic Signals

Roundabout

400m Coverage from Public Transport

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Figure 2

Filename: CTLRLTdi02(H).ai

Date: 27 July 2010

Planning for the Erskine Park Link Road was undertaken by the RTA in conjunction with the formulation of a SEPP. The SEPP defines a corridor for the Link Road plus three north south connections to it as follows (See **Figure 3**):

- extension of Archbold Road from the M4 Motorway to the Link Road in a north-south direction
- a new link across the Link Road as a prolongation of the Archbold Road extension diagonally across the Jacfin Ropes Creek site to cross the water pipeline and joins the southern section of Old Wallgrove Road to the south of the Transgrid site. This link is then shown to run southwards through land south of the pipeline to join an east west extension of Bakers Lane in Kemps Creek. That road connects to Mamre Road; and
- a second north south link from the Link Road in Erskine Park across the water pipeline that would also connect to the Bakers Lane extension.

The two RTA Erskine Park Link Road assessment reports established that, when fully developed, the entire Hub area west of Wallgrove Road would need to be served by the Erskine Park Link Road and connections as described above plus by a major east west road south of the pipeline on an alignment that connected Bakers Lane in the west with the M7 Motorway in the east. The RTA is currently investigating an alignment for this new road in the eastern section but the most likely connection point would be via Chandos Road which has a grade separated crossing of the M7 Motorway.

In the Preferred Project report for the Erskine Park Link Road, the RTA also investigated an interim arrangement that would provide access to the Horsley Park area prior to the completion of this east-west road south of the pipeline. This system would rely on:

- the Erskine Park Link Road such that traffic could access all of Erskine Park, Ropes Creek, Eastern Creek and initial parts of Horsley Park from either Mamre Road in the west or Wallgrove Road and the M7 Motorway in the east
- a Y Link (RTA labelled "mini-Link") connection at the eastern end of Old Wallgrove Road to provide separate feeds of traffic across Wallgrove Road to the split interchange intersection with the M7 Motorway, and
- the Archbold Road extension south to the Erskine Park Link Road including east facing ramps to/from the M4 Motorway.

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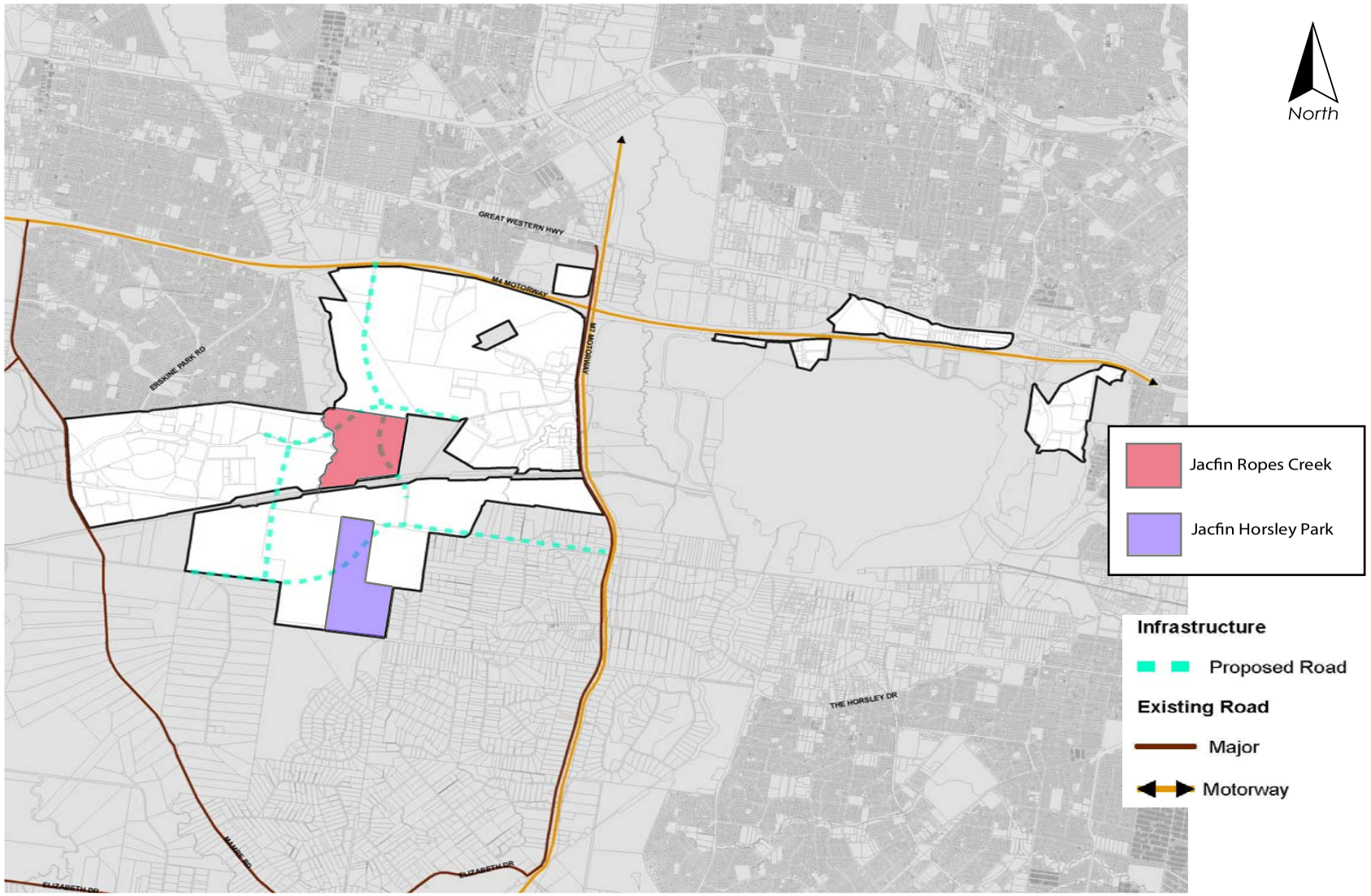

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Figure 3

The RTA plan has access provided to Horsley Park via Old Wallgrove Road until the second link to the M7 was completed.

This system would be similar to the required ultimate road system except that it would not have the major east-west road south of the water pipeline. The RTA modelling was based on Transport Data Centre (TDC) supplied employment forecasts. The following level of development corresponded to the interim access arrangement analysis:

- Erskine Park – fully developed (277 ha)
- Eastern Creek – 390 ha
- Ropes Creek – 182 ha
- Horsley Park (south of pipeline) – 165 ha

Jacfin owns 121 ha in Eastern Creek, 105 ha in Ropes Creek and 100 ha in Horsely Park.

Thus the interim plan would allow a total of 1014 ha of employment land to be fully developed. In practice development sites tend to be built in stages with it being normal in many cases for full development potential to be taken up progressively. Thus to achieve the planned initial road capacity related employment potential more than 1014 ha of land would need to be available for development.

2.2 Background Traffic Forecasts and Intersection Configurations

In its detailed planning for the Erskine Park Link Road the RTA has produced morning peak traffic forecasts for use in the determination of intersection capacity needs. These are provided in **Appendix A**.

These RTA forecasts are used below in the formulation of traffic forecasts for the Jacfin proposed Ropes Creek and Horsley Park Concept Plans.

2.3 Design of Erskine Park Link Road

The Director General's Requirements for this investigation require impacts of the proposal on Wallgrove Road and the intersection of Old Wallgrove Road/Wallgrove Road and the M7.

In this regard the RTA is currently preparing designs for the whole of the Erskine Park Link Road/Old Wallgrove Road route to the M7. These will be based on the traffic forecasts which they have provided to Jacfin which allow for development in both the Ropes Creek and Horsley Park precincts. In view of this it was deemed inappropriate to prepare a second set of designs and analysis for these intersections within this investigation.

2.4 Oakdale Concept Plan

The Oakdale site occupies most of the remainder of the Hub area south of the water pipeline. It has about 261 ha of developable area in total. Of this about 40 hectares is located in its Central Precinct which is between the Jacfin land and the water pipeline. A Concept Plan has been approved for this 40 ha Central Precinct. The Project Application covered Sites 1A and 2A within the Central Precinct. It incorporated 54,350m2 of warehouse and ancillary office space with 390 parking spaces. A copy of the Oakdale Concept Plan is provided in **Appendix B** of this report.

The Project Application indicates an expectation that this development would generate some 164 vehicle trips per peak hour. By way of comparison it is noted that the RTA has adopted a traffic generation rate of 15 vehicle trips per ha per peak hour in its traffic analysis. Application of this rate to the 18 ha of developable area as covered by the first Oakdale Project Application would produce about 270 vehicle trip per peak hour. This traffic generation was adopted in the Oakdale transport report. This difference in traffic generation rates for the purposes of future traffic estimation is discussed further below.

2.5 Assumed Traffic Generation Rates

In relation to these forecasts it is noted that the RTA used a traffic generation rate of 15 vehicle trips per hectare of developable land per peak hour during peak periods for land within Blacktown and Horsley Park. This rate was established by Blacktown Council from surveys of the traffic generation of the established Huntingwood Estate.

Penrith Council found that the nature of development in the Erskine Park industrial area was different such that completed developments tend to generate considerably less than 15 vehicle trips per hectare per hour in peak periods.

As a check on this the traffic generation of two Coles distribution warehouses in Eastern Creek was surveyed in June 2008. The two sites are occupied by the first stages of development on these sites with a total occupied area of about 30.2 ha for both sites.

The survey found that these sites generated 161 two way vehicle movements in the morning peak hour and 190 in the evening. These equate to traffic generation rates of 5.3 and 6.3 vehicles per hectare per hour. When applying these rates to an undeveloped concept plan area it would be appropriate to scale them up to take into account roads and other elements that could not be built on. Applying a scale up factor of say 25% (i.e. assuming say 80% development potential within gross developable area) this suggests that large format distribution warehouses would only generate in the order of 6.6 to 7.9 vehicle trips per hectare of developable area per hour.

In our traffic forecasts for the proposed Jacfin Concept Plans for Ropes Creek and Horsley Park we have adhered to the original planning traffic generation rate of 15 vehicle trips per hectare per peak hour. However the recent Eastern Creek distribution warehouse survey plus Penrith Council's experience suggest that the traffic planning based on this rate may be conservatively high. If so the road system for the area as planned may have the capacity to accommodate more development than the initial expectation.

2.6 Horsley Park Concept Plan

The proposed Horsley Park Concept Plan is attached at **Appendix C**. This shows that the SEPP Road will follow an "S" shape through the upper section of the site which conforms to the SEPP requirements. At its northern end it will continue eastwards to intersect with a southern extension of Old Wallgrove Road.

In the future, the SEPP Road would be constructed by others to connect to Bakers Lane in the west and to the M7 in the east. A 40m wide corridor has been provided for this SEPP Road through the site.

Within the Jacfin site two local industrial road systems are proposed to connect to the SEPP Road. The northern one will be a short east west road that crosses the SEPP Road. A cul-de-sac is proposed on each side. However this road would be capable of extension to serve adjoining lots on each side should that be appropriate.

The southern road system is proposed as a loop with a tail connecting back to the SEPP Road.

Driveways or other local roads will be provided to afford access to individual sites.

The approval of the Oakdale development has a requirement for the upgrade of Old Wallgrove Road to a two lane road up to the CSR PGH site. The access road to the Jacfin Horsely Park site would be constructed as a three way intersection with Old Wallgrove Road at the PGH site entry.

2.7 Road Cross Sections

The SEPP Road is proposed to have a 40m wide reservation with two 7m wide carriageways and a 4m wide median. Localised widening to the road carriageway would be made at intersections as appropriate. While this application seeks to undertake the earthworks for a four lane SEPP Road, it is proposed at this stage to construct two lanes to provide access to and from the Stage 1 Project Application site.

The Local Roads are proposed to have 21.5m wide reservations with 13.5m wide carriageways. A 4.2m wide verge suitable for a cycle pedestrian path would be provided on one side and a 3.8m wide verge on the other. This cross section would allow either two traffic lanes each way or one kerbside parking and one traffic lane each way.

2.8 Intersection Controls

It is proposed that the three major intersections within the precinct be controlled by roundabouts. These are at the two SEPP Road/local road intersections and where the link road from the SEPP Road to the internal square loop road system meets the loop road.

The proposed intersections of the SEPP Road from Ropes Creek and Horsley Park Employment Precincts with Old Wallgrove Road (south of pipeline) would require consultations with Penrith Council, the RTA and adjoining land owners. At this stage traffic signal control is considered the most likely outcome.

2.9 Traffic Implications

As indicated above, RTA traffic modelling for the land south of the pipeline incorporated the traffic generation of the equivalent of 165 ha of development onto Old Wallgrove Road and then to the M4/M7. The developable area included Concept Approval for Goodman (40 ha) and Jacfin (93.5 ha), a total of 133.5 ha which can be catered for by the Erskine Park Link Road and Old Wallgrove Road as modelled by the RTA.

