ANNEXURE A

TRAFFIC REPORT

Prepared by

TTPA P/L

PROPOSED OFFICE BUILDING
SOPA SITE 13
CNR OLYMPIC BOULEVARD AND
SARAH DURACK AVENUE, SYDNEY OLYMPIC PARK

Assessment of Traffic, Transport and Parking Implications

May 2008

Reference 07232

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LIST OF ILLUSTRATIONS

1. INTRODUCTION

This report has been prepared for A V Jennings Properties Pty Limited to accompany a Development Application to the Department of Planning for a proposed new office building at Site 13 in Sydney Olympic Park (Figure 1).

Sydney Olympic Park is evolving as a destination based mixed use precinct comprising a range of landuse types and complementing existing facilities including the Olympic sporting facilities and the Sydney Showground. The principal strategies underpinning the Masterplan for SOP include:

* development of a mixed use town centre with commercial, retail and recreational uses

* provide for flexibility in landuse to facilitate innovative opportunities

* increase the residential population.

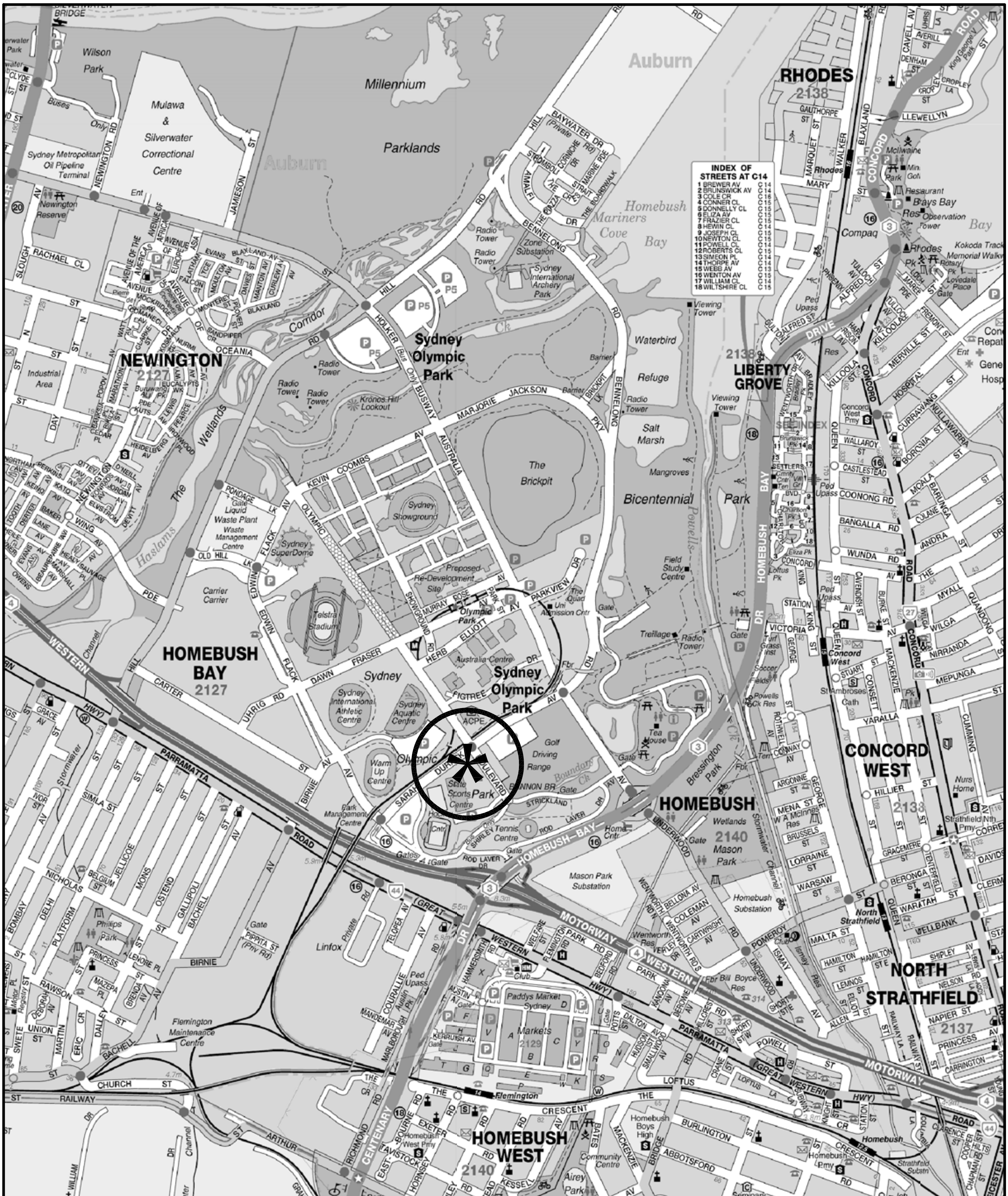
The development site is located in the southern part of the Sydney Olympic Park precinct adjacent to the State Sports Centre and the proposed office building will comprise:

- Building A (5 levels) and Building B (4 levels)
- Total 14,696m² GFA (13,189m^2 NLA)
- 105 parking spaces

The purpose of this report is to:

* describe the site and the proposed development scheme

- describe the road network, traffic and transport circumstances
- assess the potential access and traffic implications
- assess the appropriateness of the proposed parking provision
- assess the suitability of the proposed internal circulation and servicing arrangements.