It is estimated that the total developable area south of the pipeline totals about 400 ha as follows:

Goodman	260.9 ha
Jacfin	93.5 ha
Jacona	48.0 ha
	402.4 ha

Thus the development beyond 165 ha south of the pipeline (around 237 ha) would need access via the east-west road system between Bakers Lane and Chandos Street and via the link across the water pipeline to Erskine Park. There would be cross over traffic on the SEPP Road through the Jacfin site to get to and from these additional access points once they were provided. This cross over traffic, not related to the Jacfin site is indicatively estimated at up to about 1500 vehicle trips per hour. This traffic was added to that generated within the Jacfin Lot A site and the Goodman Central Stage 1 development in order to estimate future peak hour flows on the proposed road system at ultimate development.

Morning peak traffic flows so estimated are provided on **Figure 4**. The flows shown on this figure are for the morning peak hour. Evening peak hourly traffic volumes would be similar but with the directions reversed.

In addition, the flows on Figure 4 were scaled to estimate the following:

- Future Daily (Total) Traffic Flows;
- Future Daily Commercial Vehicle Traffic Flows; and
- Future Peak Hour Commercial Vehicle Traffic Flows.

FUTURE MORNING PEAK HOUR TRAFFIC FLOWS

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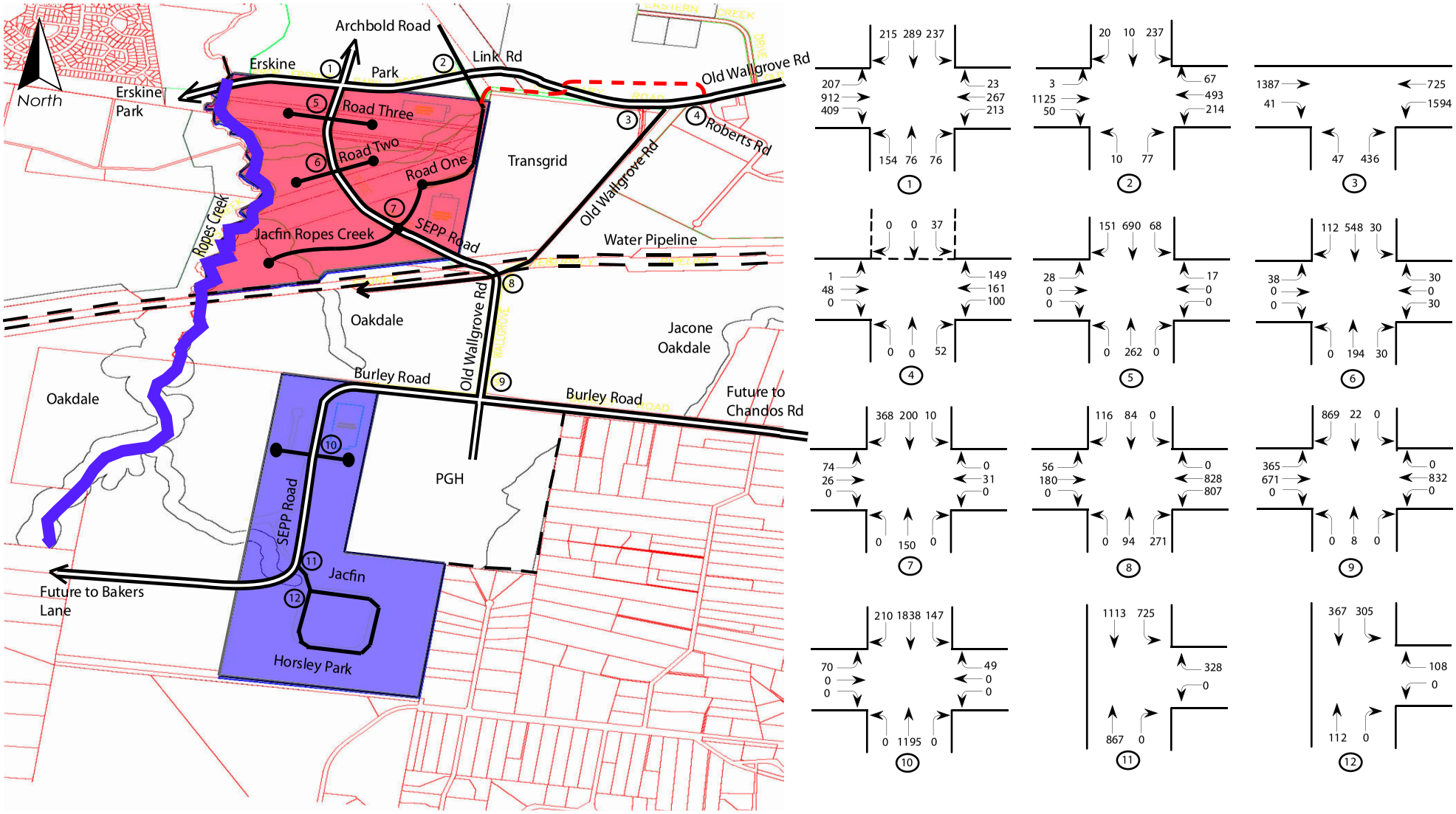

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Figure 4

Corresponding traffic flow diagrams are attached at **Appendix D**. **Table 2.1** presents future two-way midblock peak hour flows along the SEPP Road through the site and on the link between the SEPP Road and the Internal Loop Road.

Table 2.1 – Future Two-Way Peak Midblock Traffic Volumes

Link	Peak Hour (Total) Traffic Flows (vph)	Daily (Total) Traffic Flows (vpd)	Peak Hour (Commercial) Traffic Flows (vph)	Daily (Commercial) Traffic Flows (vpd)
SEPP Road (between Burley Rd and North Internal Roundabout)	3123	21033	129	364
SEPP Road (between North and South Internal Roundabouts)	3033	20427	125	353
SEPP Road (south of South Internal Roundabout)	1980	13335	82	231
Internal Road (between SEPP Rd and Internal Loop Rd)	973	6550	40	114

To determine intersection requirements the intersections were analysed using the SIDRA intersection analysis program which provides measures of performance. Standard RTA performance criteria yielded by SIDRA analysis are provided on **Table 2.2**. **Table 2.3** provides the results of the analyses. The intersection geometries to which these relate, and key results of the SIDRA analysis, are provided in **Appendix E**.

Table 2.2 – Level of Service Criteria

Level of Service	Average Delay per Vehicle (secs/veh)	Signals & Roundabouts	Give Way & Stop Signs
A	less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays & spare capacity	Acceptable delays & Spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity & accident study required
E	57 to 70	At capacity; at signals, incidents will cause excessive delays Roundabouts require other control mode	At capacity, requires other control mode
F	> 70	Extra capacity required	Extreme delay, traffic signals or other major treatment required

Adapted from RTA Guide to Traffic Generating Developments, 2002.

Table 2.3 – Intersection Analysis Results

ID	Intersection	Control	Morning Peak		Evening Peak	
			Av. Delay	LoS	Av. Delay	LoS
3	Link Rd / Old Wallgrove Rd	Signals	15	B	48	D
8	Horsley Park / Old Wallgrove Rd / Ropes Creek / Oakdale Stage 1	Signals	50	D	52	D
9	Burley Road / PGH Site Access	Signals	56	D	35	C
10	Horsley Park, Lot A - North Internal Intersection	Roundabout	19	B	32	C
11	Horsley Park, Lot A - South Internal Intersection	Roundabout	19	B	42	C
12	Horsley Park, Lot A - Loop Internal Intersection	Roundabout	11	A	11	A

Average Delay – Average Delay in seconds/vehicle. For signals relates to whole intersection. For roundabouts relates to most disadvantaged movement.

Level of Service – LoS, A = Best, F = Over Capacity, D = Acceptable

Table 2.3 indicates that all intersections would operate satisfactorily under the proposed controls.

To test the effect of possible traffic signal control rather than roundabouts control at the two main intersections along the through road, which could potentially become a Main Road, further analysis was conducted. **Table 2.4** below presents a comparison of the two intersections under both roundabout and signal control.

Table 2.4 – Signalised and Roundabout Intersection Analysis Results

ID	Intersection	Control	Morning Peak		Evening Peak	
			Av. Del	LoS	Av. Del	LoS
10	Horsley Park, Lot A - North Internal Intersection	Signals	13	A	18	B
		Roundabout	19	B	32	C
11	Horsley Park, Lot A - South Internal Intersection	Signals	23	B	41	C
		Roundabout	19	B	42	C

Whilst the analysis above indicates that both traffic signals and roundabouts would work satisfactorily, roundabouts are preferred as they would afford more flexibility in terms of traffic access, have reduced ongoing operating costs and would moderate traffic speeds.

2.10 Traffic Levels on Old Wallgrove Road

It is noted that the RTA traffic modelling indicates that Old Wallgrove Road south of the Erskine Park Link Road would carry around 1650 vehicles per hour in one direction. The nominal capacity of a single traffic lane with minimal midblock function is 1200 vehicles per hour. Thus Old Wallgrove Road would need to be widened to two traffic lanes each way once the equivalent of about 120 hectares of land south of the pipeline was developed and occupied unless alternative access to the southern area was provided by that time.

This threshold for widening of Old Wallgrove Road south of the Erskine Park Link Road would also depend on the relative split of north-south traffic travelling to and from the area south of the water pipeline between Old Wallgrove Road and the SEPP Road through the Jacfin Ropes Creek site. The situation would thus need to be

monitored once the SEPP Road through the Ropes Creek site was completed in order to reassess if/when Old Wallgrove Road should be widened to four traffic lanes.

Old Wallgrove Road between the Ropes Creek SEPP Road and the alignment of the future east west major road south of the water pipeline would need to have a four lane divided carriageway for the ultimate development.

2.11 Provisions for Public Transport

The SEPP Road and the southern local road loop system would both be suitable for buses. These would provide a suitable bus route until such time as the road connections to adjoining development sites were developed.

Bus shelters will be provided at suitable locations.

2.12 Provisions for Pedestrians and Cyclists

It is proposed to provide a shared cycle/pedestrian path on the verge on one side of the SEPP Road and of the southern local loop road system within the Horsley Park site.

In due course, if the two cul-de-sac stubs were to be extended to adjoining properties then it would be appropriate to provide cycle/pedestrian paths on the verge on one side of these as well.

2.13 Car Parking

Parking requirements for each site will be highly dependent on the number of employees and on the nature of the operation of the occupier. In view of this it is proposed to allow the provision of a proportion of spaces as sealed parking and designate an undeveloped area of the site in which additional parking could be provided if there was a demonstrated need.

In relation to parking provision requirements, the RTA, Penrith and Blacktown Councils suggest the rates presented on **Table 2.5**.

Table 2.5 – Relevant Parking Rates

	Warehouse	Factories/Industrial	Offices
RTA	1/300m² GFA	1.3/100m² GFA	1/40m² GFA
Penrith Council	1/100m² GFA	1/75m² GFA or 1/2 employees	1/40m² GFA
Blacktown Council	Not specified	1st 7500m² – 1/100m² GFA	1/40m² GFA

The differences between the three sets of guidelines reflect the wide variety of parking demands that industrial/warehouse development can exhibit.

For the Jacfin Horsley Park precinct it is proposed that:

- Sealed formal parking be provided at the following rates:
  - office: 1/40m^2 GFA;
  - factory: 1/100m^2 GFA first 100m^2 then 1/200m^2 GFA. Includes office component;
  - warehouse: 1/300m^2 GFA + 1/40m^2 for office;
- Potential overflow parking capacity be identified such that the parking supply can be brought up to the following:
  - factory: 1.3 spaces/100m^2 GFA;
  - warehouse: 1/200m^2 GFA + 1/40m^2 for office;
- Parking provision rates may be varied if detailed requirements of an occupier are known.

2.14 Conclusions in Relation to the Horsley Park Concept Plan

The proposed road system is compatible with the SEPP (Western Sydney Employment Area) 2009 road plan and with RTA design planning for the Erskine Park Link Road. It provides for satisfactory access to each part of Lot A and will satisfactorily accommodate both internally generated traffic and through traffic.

Satisfactory arrangements are also proposed for pedestrians and cyclists. The system will also allow good bus coverage.

3 Project Application

3.1 Description of Proposed Development

A detailed description of the proposed development is provided in the Project Application Report prepared by JBA Planning on behalf of Jacfin. A plan showing the proposed development site is attached at **Appendix F**.

The development proposed by this project application can be summarised as follows:

- Warehouse floor area: 25,300m^2 GFA
- Office floor area: 2,030m^2 GFA
- Car Parking: 135 spaces
- Loading Dock Facility accommodating articulated vehicles.