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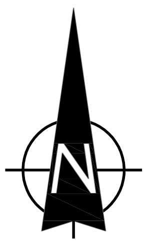

LOCATION

FIG 1

2. PROPOSED DEVELOPMENT SCHEME

2.1 SITE AND CONTEXT

The development site (Figure 2), known as SOPA Site 13, is an irregular shaped allotment of some 4,594m^2 with frontages of some 75 metres to the western side of Olympic Boulevard and some 99 metres to the southern side of Sarah Durack Avenue. The site is bounded to the south by the State Sports Centre and has a 6.0 metre 'fire access' road runs along the southern side.

The site is one of the designated development areas and is located in the southern part of the Sydney Olympic Park precinct adjacent to the Hockey, Tennis and Golf Centres which is immediately to the south. Australia Avenue is a principal access route through the Olympic Park which provides for bus servicing and there is a comprehensive pedestrian and cyclist network for access and circulation.

2.2 MASTERPLAN FOR DEVELOPMENT

The basis for ongoing development in the Sydney Olympic Park precinct was established by the Sydney Olympic Park Masterplan[1] which has the key objective of stimulating development and activity to support SOP as a unique centre within the Sydney Metropolitan Area. The planning document envisaged development potential comprising:

Commercial floorspace	-	110,000m^2
Entertainment, leisure, retail	-	45,000m^2
Cultural	-	35,000m^2
Hotel	-	24,000m^2
Residential apartments	-	1,300

[1] *Sydney Olympic Park Masterplan 2002*

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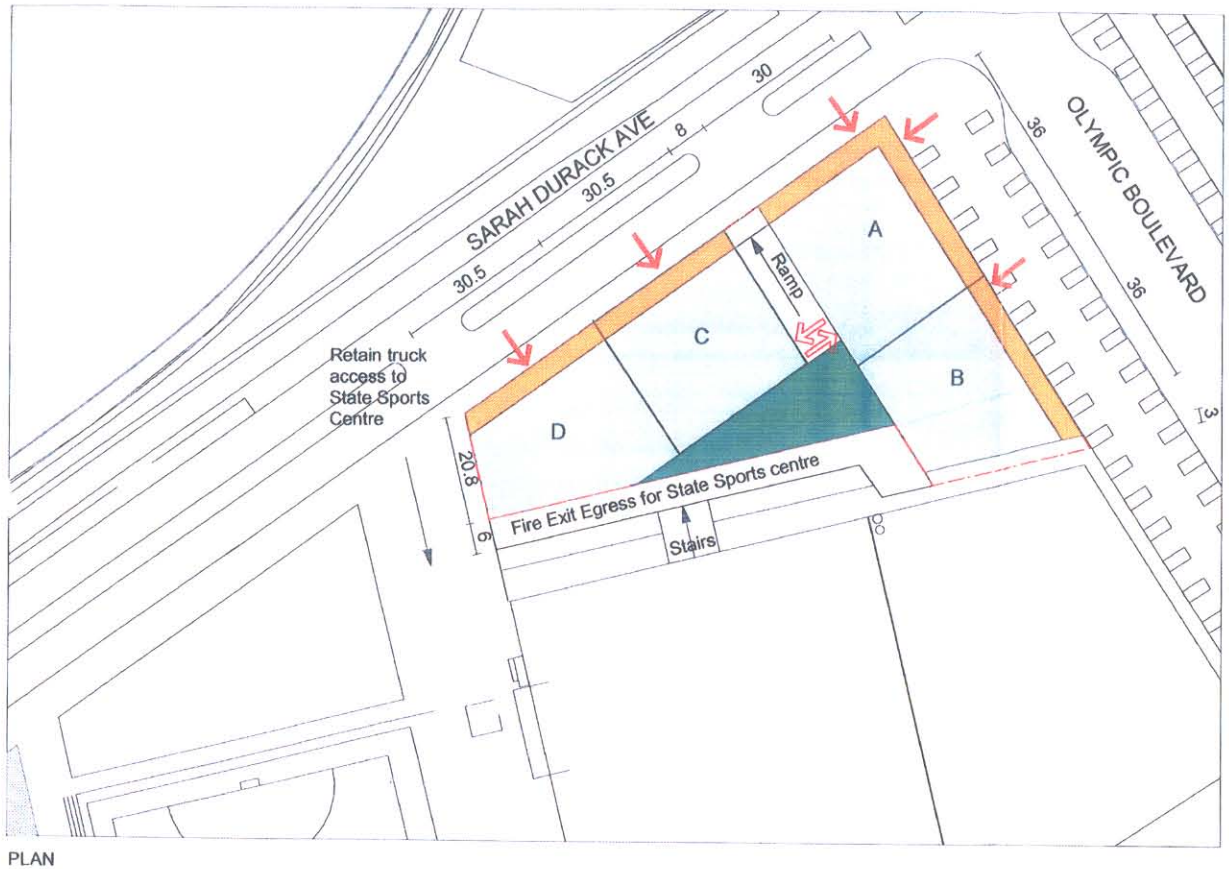
SITE

FIG 2



PLAN

Building Code of Australia Requirements

1.
The existing 6m wide fire egress exit on the northern side of the State Sports Centre is to be retained and not encroached upon. This is to allow the safe passage to a public road for patrons of the centre in the event of an evacuation and to facilitate potential NSW Fire Brigade's access and intervention.