3.2 Proposed Site Access

The site will be accessed via the short east-west road that crosses the SEPP Road towards the north end of the Horsley Park precinct. The alignment of the road is shown indicatively on the Concept Plan attached at Appendix C.

A cul-de-sac is proposed adjacent to the site; however, this road would be capable of extension to serve adjoining lots should that be appropriate.

Direct access to the site from the proposed access road would be three-fold consisting of a standard access to staff parking and the front door of the office component of the development, located between separate entry-only and exit-only access roads for trucks. The proposed access arrangement is indicated on the plans attached at Appendix F.

3.3 Traffic Generation

As outlined above in relation to the proposed Horsley Park Concept Plan, the road system for the Jacfin Horsley Park site proposes a road system that will accommodate all future development.

As per RTA advice, the area has been planned to accommodate traffic generated at a rate of 15 vehicle trips per hectare per peak hour. By applying this rate to the proposed site area, the following trips can be calculated:

Building 1 approx. 6.7 ha @ 15 trips/ha = 101 trips per hour

The proposed access road that will serve the site will easily be able to accommodate this relatively low traffic volume. Further, the volume is sufficiently low that the proposed roundabout at the intersection of the local road with Erskine Park Link Road would not be needed for the initial stage of development.

3.4 Site Access and Internal Road Layout

The access and internal road layout arrangements comply with all relevant standards. The following factors are noted:

- The proposed road reserve would accommodate a 13.5 metre wide road pavement which will facilitate satisfactory two way vehicle access (including articulated vehicles) to and from the site;
- The internal design complies with the requirements of AS 2890.1, Off-street car parking and AS 2890.2, Off-street commercial vehicle facilities;
- The site incorporates a one-way clockwise flow-through system which is safe and efficient and provides sufficient clearances to accommodate a B-Double articulated truck operating with a 12.5 metre radius turn, as shown in **Appendix G**;
- Extensive internal queuing capacity is provided;
- In accordance with AS 2890.2, cars and trucks are provided with separate access driveways and are separated internally, providing maximum safety for both car drivers and pedestrians;
- Available sight distances at all driveways will be satisfactory, subject to the road verge being landscaped with appropriate species; and
- The parking bays and aisles comply with the requirements of AS 2890.1 and 2890.6, Off-street parking for people with disabilities.

In summary the proposed site access and internal road layout is considered appropriate for the proposed development.

3.5 Parking Provision

It is proposed to provide parking in accordance with the parking provision rates discussed above in the Concept Plan assessment. The following presents the parking requirement for the development site:

Formal parking provision

Warehouse	25,300m2 GFA	@ 1 space/300m2	= 84.3 spaces
Office	2,030m2 GFA	@ 1 space/40m2	= 50.8 spaces
Car Parking Requirement:			= 135.1 spaces

Formal + Overflow parking provision

Warehouse	25,300m2 GFA	@ 1 space/200m2	= 126.5 spaces
Office	2,030m2 GFA	@ 1 space/40m2	= 50.8 spaces
Total Car Parking Requirement (with overflow)			= 177.3 spaces

Therefore, net overflow parking requirement = 42.2 spaces

The proposal includes 135 spaces in front of the office component of the building and a designated unformed area where about 45 additional parking spaces could be provided if needed in the future.

3.5.1 Parking summary

The proposed parking provision including overflow parking would be more than adequate to accommodate the parking demands of the proposed development for both staff and visitors.

The proposed parking layouts would accord with the design requirements of AS 2890.1-2004 and 1-2% of the total formal parking spaces would be designed and designated as disabled parking spaces in accordance with AS 2890.6-2009.

3.6 Service Vehicle (Loading) Facilities

As noted above, the proposed loading area will be separated from the car parking area.

The loading provision and layout is considered to be appropriate for the proposed warehouse use on the site. The layout provides significant vehicle manoeuvring area and would facilitate efficient access to and from individual loading docks. The loading and manoeuvring area would adequately accommodate access requirements of articulated vehicles, including B-Double vehicles.

3.7 Bicycles

It is proposed to provide secure bicycle parking at a rate of 1 bicycle space for each 10 car spaces. Showers and change facilities will also be provided in each building.

Initially while traffic volumes on the access road are low, bicycles will share the road carriageway with other traffic. In future a shared cycleway could be constructed along the verge once peak hourly traffic volumes reach about 300 vehicles per hour.

3.8 Construction Traffic

Separate formal Construction Traffic Management Plans will be submitted for the site prior to the issue of a Construction Certificate as per a normal project approval conditions.

It is anticipated that typical daily flows during construction would be lower than the operational traffic generation of the proposed development.

Peak construction traffic generation will occur during concrete pours and bulk earthworks should material be required to be removed or imported to the site. At these periods it is anticipated that some 20 trips per hour (10 in / 10 out) would occur. These details would be confirmed and assessed as part of a CTMP.

The following principles would be incorporated into the CTMP:-

- The Construction Traffic Management Plan will include proposed truck parking areas, construction zones, crane usage, truck routes, etc;

- Trucks must enter and leave the site in a forward direction unless accredited flag persons are in place to control traffic and pedestrians;
- The Building Contractor will maintain strict traffic management procedures to ensure the safety of the public road users utilising traffic wardens;
- All vehicles carrying materials to, or from the site must have their loads covered with tarpaulins or similar covers;
- Openings in the construction fencing at the construction access driveways will be managed and controlled by qualified site personnel;
- Temporary warning signs and flashing lights will be erected adjacent to construction access driveways where appropriate.

4 Director General's Requirements

4.1 Summary of Director General's Requirements

The Department of Planning has issued Director General's Requirements for the assessment of the proposed development. Under the heading of Transport, Access and Parking, it has outlined the following issues to be considered:

- details of the traffic volumes likely to be generated during construction and operation;
- an assessment of the predicted impacts of this traffic on the safety and capacity of the surrounding road network in the short and long term, and an assessment of the cumulative impact of traffic volumes from the proposal together with the existing and approved development in the area. This traffic assessment shall particularly consider impacts on Old Wallgrove Road, and the intersection of Old Wallgrove Road/Wallgrove Road and the M7;
- details of the consistency of the project with the Government's design for the new Erskine Park Link Road and all connector roads between Mamre Road and the M7/M4, and the corridor/s identified in the Government's Draft Structure Plan for the area;
- detailed plans of any proposed road upgrades;
- access, including detailed consideration of various access options and justification for the proposed location of the main access points; and
- details of the availability of non-car travel modes and measures to encourage greater use of these travel modes.

The DGR also require that the assessment take into account the RTA's *Guide to Traffic Generating Development*, the RTA's *Road Design Guide* and *State Environmental Planning Policy (Infrastructure).*

4.2 Responses to Director General's Requirements

This traffic and transport assessment considers and responds appropriately to the comments and requirements raised by the Department of Planning and other agencies. The requirements and responses are presented in **Table 4.1**.

Table 4.1 – Responses to DGRs

Requirements	Responses
Details of the traffic volumes likely to be generated during construction and operation	These are referred to in **Section 3.3** for operational traffic and **Section 3.8** for Construction traffic.
An assessment of the predicted impacts of this traffic on the safety and capacity of the surrounding road network in the short and long term, and an assessment of the cumulative impact of traffic volumes from the proposal together with the existing and approved development in the area.	This is provided in **Section 2.9**. This found that satisfactory road system capacity would be provided.
The traffic assessment shall particularly consider impacts on Old Wallgrove Road, and the intersection of Old Wallgrove Road/Wallgrove Road and the M7	The proposed development is consistent with that being taken into account by the RTA in its detailed planning of the Erskine Park Link Road/Old Wallgrove Road system. Accordingly, as outlined in **Section 2.3** of the report this assessment is deferred to the RTA
Details of the consistency of the project with the Government's design for the new Erskine Park Link Road and all connector roads between Mamre Road and the M7/M4, and the corridor/s identified in the Government's Draft Structure Plan for the area	**Sections 2.6** to **2.8** show that the Concept Plan proposals have been planned so that the alignment of access roads, proposed road cross sections and proposal intersection controls are consistent with the structure plan. Proposed road connections to the Erskine Park Link Road have been discussed with the RTA and are consistent with its planning for the Link Road.
Detailed plans of any proposed road upgrades	See **Appendix E** for the proposed intersection layouts. Detailed engineering plans are separately submitted in the Environmental Assessment report.
Access, including detailed consideration of various access options and justification for the proposed location of the main access points	This is referred to in **Section 3.2**. In accordance with desirable practice the design separates truck access/egress from car park access. Swept-path analysis (see **Appendix G**) shows that both sites are fully accessible for all forecasted truck sizes and the accesses with the local road network suitable for all short and log term requirements.

Requirements	Responses
Details of the availability of non-car travel modes and measures to encourage greater use of these travel modes	**Section 0** covers public transport provisions and notes that the SEPP Road and southern local loop road will be suitable for use by buses, once the DOT consider it appropriate to start running buses through the area. **Sections 2.12** and **3.7** set out provisions for Pedestrians and Cyclists including shared cycle pedestrian paths on the SEPP Road and southern local loop road.

5 Summary

This report presents the findings of a transport assessment of a proposed Concept Plan for Lot A, Burley Road in the Horsley Park Employment Precinct in the Western Sydney Employment Hub. It also provides an assessment of a Project Application for the development of the first lot within the site.

The following are the key findings of the Concept Plan Assessment:

- The Concept Plan envisages development on about 93.5 ha within the site for a range of industrial and warehouse uses.
- Road access to the site is proposed via an extension of Old Wallgrove Road into an S-shaped road crossing of the site.
- This S-shaped road accords with the SEPP Road system which in due course requires it to form part of an east-west road system south of the water pipeline that will connect to the M7/Wallgrove Road via Chandos Road and to Mamre Road via Bakers Lane.
- The roads system through the area will also be served by an extension of Archbold Road in the Ropes Creek precinct through the Jacfin Ropes Creek site and across the water pipeline to feed traffic to/from the southern end of Old Wallgrove Road.
- Local roads are proposed to serve the Jacfin Horsley Park site including a cross road in the northern section that could be extended to serve adjoining sites as well.
- Traffic requirements for the road system were determined having regard to RTA traffic forecasts prepared for the Erskine Park Link Road.
- These found that around 165 hectares of development could be served by the arterial road system north of the water pipeline before supplementary access south of the pipeline was required.
- Old Wallgrove Road would require upgrade to four lanes south of the water pipeline following development of 120 ha of lane on the Jacfin and Goodman sites.
- Ultimate intersection configurations are proposed for agreement with Penrith Council and the RTA.

- Major roads within the Concept Plan area are proposed to have 40m reservations and divided carriageways. Local roads are proposed to have 21.5m reservations and 13.5m wide undivided carriageways.
- Cycle and pedestrian paths are proposed along the major roads. These will connect to the shared cycle/pedestrian way proposed along the Erskine Park Link Road.
- The road system will allow buses to traverse and loop through the site satisfactorily.
- Overall it is concluded that the proposed Concept Plan accords with previous traffic and transport planning for the area and that transport aspects of it will be satisfactory.

The following are the key findings of the Project Application assessment of proposed development on the first lot:

- The site will have access via the proposed internal east-west access road that crosses the proposed north-south SEPP Road.
- A cul-de-sac head will be provided at its termination point; however, this road is capable of being extended to serve adjoining lots.
- Development on the site is proposed to comprise a distribution warehouse with separate car parking and generous truck manoeuvring and loading and unloading areas.
- Separate car parking is proposed on the site with an appropriate provision.
- Separate car and truck access and circulation systems are proposed such that trucks and cars would be kept separate on the site at all times.
- Site access, internal roads and car and truck parking and loading areas are proposed to comply with the relevant Australian Standard.
- Bicycle parking and shower facilities are also proposed.
- Overall it is considered that transport aspects of the Project Application development will be satisfactory.

Appendix A RTA Traffic Forecasts

RTA AM PEAK 2-HOUR TRAFFIC FORECASTS FOR ERSKINE PARK LINK ROAD

LOT A, BURLEY ROAD, HORSLEY PARK - CONCEPT & FIRST STAGE PROJECT APPLICATION

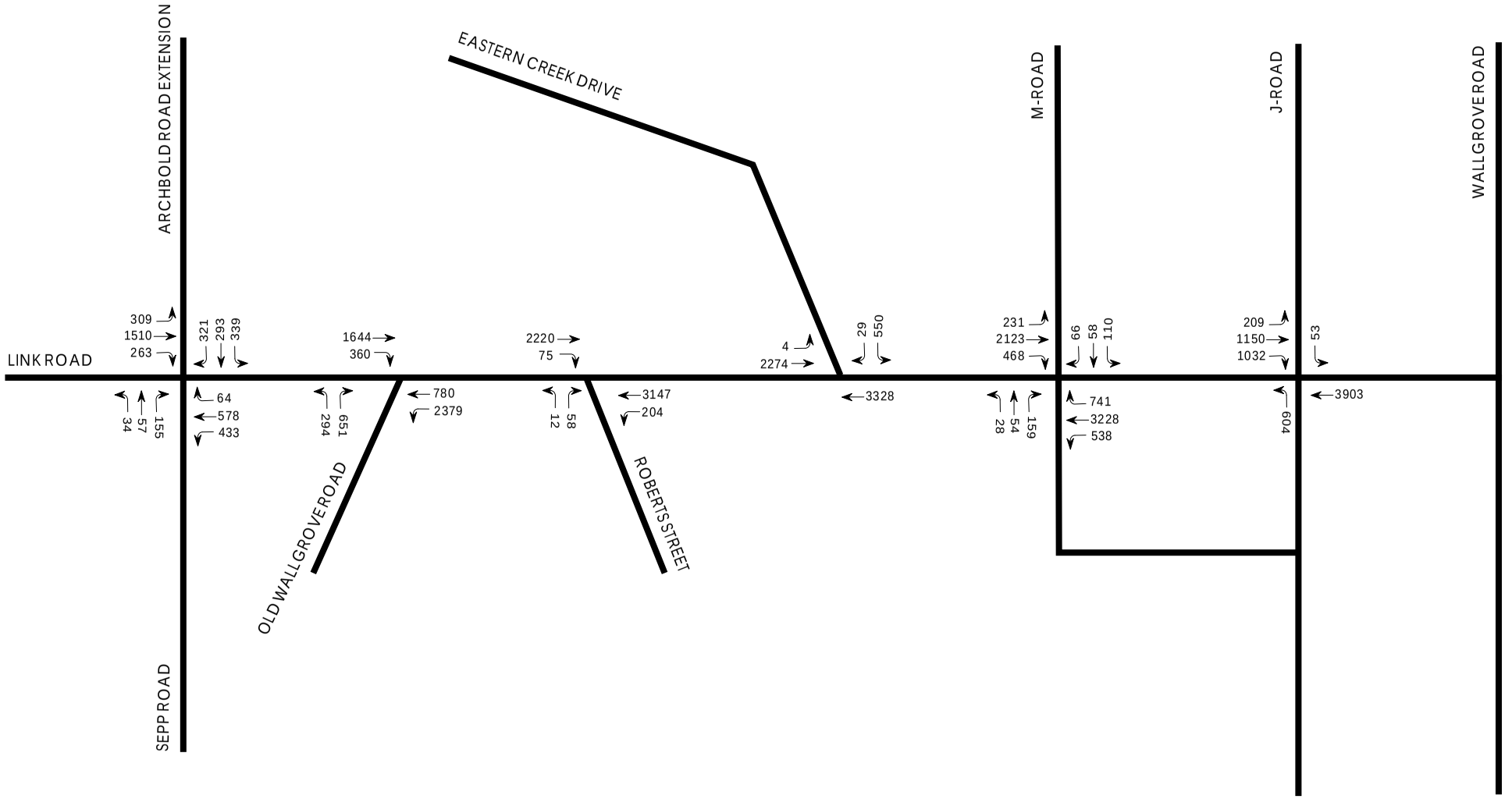

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Figure A.1

Filename: CTLRLTdi06 (H).ai

Date: 13 August 2010

Appendix B Oakdale Project Plan

Site Area Schedule

	Central
Total Land Area	**61.18 ha**
Less: Restricted Areas	
Conservation	11.98 ha
Easements	0.0 ha
Total Restricted Areas	(11.98 ha)
DEVELOPMENT Area	**49.20 ha**
Less: Regional infrastructure	
Services Lot (1) (Sewage)	1.00 ha
Services Lot (2) (Substation)	1.00 ha
Services Lot (3) (Water)	1.00 ha
Services Lot (4)	0.42 ha
Link Road (Option A)	5.54 ha
Total Regional Infrastructure	(8.96 ha)
Gross ESTATE Land Area	**40.24 ha**
Less: Estate Allocations	
Estate Road Lot 1	1.14 ha
Estate Road Lot 2	0.85 ha
Estate Road Lot 3	0.79 ha
Total Estate Allocations	(2.78 ha)
Nett Development LOTS	**37.46 ha**
Development Lot 1A	5.55 ha
Development Lot 1B	3.90 ha
Development Lot 1C	3.60 ha
Development Lot 2A	7.03 ha
Development Lot 2B	6.05 ha
Development Lot 3	11.33 ha

Legend

- Oakdale Concept Plan (CP #2)
- Existing Boundary
- Proposed Precinct Boundary
- Proposed Boundary/ Road Reserve
- (1) Development Lot
- (B1) Bridge

Goodman

Extent of Old Wallgrove Road Upgrade via M7 Hub

Link Road Segment Construct 2 new western lanes of 4 lane divided road on 20m road widening from Transgrid land.

M7 HUB

Link Road Option A (or Estate Road) Construct 7m Carraigeway as Estate Road. Provision for 40m road reserve as Link Road.

Temporary Access Road to 1A + 2A

Bridge B1

Bridge B2

Line of Existing Road Reserve

Conservation Lot B

Conservation Lot C

Conservation Lot A

Estate Road 1

Estate Road 2

Estate Road 3

Services Lot (4)

Services Lot (3) (Water)

Services Lot (2) (Sub - Station)

Services Lot (1) (Sewage)

1A

1B

1C

2A

2B

3

EAST

WEST

SOUTH

Development Lot 1A + 2A Extent of Proposed Building Works

design+	Oakdale CENTRAL Horsley Park	Project Application (PA #1) (Lot 2 DP120673)	Estate Works + DHL	Scope of Application	1:5000 @ A1 1:10000 @ A3 28 Feb 08 JH	SP DHL SK52 (B)

Appendix C Horsley Park Concept Plan

Key

- Site Boundary
- E2 Environmental Conservation Zone
- 10m Bushfire Setback
- SC — Potential Service Centre Location (Subject to Road and E2 Alignment)
- Stage I Project Application
- Indicative Building Footprint
- Regional Road One: 40m Reserve
- Local Road One: 21.5m Reserve
- Local Road Two: 21.5m Reserve
- Indicative Internal Road Access
- 20m Building Setback to Regional Road
- Indicative Lot Boundary
- Developable Area

CP009 Concept Plan

N

Lot A Burley Road, Horsley Park Employment Precinct - Concept Plan

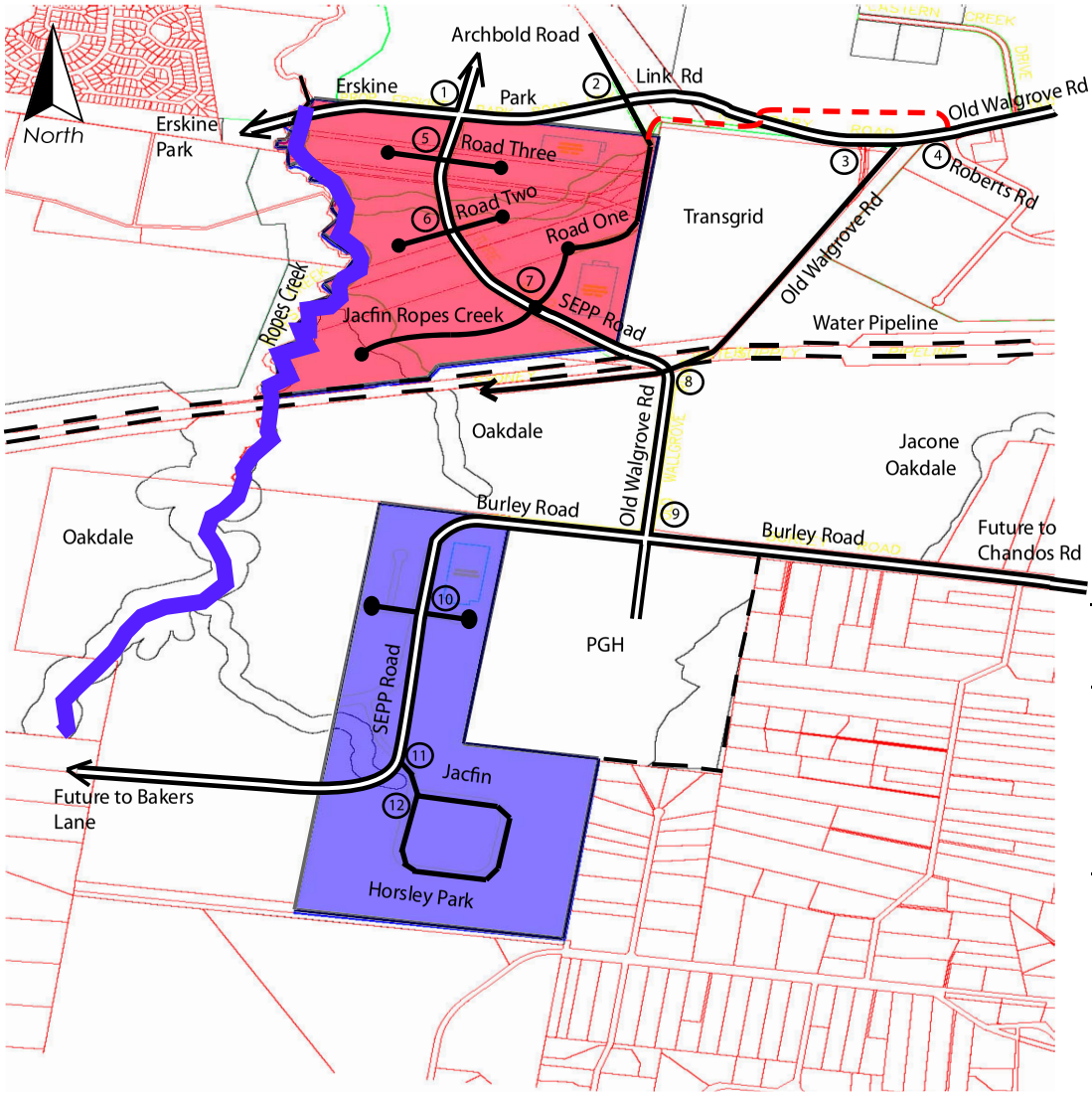
Prepared for Jacfin Pty Ltd
23 November 2010
1:5000 @ A3