2.
Should any adjacent building be constructed up to the boundary of the State Sports Centre, that building is to be designed to be capable of withstanding a heat flux of 80kW/m2 as required by CV1 of Section C of the BCA.

3.
Any building proposed to be constructed up the boundary of the State Sports Centre is to have openings protected in accordance with Part C3.4 of the BCA.

	Floor Plate	GFA	NFA
A	1,085m2	4,092m2	3,274m2
B	907m2	3,484m2	2,787m2
C	917m2	3,546m2	2,837m2
D	924m2	3,574m2	2,860m2
TOTAL		14,696m2	11,758m2

TABLE OF AREAS
Note GFA does not include colonnade area.

NT GFA Total - 14,583.5 x 93% = 13,562.6

LEGEND

- Subject Site Boundary
- Dedication for Streets/Parks
- Building Zone
- Additional Extent of Basement Zone subject to Tree Preservation
- Articulation Zone 0% Enclosed Floor Area Occupied only by: Sun Shading Devices, Balconies, and the like.
- Colonnade Zone at ground Floor with Building Zone Above
- Awning Zone
- Easement
- Courtyard
- Preferred Location of Entry Foyer / Vertical Circulation
- Integrated Service Zone (Roof top articulation zone)
- Primary Pedestrian Foyer Entry
- Basement Vehicular Entry
- RL XX Ground Floor/Street RL

Sydney Olympic Park Authority
Site 13 Development Controls

TITLE
Built Form Controls 4 Stories Plan

SCALE 1:1000
DATE 27.01.06

DWG NO C 01 C

This envisaged development forms part of the overall development concept for the Greater Homebush Area much of which is already completed or under construction. The Masterplan contains a number of guiding principles and in respect of 'traffic and transport' and these include:

- public transport and modal split
- internal systems
- parking
- TMAP and traffic capacity enhancement works
- cycle access

2.3 PROPOSED DEVELOPMENT

It is proposed to excavate the site to provide for basement carparking and a level building platforms. The proposed new 4 and 5 level buildings will provide 14,696 m² GFA of office floorspace (arranged to enable a flexible tenancy outcome) with ancillary retail and café areas.

A total carparking provision of 105 spaces will be located on 1 basement level and vehicle access will comprise:

* a combined ingress/egress driveway located for the basement carparking connecting to the existing service access to Sarah Durack Drive

* a service/fire access running along the southern side of the site (providing for service vehicles access to the ground level) which connects to the existing service access to Sarah Durack Drive.

Details of the proposed development are provided on the plans prepared by Bates Smart which accompany the Development Application and are reproduced in part overleaf.