JBA planning

Appendix D Future Daily and Commercial Traffic Flows

FUTURE DAILY (TOTAL) TRAFFIC FLOWS

LOT A, BURLEY ROAD, HORSLEY PARK - CONCEPT & FIRST STAGE PROJECT APPLICATION



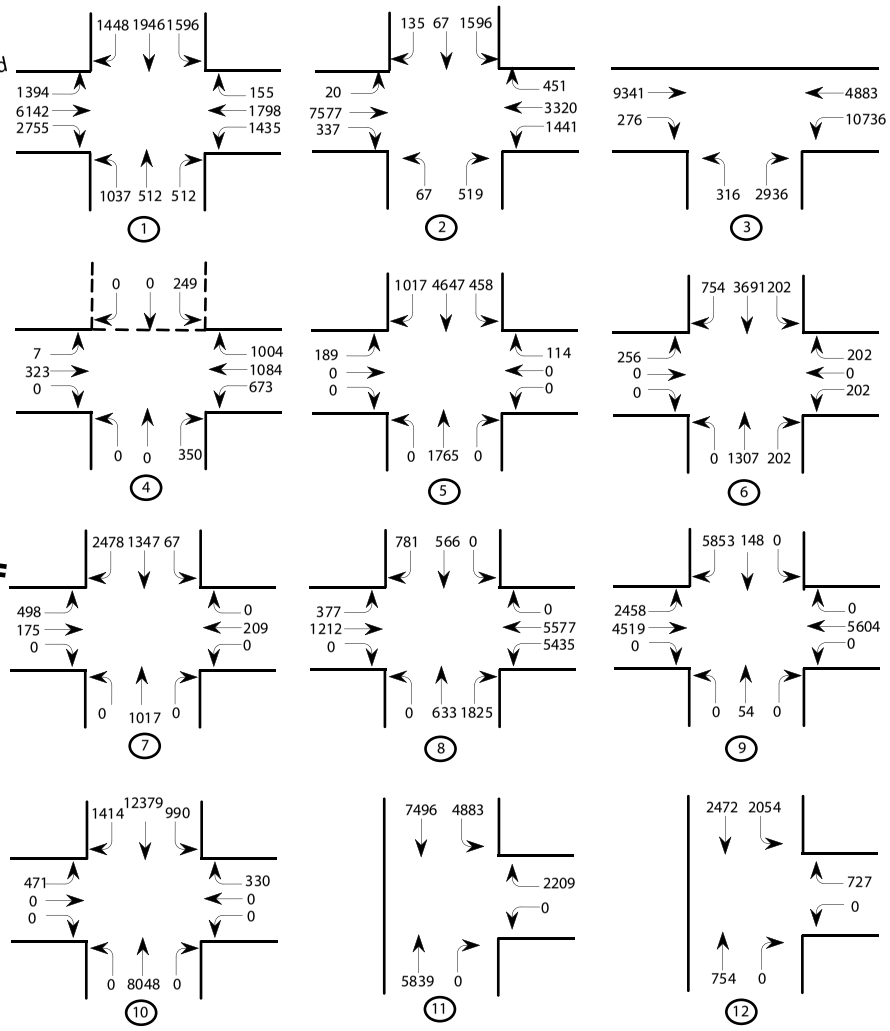


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Figure D.1

FUTURE DAILY COMMERCIAL VEHICLE TRAFFIC FLOWS

LOT A, BURLEY ROAD, HORSLEY PARK - CONCEPT & FIRST STAGE PROJECT APPLICATION

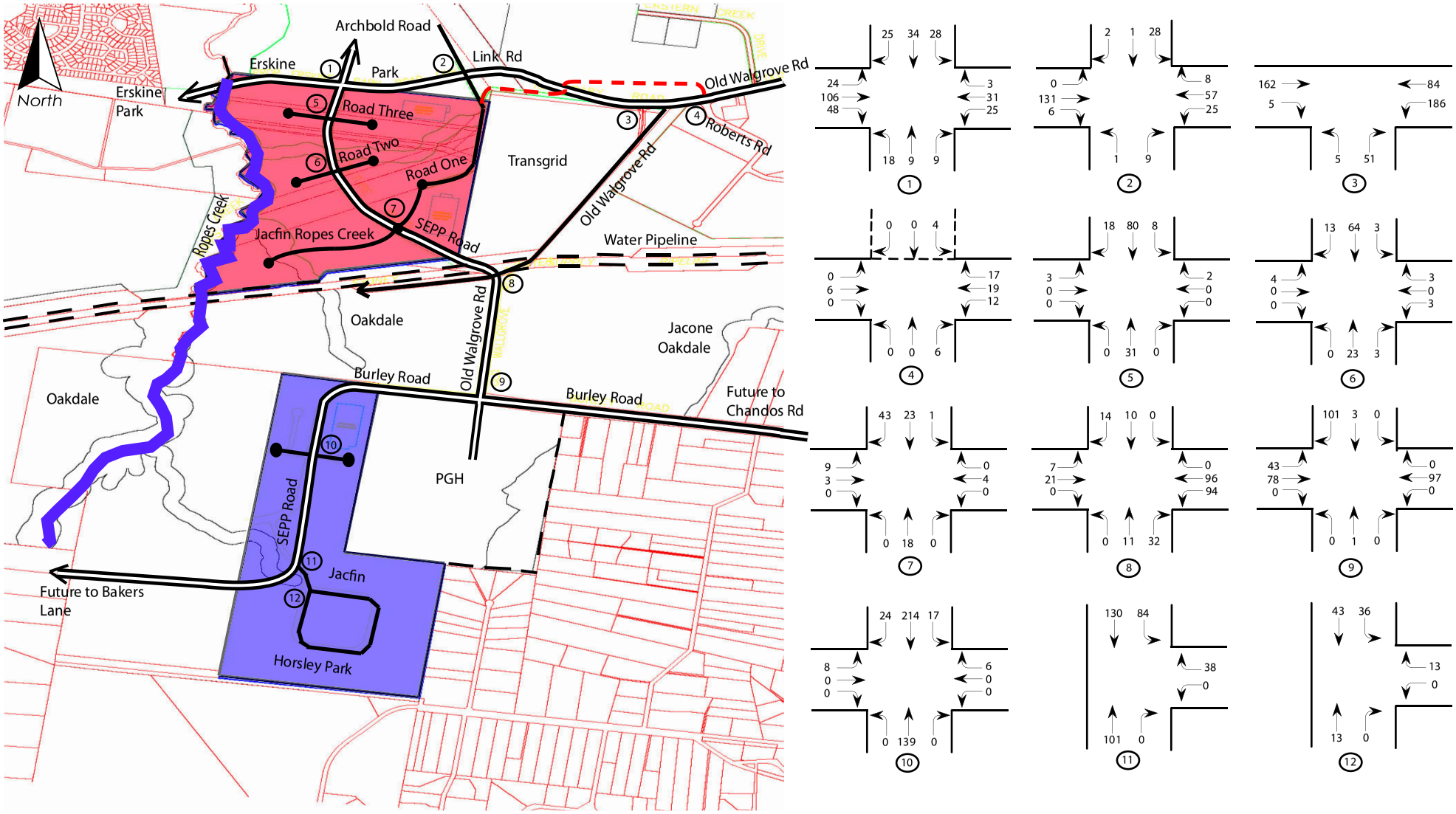

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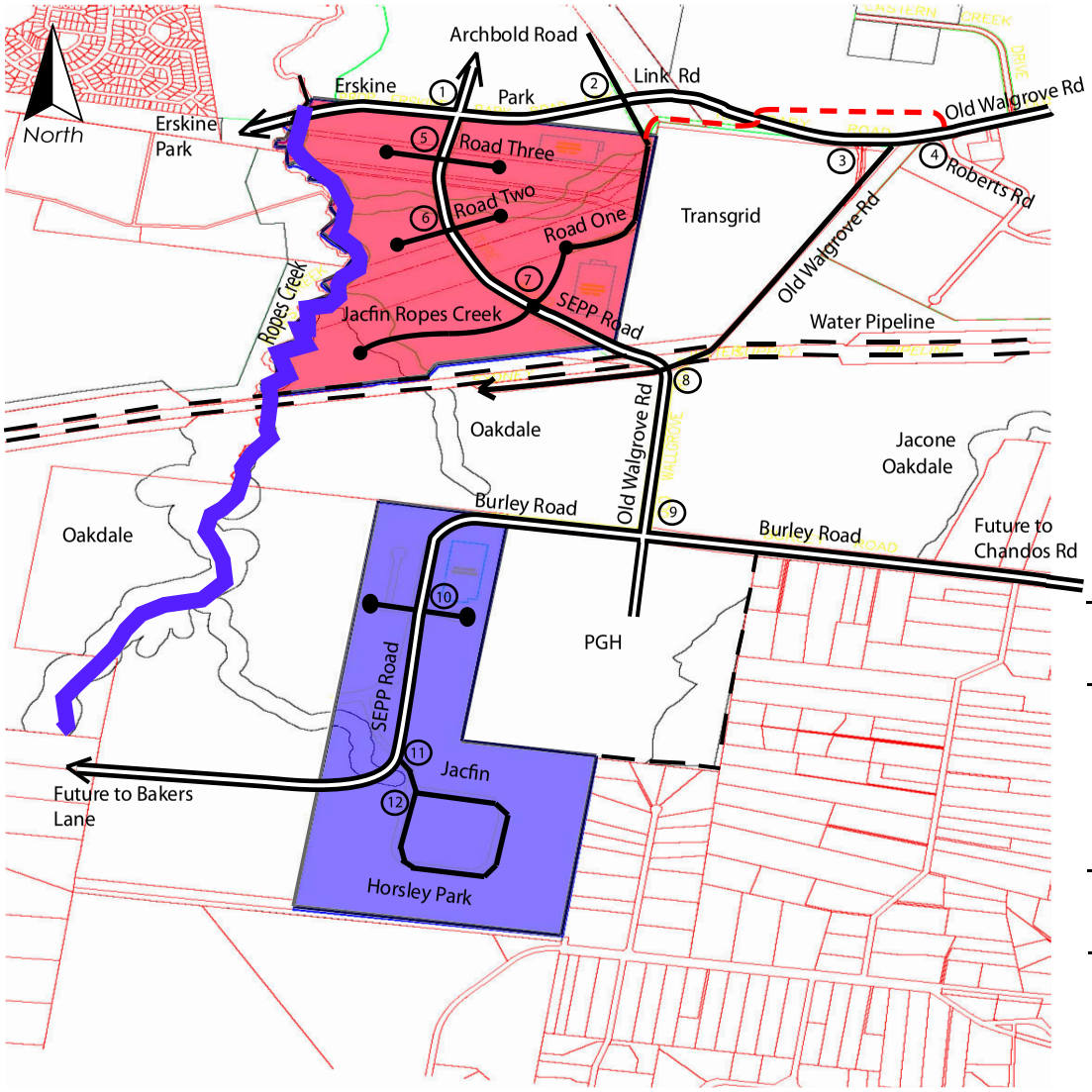
Figure D.2