BATESSMART™

Sydney Olympic Park
Site 13

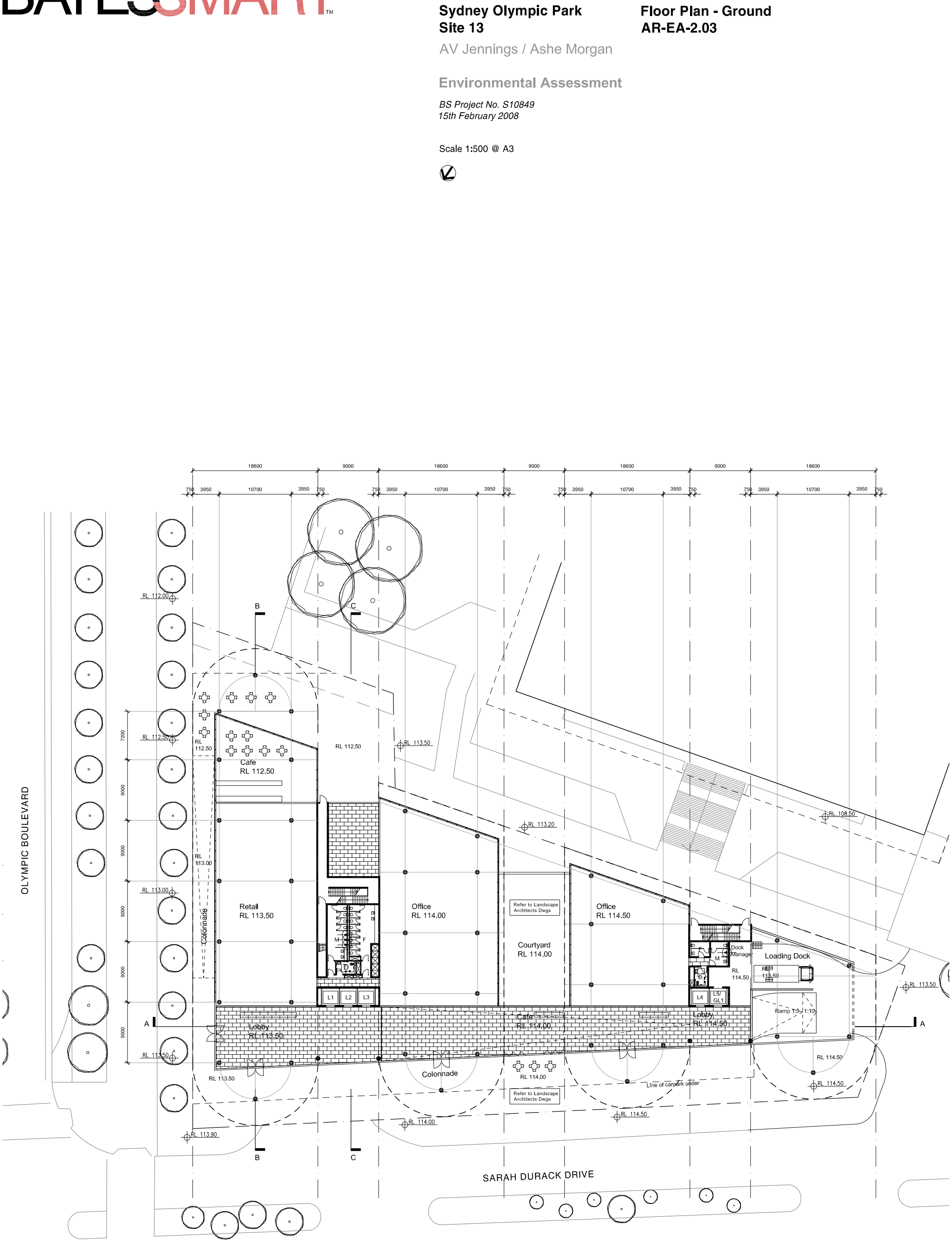
AV Jennings / Ashe Morgan

Floor Plan - Ground
AR-EA-2.03

Environmental Assessment

BS Project No. S10849
15th February 2008

Scale 1:500 @ A3



BATESSMART™

Sydney Olympic Park
Site 13

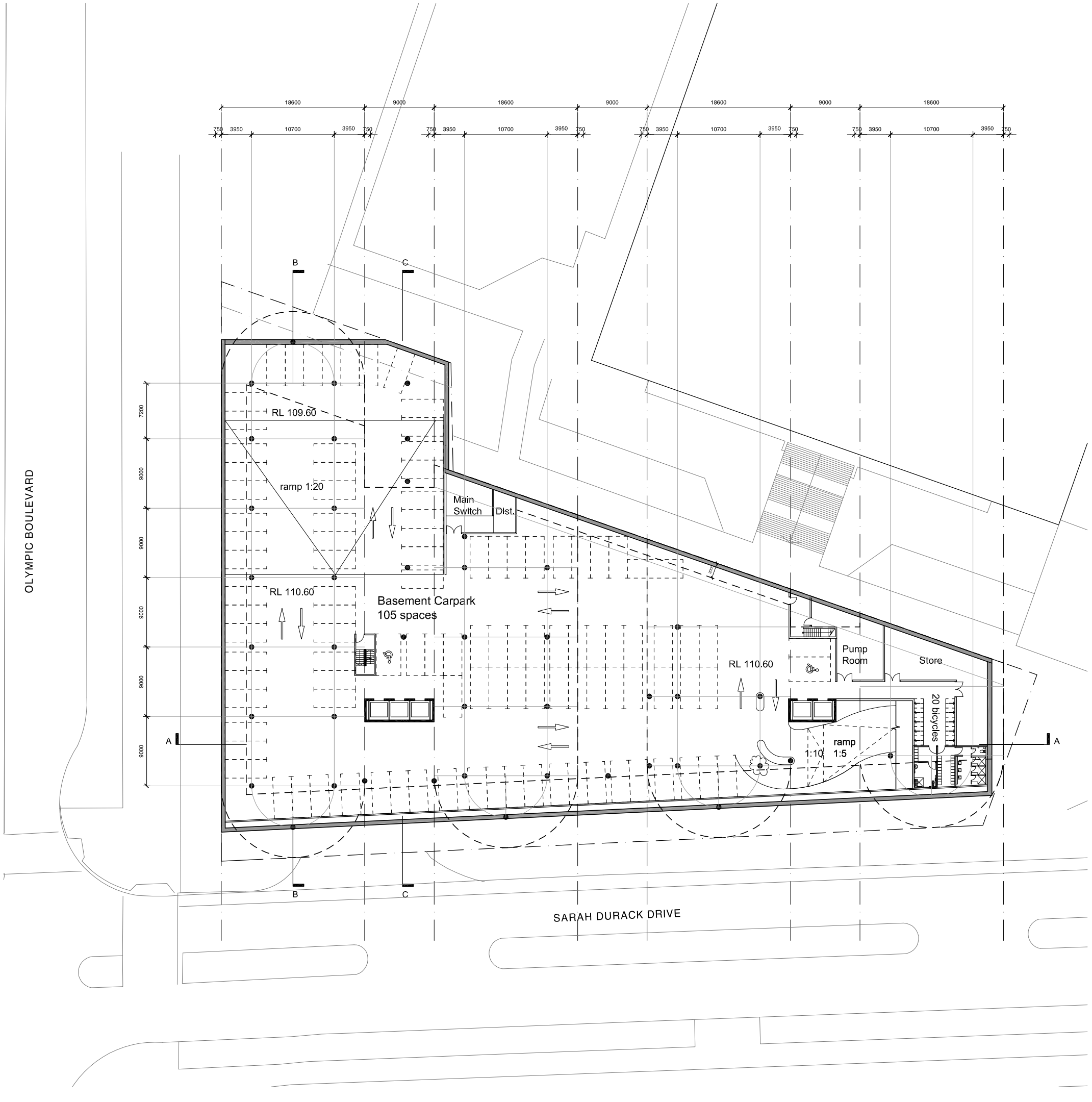
AV Jennings / Ashe Morgan

Environmental Assessment

BS Project No. S10849
15th February 2008

Scale 1:500 @ A3

Basement Plan - Single Level Option
AR-EA-2.01



3. ROAD NETWORK, TRAFFIC AND TRANSPORT CIRCUMSTANCES

3.1 ROAD NETWORK

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

- *M4 Motorway* – a privately operated arterial route which connects between Concord and Penrith. Ramps are provided at Hill Road (eastbound – off) and at Homebush Bay Drive (eastbound/westbound – on/off)

- *Parramatta Road* – a State Road and east-west arterial route linking between the City and Penrith

- *Homebush Bay Road* – a State Road and north-south arterial route being part of the Metroad 3 route across the central metropolitan area

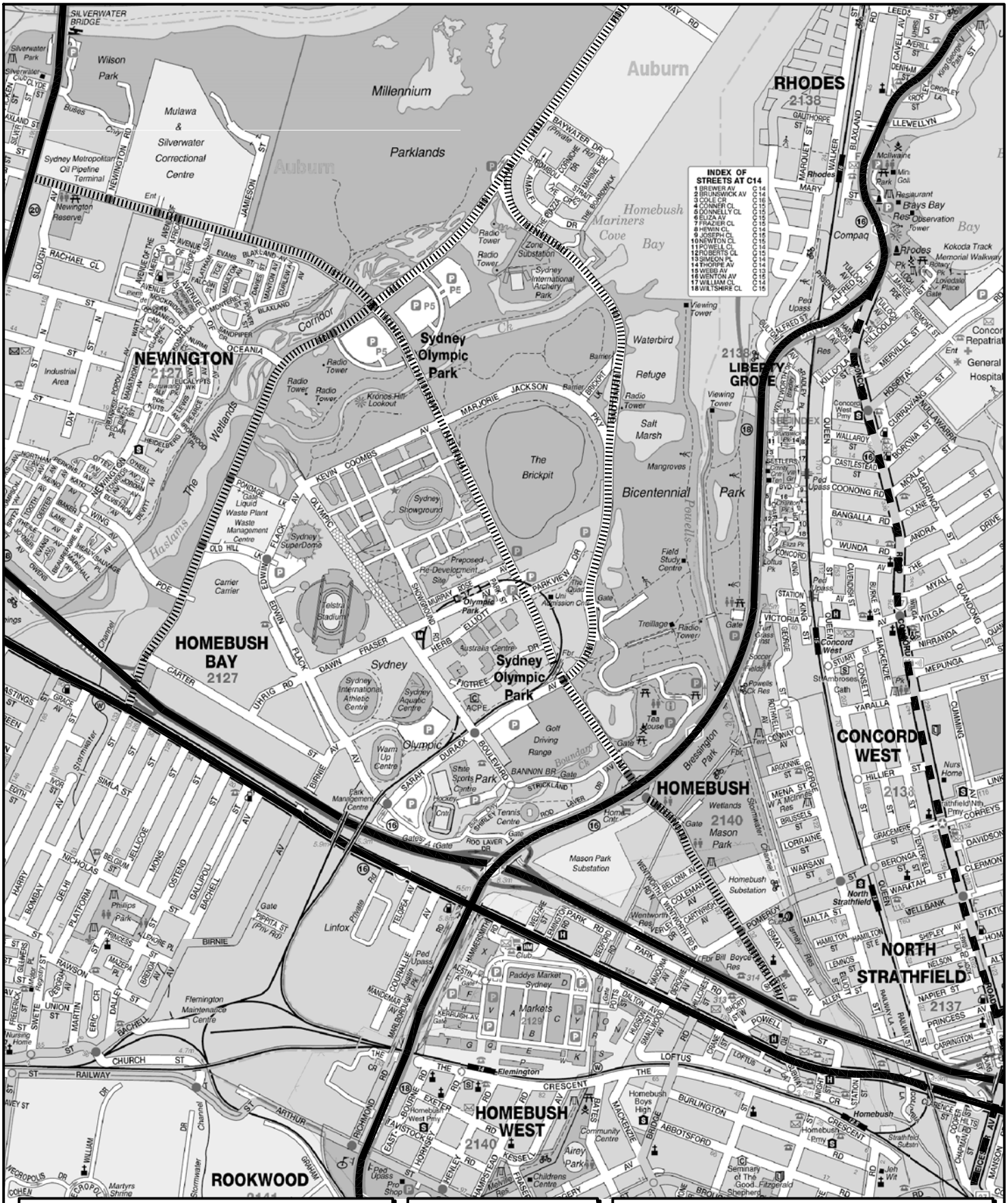
- *Silverwater Road* – a State Road and arterial route linking between Parramatta Road and Victoria Road

- the series of collector road routes serving Homebush Bay and Sydney Olympic Park including Australia Avenue/Holker Road, Hill Road, Bennelong Road and Olympic Boulevard.

Australia Avenue is straight and level with 2 lanes in each direction while Murray Rose Avenue in 2 lanes wide with indented parking lanes and the service road along the northern side of the site is 6 metres wide.