FUTURE PEAK HOUR COMMERCIAL VEHICLE TRAFFIC FLOWS

LOT A, BURLEY ROAD, HORSLEY PARK - CONCEPT & FIRST STAGE PROJECT APPLICATION



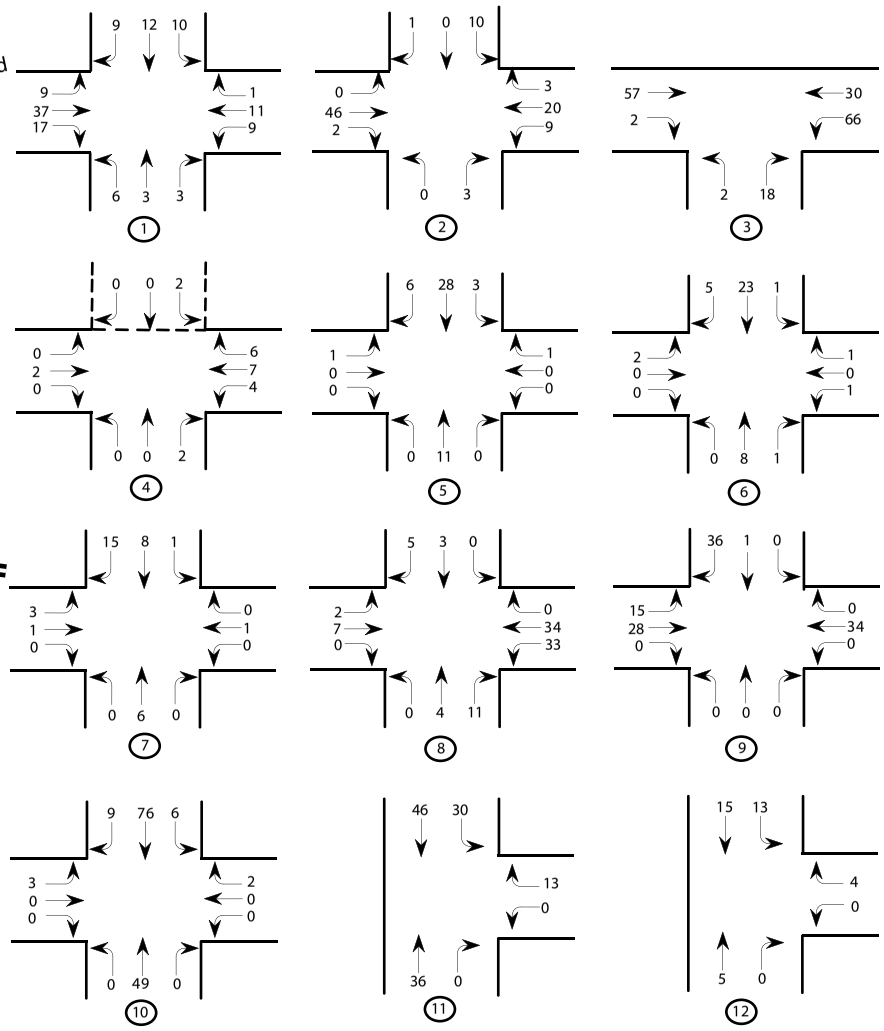


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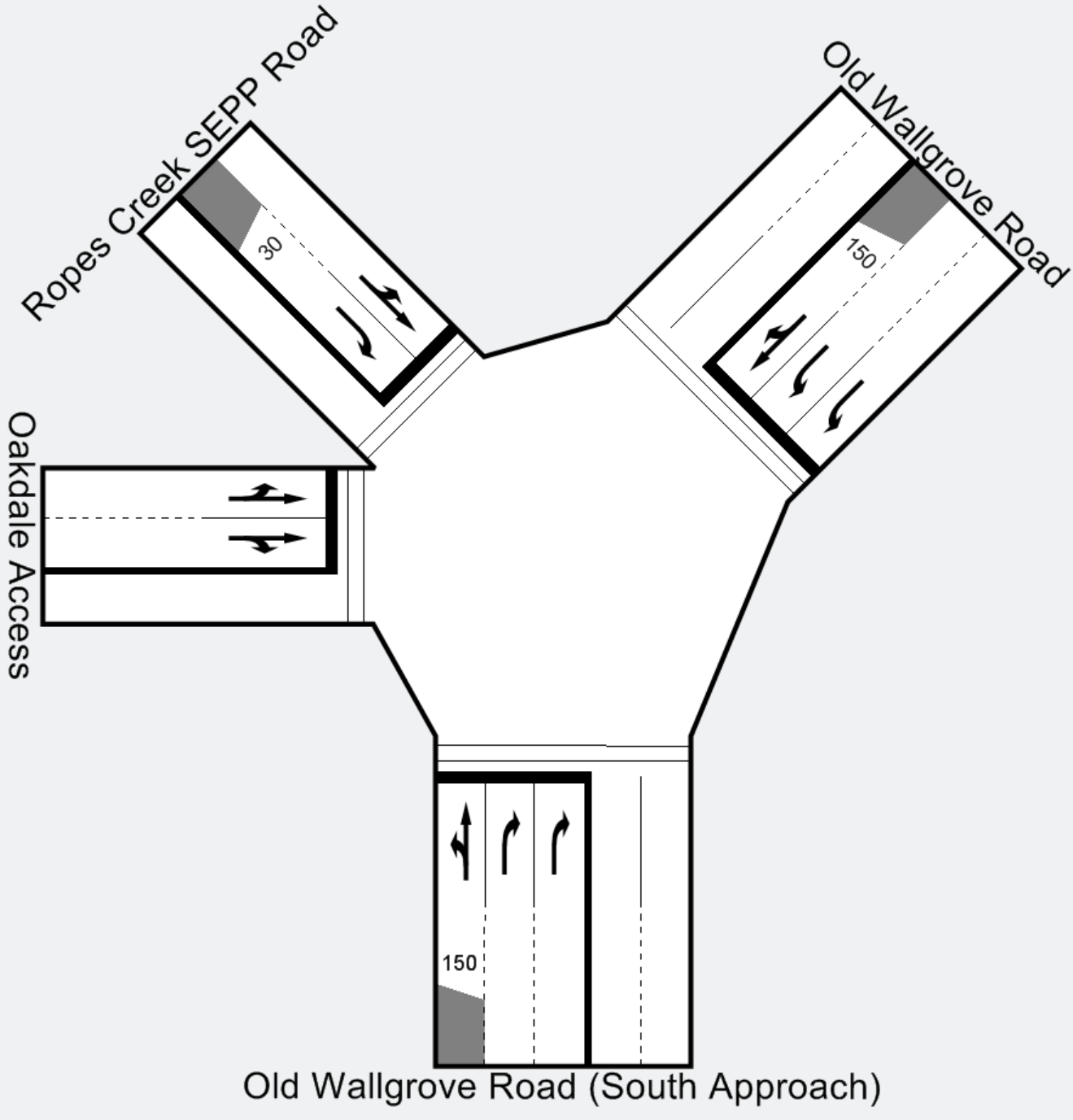
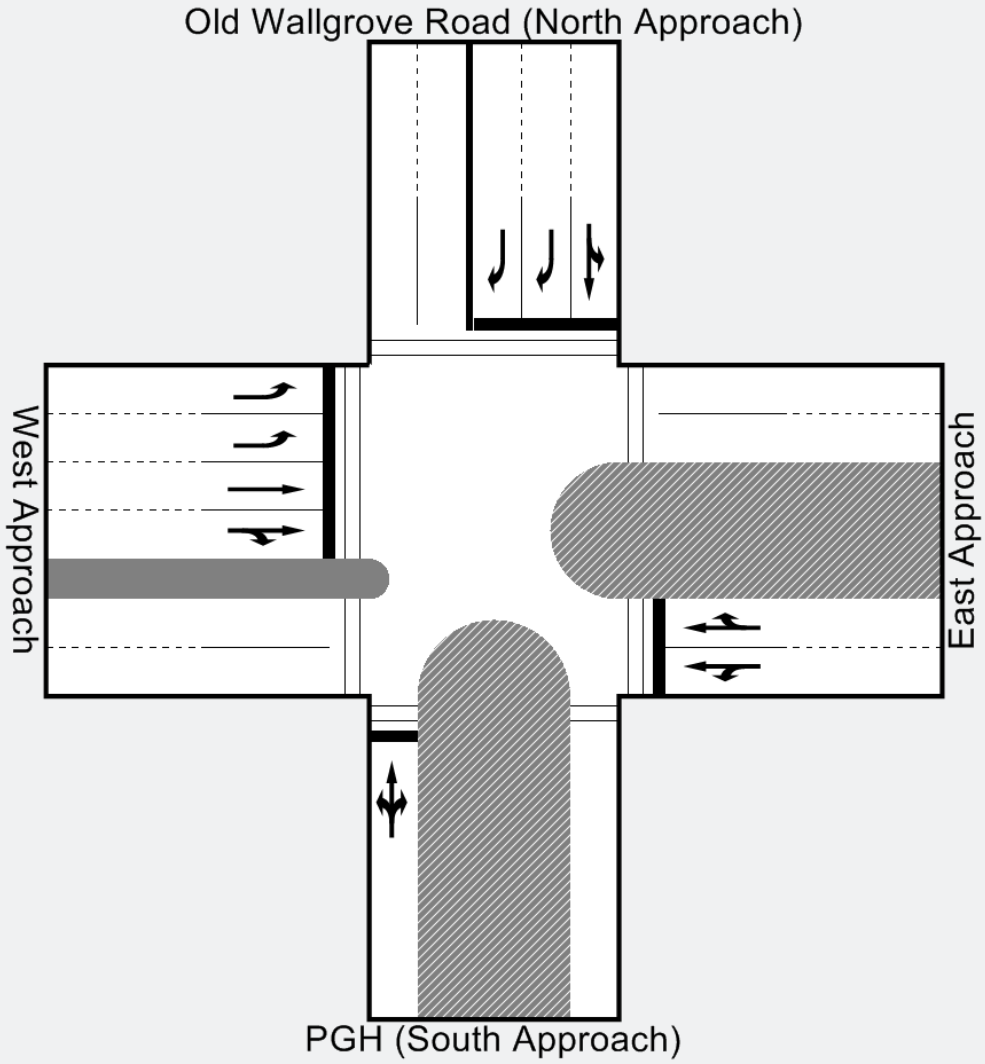
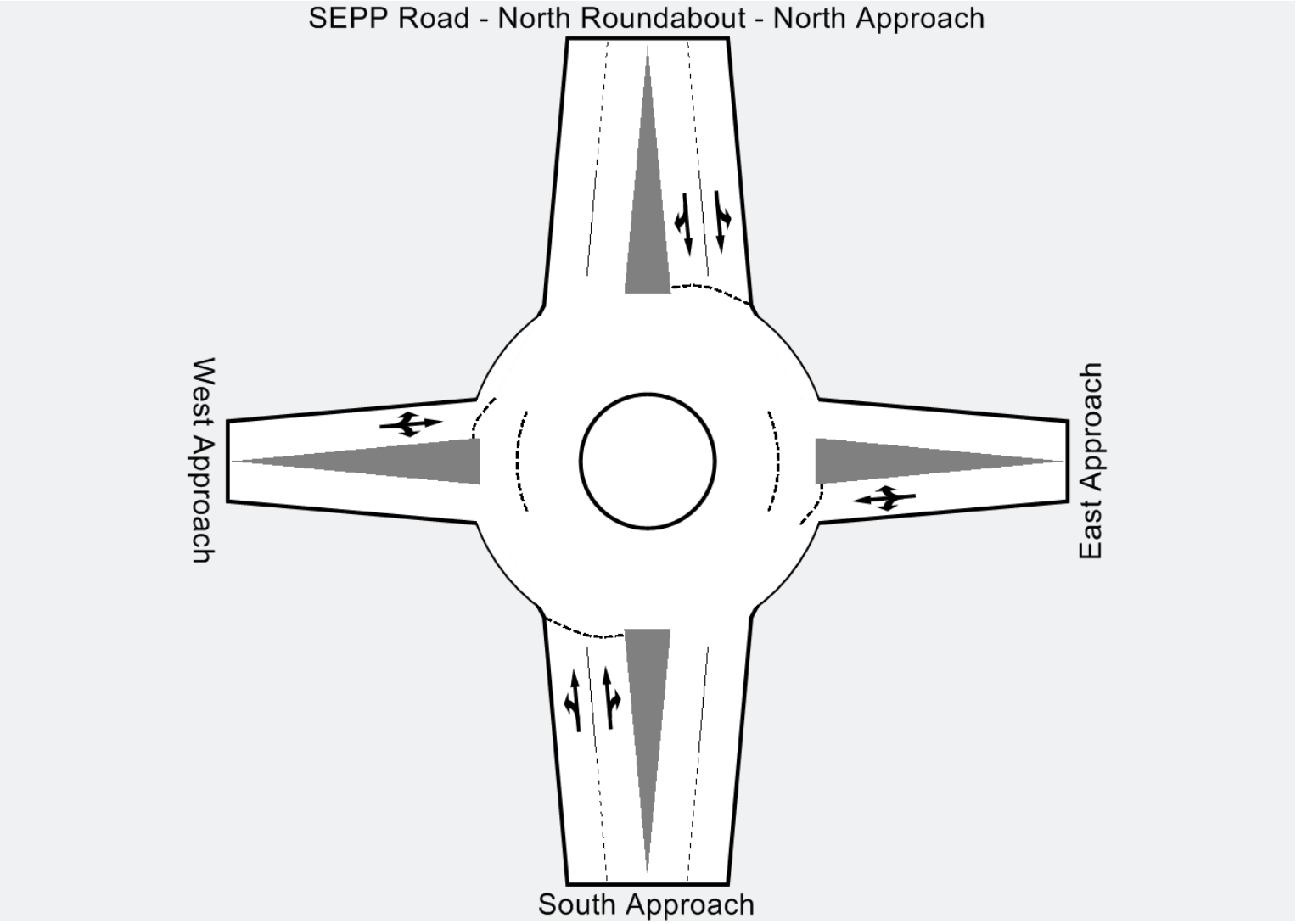
Figure D.3

Appendix E SIDRA Intersection Layouts

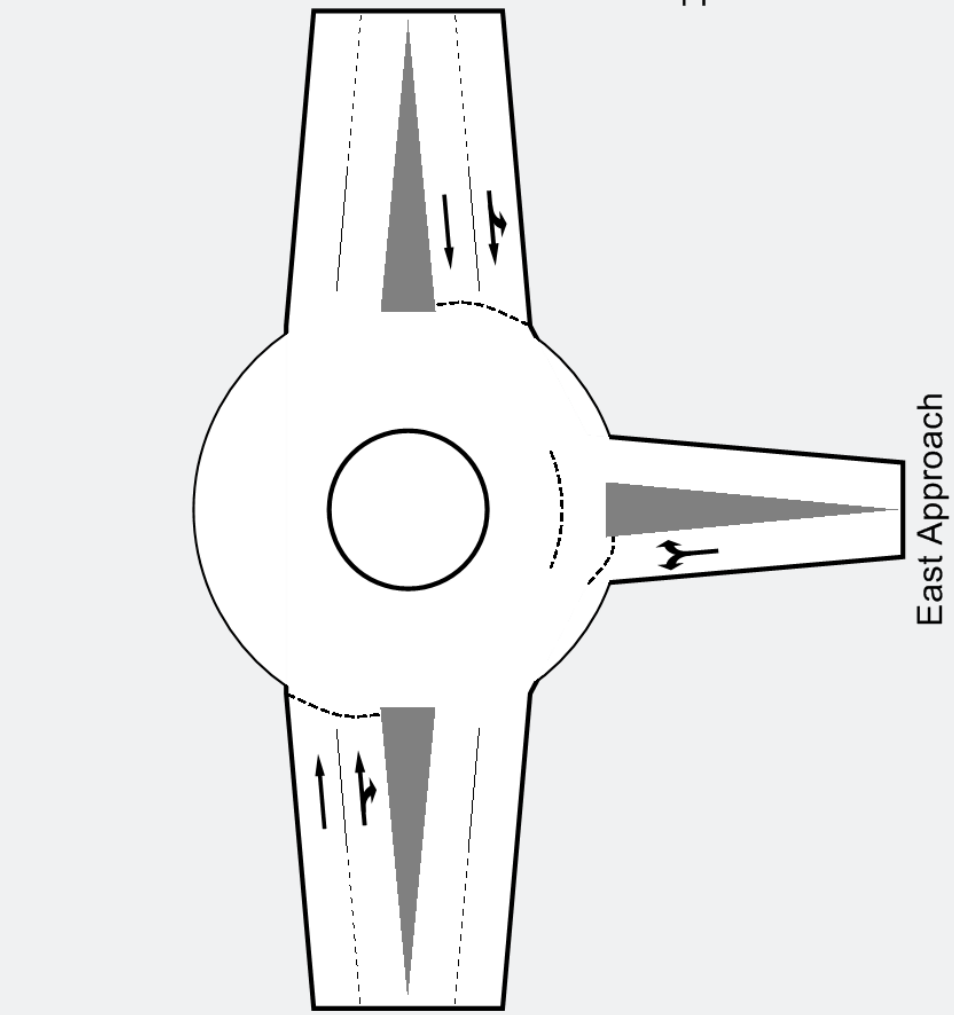
Erskine Park Link Road (West Approach)
100
Erskine Park Link Road (East Approach)
50
50
Old Wallgrove Road (South Approach)