3.2 TRAFFIC CONTROLS

The existing traffic controls on the road system (Figure 4) include:



ROAD NETWORK

FIG 3

- the traffic signals at the Olympic Boulevard and Sarah Durack Avenue intersection

- the traffic signals on Australia Avenue at the Sarah Durack Avenue intersection

- the ONE WAY easterly restriction along Murray Rose Avenue (west of Park Street) and ONE WAY westerly restriction along Dawn Fraser Avenue

- the 60 kmph speed restriction on Sarah Durack Avenue and 40 kmph on Olympic Boulevard

- the full time NO STANDING restrictions along the Olympic Boulevard and Sarah Durack Avenue routes

- the ONE WAY westerly restriction along the service road at the northern side of the site

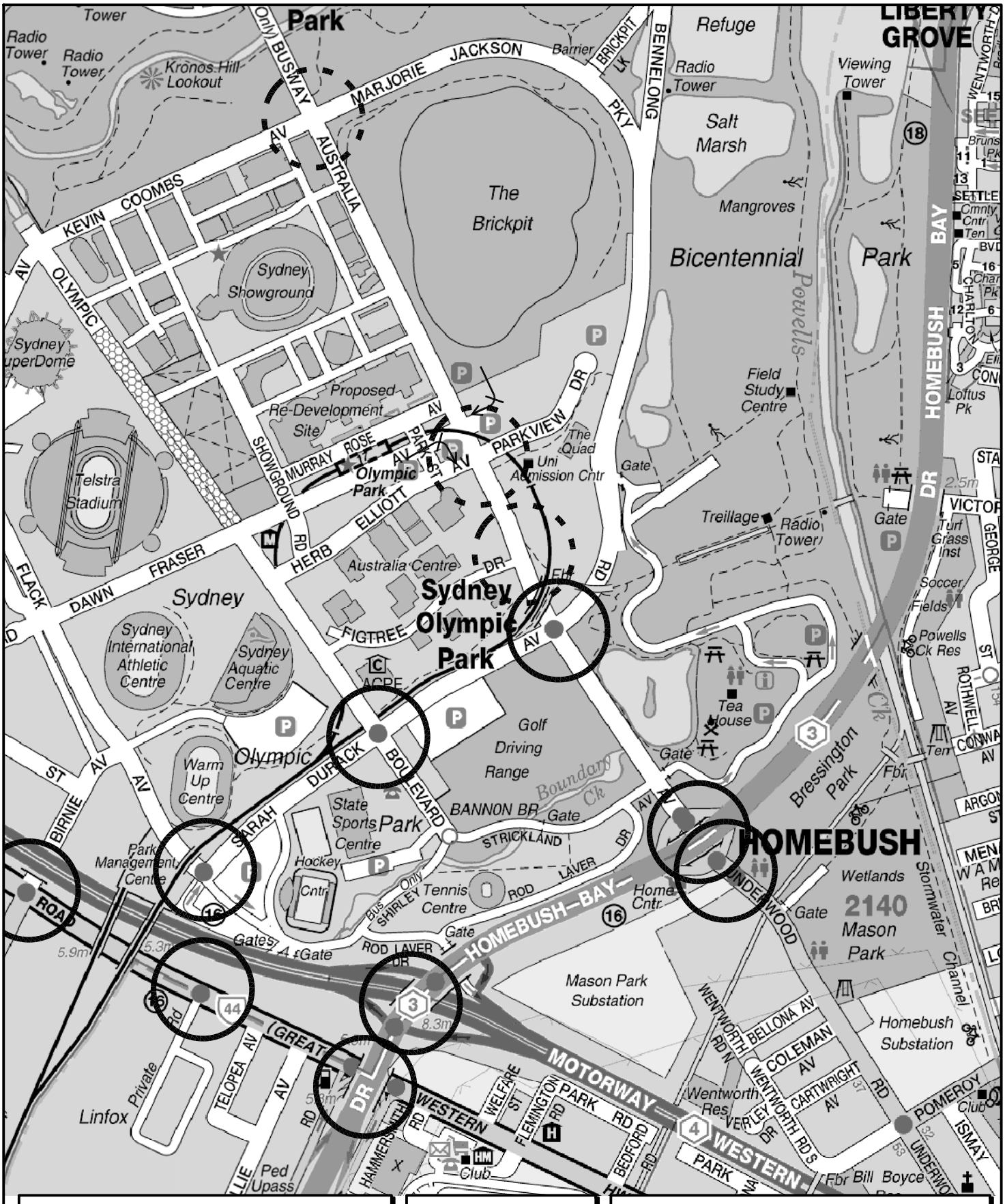
- the indented parking lanes on Sarah Durack Avenue.

3.3 TRAFFIC CONDITIONS

An indication of the prevailing traffic circumstances is provided by published[2] peak period traffic data and operational performance assessments of intersections in the area as follows:

	Existing Two-Way Traffic Flows	
	AM	**PM**
Silverwater Road at Holker Avenue	3,987	3,751
Holker Avenue west of Hill Road	1,214	1,032
Australia Avenue west of Homebush Bay Drive	2,259	2,055
Australia Avenue south of Herb Elliott Drive	878	690
Sarah Durack Avenue west of Olympic Boulevarde	600	670

[2] *Cardno Traffic Study for SOPA*



LEGEND

- TRAFFIC SIGNAL CONTROL
- FUTURE TRAFFIC SIGNAL CONTROL
- ROUNDABOUT
- NO RIGHT TURN
- ONE WAY

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TRAFFIC CONTROLS

FIG 4

Existing Intersection Performance

	AM		PM	
	LOS	**DS**	**LOS**	**DS**
Silverwater Road/Holker Avenue	C	1.0	D	0.9
Australia Avenue/Homebush Bay Drive	B	0.7	B	0.7
Australia Avenue/Sarah Durack Avenue	B	0.8	B	0.8
Olympic Boulevard/Sarah Durack Avenue	A	0.2	A	0.2
Australia Avenue/Dawn Fraser Avenue	A	0.2	A	0.2

It is apparent that under normal traffic circumstances the operation of intersections in the Sydney Olympic Park area is quite satisfactory.

3.4 TRANSPORT SERVICES

The public transport modes serving Sydney Olympic Park (Figure 5) comprise:

Train – Sydney Olympic Park is connected to the Main Western Line via a rail loop between Lidcombe and Strathfield. A 30 minute service frequency operates between Lidcombe and Olympic Park Station during weekdays.

Buses and Coaches – Local bus routes connect Sydney Olympic Park to and from Strathfield and Lidcombe Stations and Parramatta. Bus stops are located through the site primarily on Australia Avenue, Olympic Boulevard, Carter Street and Hill Road.

Within Sydney Olympic Park dedicated infrastructure including bus-only roadways, bus terminals and approximately 170 dedicated coach parking spaces support bus and coach operations.

Ferry – A ferry wharf is located at the end of Hill Road and regular services are provided as part of the Circular Quay to Parramatta service. Homebush Bay Wharf is also a destination of charter operators.

Sydney Bus Routes

Olympic Explorer Bus Route

Olympic Explorer Bus Stop

Sydney Bus Stops

Ferry Route

Train Route

Ferry Stop

LEGEND

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TRANSPORT SERVICES

FIG 5

3.5 PEDESTRIAN/CYCLIST NETWORK

The extensive system of pedestrian and cyclist's routes connecting to and circulating within Sydney Olympic Park are shown on Figure 6. These routes have connections to the regional bicycle network and pedestrians and cyclists have a comprehensive provision which is very flexible and acts to encourage these modes of travel.

3.6 FUTURE CIRCUMSTANCES

Future development in the Homebush Bay Area (including that envisaged in the Sydney Olympic Park Masterplan) was the subject of the Homebush Bay Traffic Assessment Reports[3]. That assessment had regard for the individual elements of development (short term and long term) as well as Town Centre development, regular and major event traffic circumstances.

As identified in the assessment the road system serving Sydney Olympic Park will be modified and enhanced in the future with completion of a number of projects, including:

- opening the Holker Avenue Busway for two-way general traffic access. This is programmed to occur within the next 12 months

- provision of traffic signals on Australia Avenue at the Herb Elliott Avenue and Figtree Drive intersections

- prohibition of the right-turn movements into and out of Dawn Fraser Venue at the Australia Avenue intersection

- provision of 50kph speed limit in Sarah Durack Avenue

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[3] *Homebush Bay Traffic Assessment*
Parsons Brinkerhoff 2005

Holker Street Busway Opening, Proposed Short Term Strategy
Parsons Brinkerhoff June 2005

Existing Cycleway and Pedestrian routes

Future Cycleway and Pedestrian routes

LEGEND

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CYCLIST AND PEDESTRIAN NETWORK

FIG 6

- traffic capacity enhancement works at intersections along Parramatta Road and Silverwater Road.

Other proposed and envisaged improvements include:

- increased capacity and service frequencies at the Olympic Park Railway Station
- provision of a pedestrian access at the eastern end of the railway station
- introduction of the Parramatta – Strathfield Bus Transitway through the site
- modification of existing cross regional major event bus services to operate on a regular scheduled basis on weekdays
- extension of the pedestrian/cyclist network
- introduction of Workplace Travel Plans.

4. TRAFFIC

4.1 NORMAL TRAFFIC

The traffic generation of the proposed development will reflect the movements associated with the constrained parking provision (ie rather than a 'generic' rate of vtph/m^2), Typically 60% of office staff arrive/depart within one hour during the morning and afternoon peak periods and this is augmented by some taxi, pick-up/set-down and service vehicle movements. On this basis, the projected traffic generation will be as follows:

105 parking spaces @ 60% - 63 vtph (say 70 with taxi etc)

The assessed distribution of the projected peak movements is as follows:

	AM	**PM**
IN	60	10
OUT	10	60

It is apparent that:

* the projected traffic generation of the proposed development will be consistent with land use, traffic and transport planning for the area (specifically the SOP Masterplan and SOP Traffic Assessment Study)

* the projected traffic generation will be relatively modest in the context of the total precinct and will disperse over a number of approach and departure routes (eg Hill Road, Underwood Road, Homebush Bay Drive, Birnie Avenue and Holker Avenue)

- there will not be any localised problems in relation to site access (particularly given the proposed access controls and the proposed 'opening up' of vehicle access along Holker Avenue.

4.2 SPECIAL EVENTS TRAFFIC

There are a range of events throughout the year at SOP and there are operational plans administered by SOPA for these events. The principal events are:

- major event (40,000 + patrons) and these occur some 10 times each year
- the Easter Show.

For major events Olympic Boulevard is closed northwards from Sarah Durack Avenue from 2.00pm and buses queue along Olympic Boulevard for 8.00pm for pick-up departure times. For 4 or 5 major events per year buses will queue on Olympic Boulevard south of Sarah Durack Avenue.

For the Easter Show period (14 days) Olympic Boulevard is closed north of Sarah Durack Avenue while buses only queue south of Sarah Durack Avenue on the days Good Friday to Easter Monday. Other road closures are also undertaken in the area which results in some slight increase in traffic flows along Sarah Durack Avenue.

At no time during special events is vehicle access to the site precluded by road closures or disrupted by intense pedestrian activity. The adjacent Sports Centre Stairs are only for emergency use.