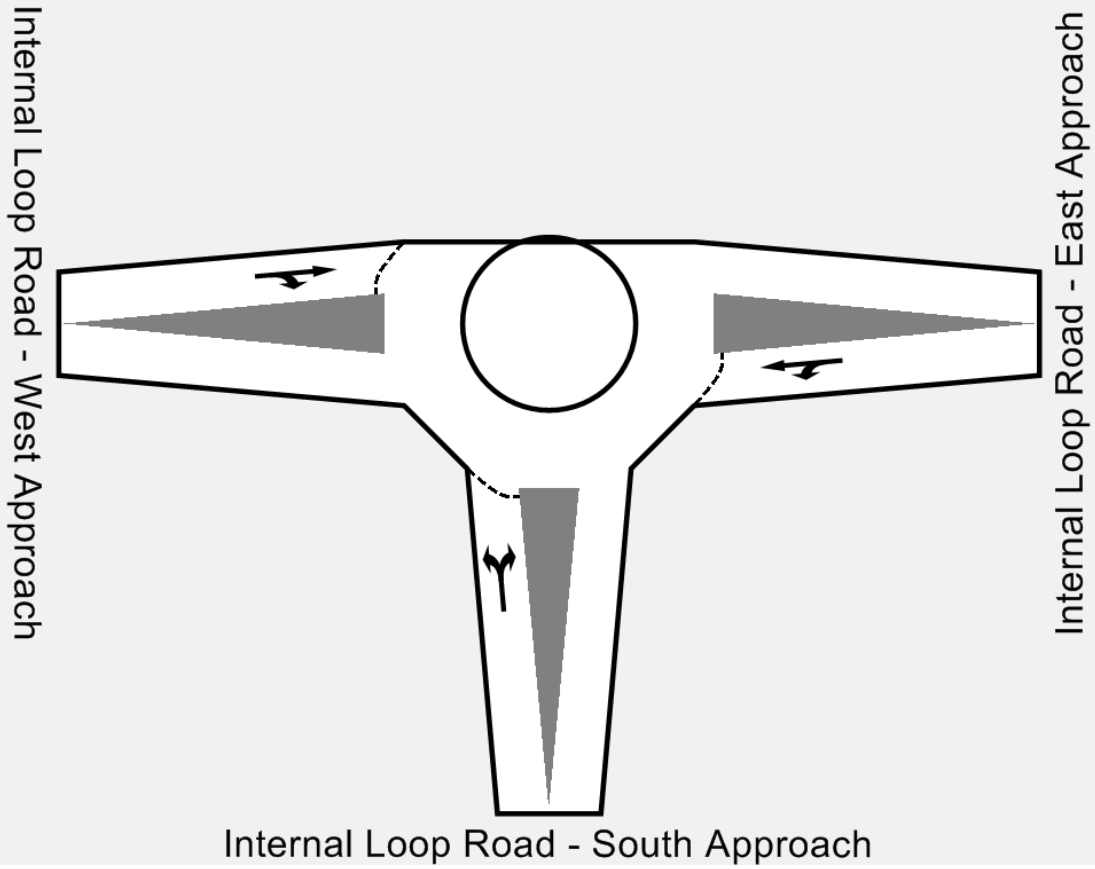

Ropes Creek SEPP Road
Old Wallgrove Road
Oakdale Access
30
150
150
Old Wallgrove Road (South Approach)


Old Wallgrove Road (North Approach)
West Approach
East Approach
PGH (South Approach)

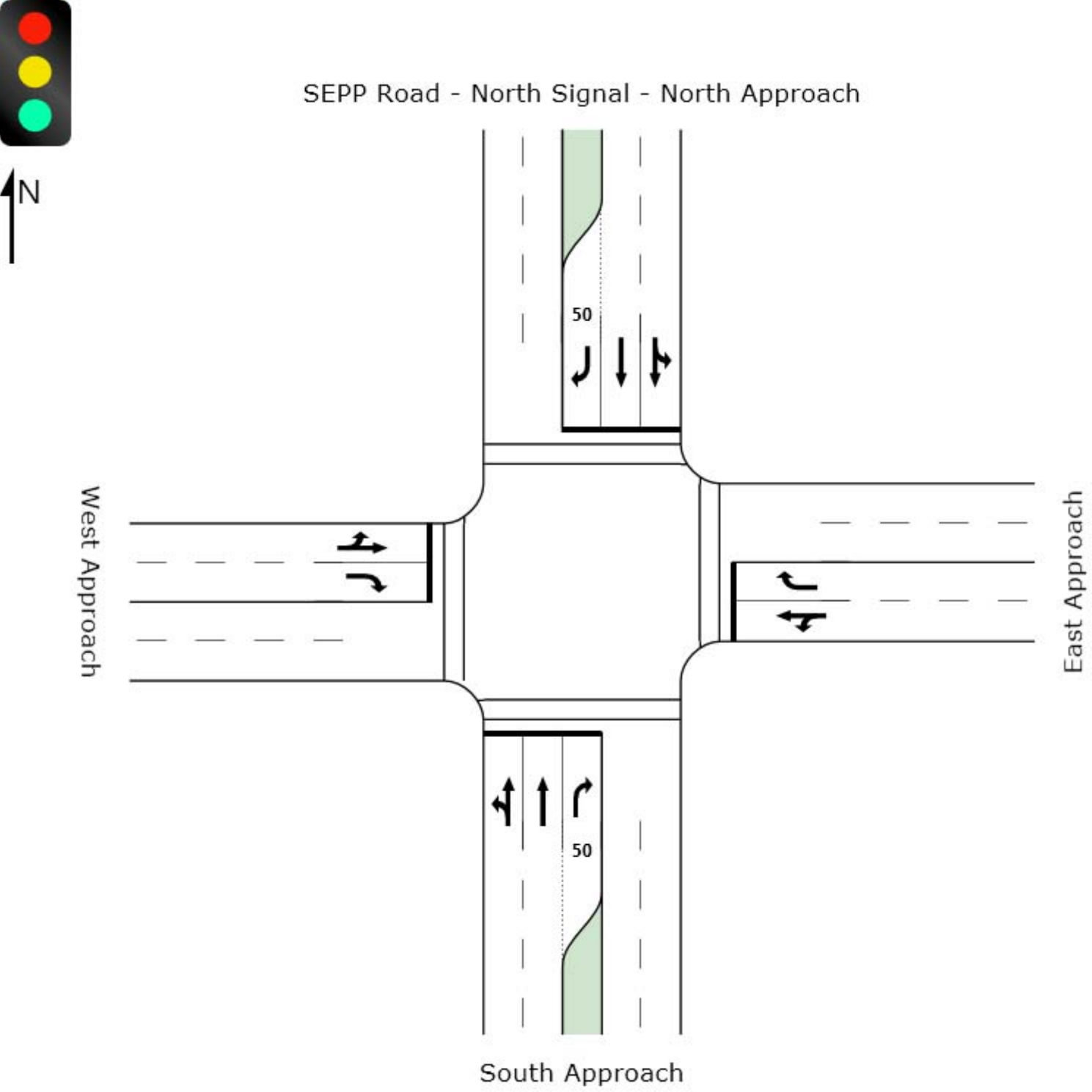

SEPP Road - North Roundabout - North Approach
West Approach
East Approach
South Approach

SEPP Road - South Roundabout - North Approach

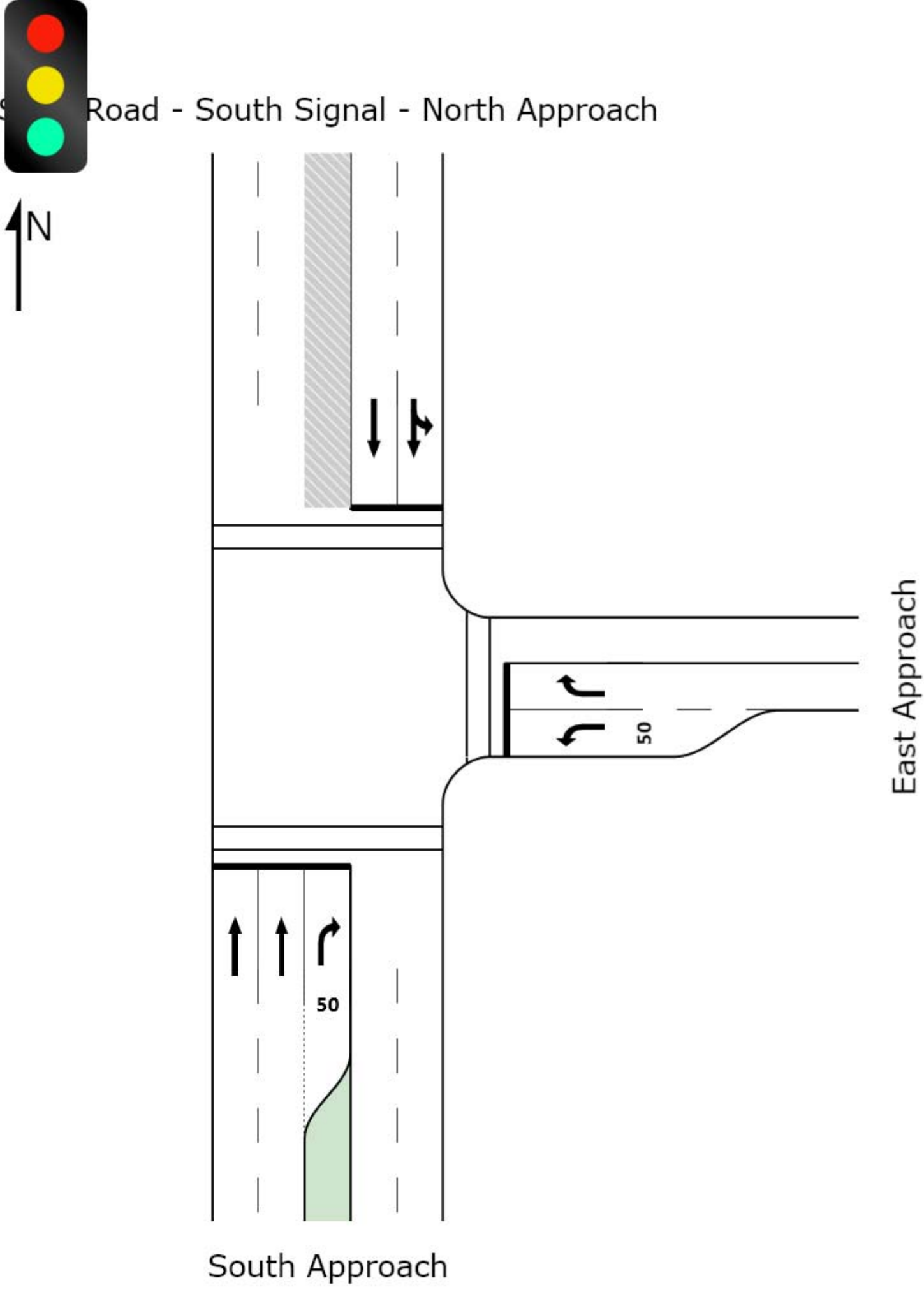



Internal Loop Road - West Approach
Internal Loop Road - East Approach
Internal Loop Road - South Approach

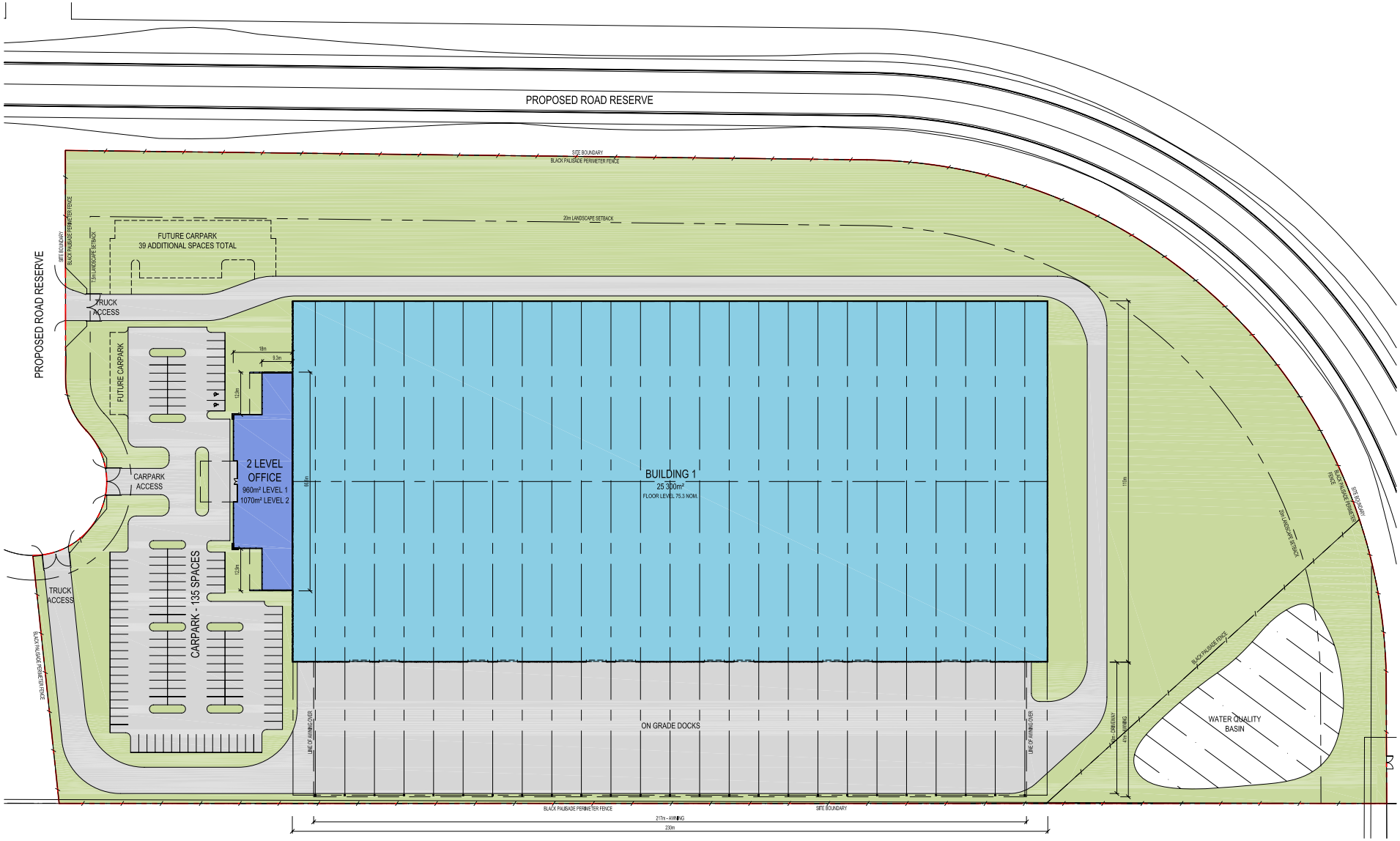
SEPP Road - North Signal - North Approach



Road - South Signal - North Approach



Appendix F Project Application Plan



KEY PLAN

AREAS

WAREHOUSE	25 300m²
DOCK AWNING	8 900m²
OFFICES	2 030m²
• LEVEL 1 - 960m²	
• LEVEL 2 - 1070m²	
SITE AREA	7.4 HA

REV.	DATE	AMENDMENT	SIGNED
B	16-08-10	KERB LINES TO TRUCK ACCESS DRIVEWAYS REVISED AS PER HALCROW DWG CTLRLTa013 (REC 06-08-10)	JTC
A	28-07-10	ISSUED FOR PLANNING APPROVAL	JTC

CLIENT
JACFIN PTY LTD

PROJECT
HORSLEY PARK
EMPLOYMENT PRECINCT
LOT A BURLEY ROAD

ARCHITECT
MNIA ARCHITECTS
Level 4, 8 Help Street
PO Box 1212
Chatswood NSW 2067
Telephone (02) 9495 6400
Facsimile (02) 9495 6444
mail@mnia.com.au

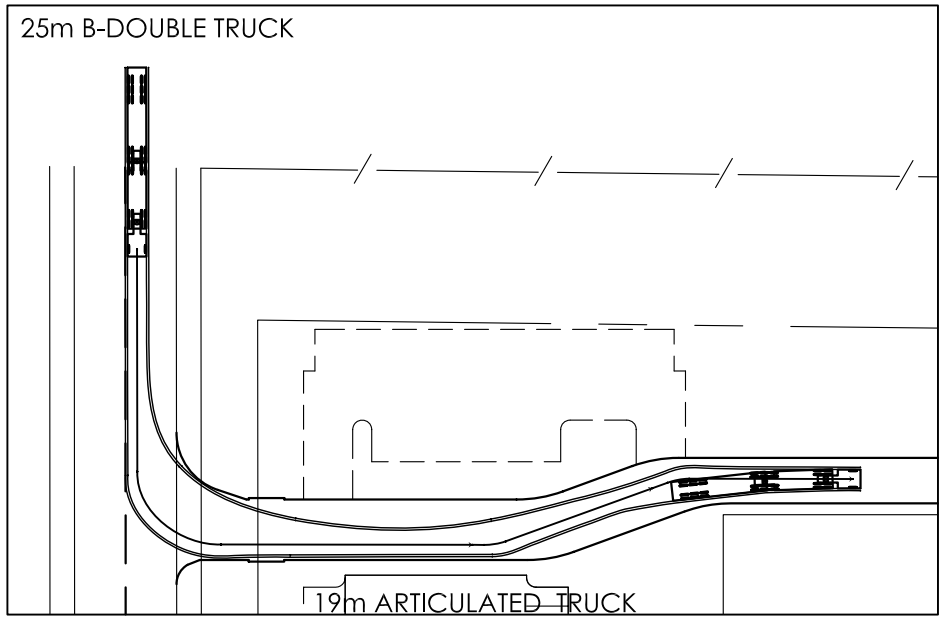
TITLE
HORSLEY PARK BUILDING 1
MASTER SITE PLAN

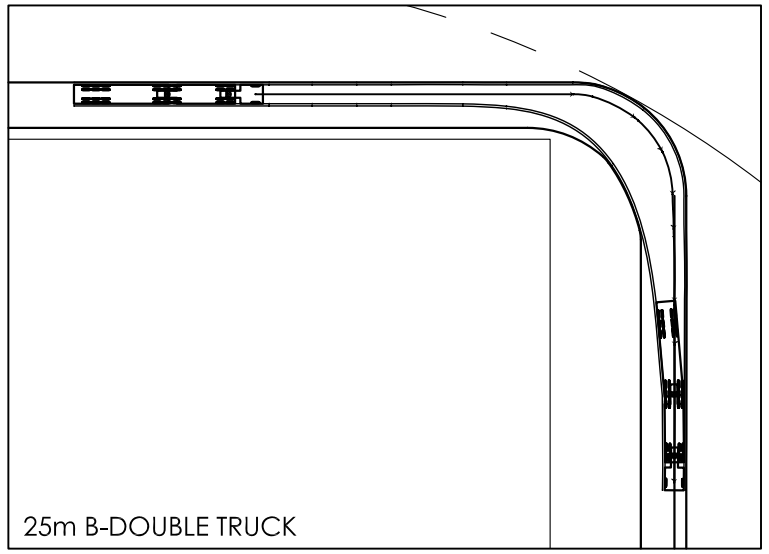
DATE	20-07-10	PROJECT No.	STATUS
SCALE	1:500 (B1)	1024	AR/DA
DRAWN	JTC		
CHECKED		DWG No.	REV No.
APPROVED		DA 01	/B

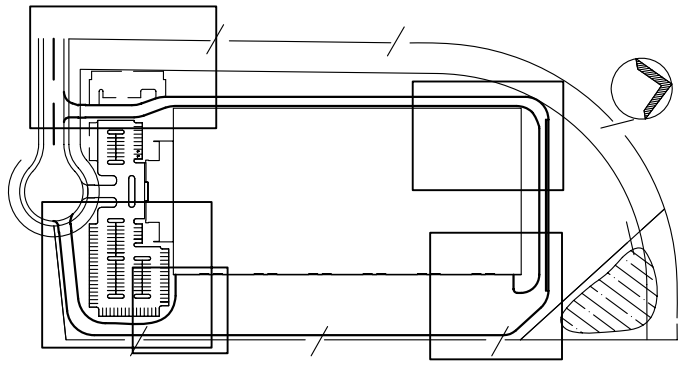
Appendix G Swept-Path Analysis

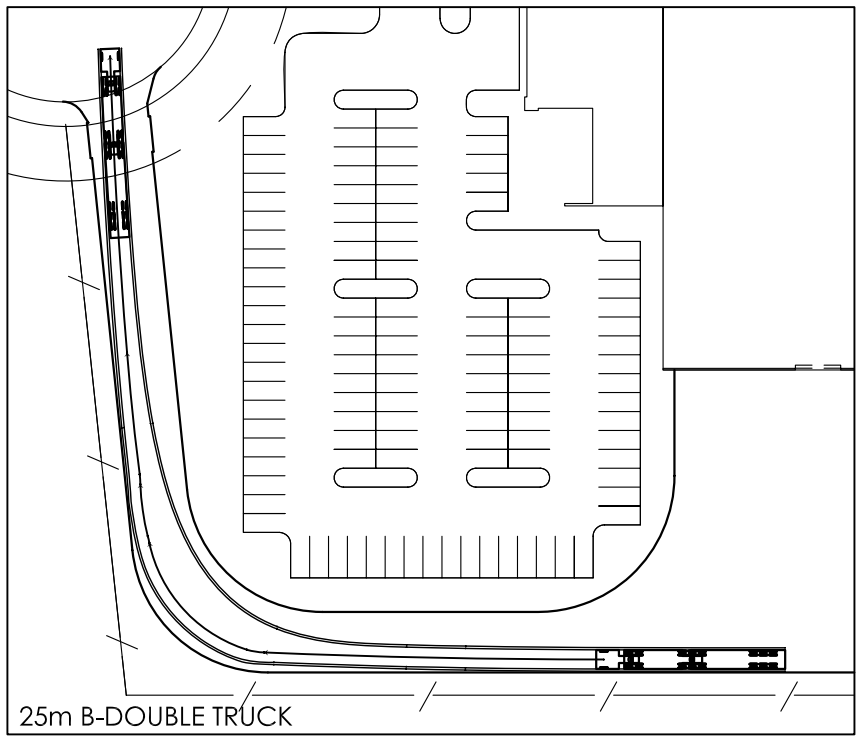
TRUCK SWEPT PATH ANALYSIS

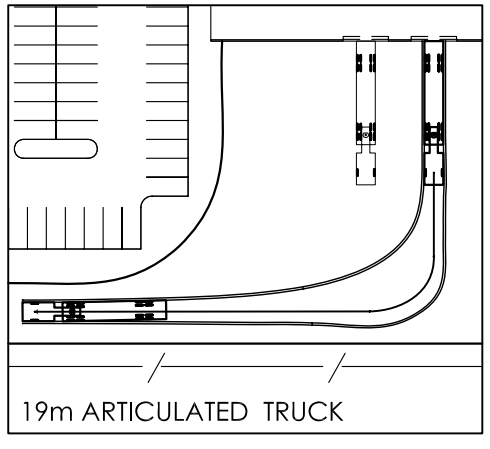
LOT A, BURLEY ROAD, HORSLEY PARK - CONCEPT & FIRST STAGE PROJECT APPLICATION

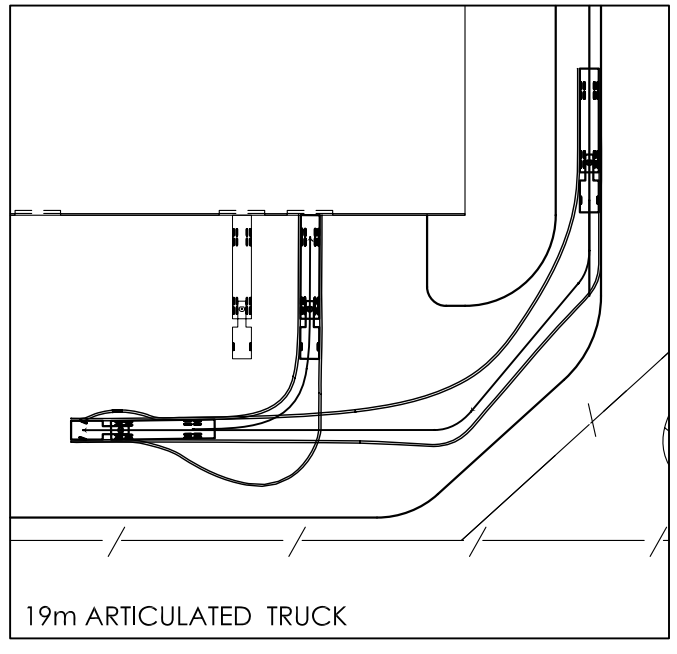












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Filename: CTLRLTda04

Figure G.1

Date: 18 August 2010