Whilst Olympic Boulevard north of Sarah Durack Avenue may be closed at these times this will not inhibit the flexibility and availability of multiple approach and departure routes. The traffic generated by the proposed development will largely be confined to the weekday morning and afternoon periods and will therefore not act to compound or conflict with peak event traffic movements. The only potential for this would be perhaps twice a year in the afternoon peak when there is some arrival for State of Origin matches.

The peak generation of the development of some 60 vtph (two-way) is quite minor in the context of traffic movements in and around SOP. As a consequence of the circumstances, traffic generated by the development will not:

* contribute in any perceptible way to event traffic
* be impeded or prevented by event traffic or traffic arrangements from accessing the site.

4.3 CONSTRUCTION TRAFFIC

It is anticipated that consent conditions will specify the requirement for:

* a Construction Traffic Management Plan to be submitted for approval prior to issue of CC

* appropriate liaison and co-operation with SOPA's Site Works Development Co-Ordinator.

The timing of the principal construction activities (eg excavation) in relation to major events is not known at this time. However, the only construction processes which will generate any significant traffic (truck) movements are excavation and major concrete pours.

It is understood that SOPA will not permit trucks to queue on Sarah Durack Avenue. During the relatively short excavation process there may be 5 – 6 trucks queuing on Olympic Boulevard in the morning at start of work while there may be 2 – 3 trucks queuing in major concrete pours. If it eventuates that these activities will conflict with an event, then the CTMP will ensure that trucks are 'held' further afield and communications implemented to 'call in' trucks to ensure no on-street standing.

The nature of the wide existing access driveway and the corridor along the southern side of the site is such that arriving and departing construction vehicles will not adversely impact on the road system. The truck routes will be designated in the

CTMP and the volume of vehicles associated with the process will be far less than the traffic ultimately generated by the development when complete.

The only potential adverse implications could be:

* undue queuing particularly during excavation
* conflict with event/s
* inappropriate site access movements.

The CTMP and liaison/co-operation with Site Works Development Co-Ordinator will act to ensure that these potential problems will not occur (with all loading or unloading occurring off-street). The CTMP will include identification of:

* the duration of each process
* the number of trucks daily/hourly associated with each process
* the hours of work
* the truck routes
* the site access and off-street standing
* the procedures relative to any scheduled event
* worker parking and site induction.

5. PARKING

The transport tenets laid down in the SOP Masterplan document include:

* optimise the available infrastructure (public transport and road)

* target a journey to work mode share for public transport, cycling and walking of 30 – 35%

* generate lower than average traffic levels and encourage higher than usual car occupancy.

The RTA's Development Guideline for the parking provision for office floorspace is 1 space per 40m^2 and this is seen as an unconstrained provision. The Sydney Olympic Park Controls for Site 13 specify a maximum parking provision of 1 space per 55m^2 GFA reflecting the transport planning objectives and contemporary provisions such as those applying for the Rhodes Peninsula. Application of this criteria to the proposed development would indicate the following:

14,696m^2 GFA @ 1 space per 55m^2 GFA = 267 spaces (maximum)

It is proposed to provide a total of 105 parking spaces including 2 suitable spaces designated for disabled drivers and this will comply with the guidelines for a constrained parking provision. There are significant public parking facilities in the vicinity of the site for visitor parking etc or particular peak demand circumstances.

6. ACCESS, INTERNAL CIRCULATION AND SERVICING

Access

The vehicle access provisions for the proposed development connect to the existing accessway on Sarah Durack Avenue at the eastern site boundary and will comprise:

* a 6.0 metre wide combined ingress/egress connection for the basement

* the 6.0 metre wide fire access along the southern side of the building.

These access provisions comply with the AS 2890.1 and 2 design criteria and the requirements of all vehicles requiring to access the site.

Vehicle access arrangements for the Site 13 precinct during the periods of special events will be the subject of determination and management by SOPA.

Internal Circulation

The design of the proposed internal circulation system for vehicles will accord with the AS 2890.1 criteria and the simple two-way system will ensure suitable flexibility and free flow for all vehicles accessing the site.

Servicing

A Loading Area will be located on the western side of the building suitable for accommodating MRV's and vans etc suitable for garbage collection and office/retail/ café supplies etc. Parking provision for couriers and trades persons will also be available in the visitor parking allocation within the basement. A turning path assessment indicating the satisfactory service vehicle access is provided in Appendix A.

7. CYCLISTS AND PEDESTRIANS

Cyclists

The SOP Masterplan has a stated objective to encourage the use of bicycles for commuting and recreation and the guidelines in this regard specify the provision of:

- 1 space per 3 residential apartments
- 1 space per 500m^2 GFA for office/commercial development
- a combination of secure parking for workers and short term parking for visitors
- showers and lockers.

Application of this guideline to the proposed development would indicate the provision of 30 bicycle storage spaces. Accordingly, it is proposed to provide 20 secure bicycle spaces in the basement with access to lockers and showers and 10 spaces on the ground level for visitors (total 30 spaces).

The location of the site will afford direct access to the existing cycleway provisions along Australia Avenue and Olympic Boulevard.

Pedestrians

Pedestrian movements will be facilitated by the provision of a continuous awning shelter along the northern and eastern frontages. Pedestrian movements to/from the building will connect into the pedestrian network particularly along Sarah Durack Avenue and Olympic Boulevard with convenient connection to the railway station and bus services.

8. CONCLUSION

This assessment of the proposed development has established that:

* the proposed parking provision will accord with the established SOPA criteria

* the design of vehicle access, parking and circulation will accord with the appropriate standards

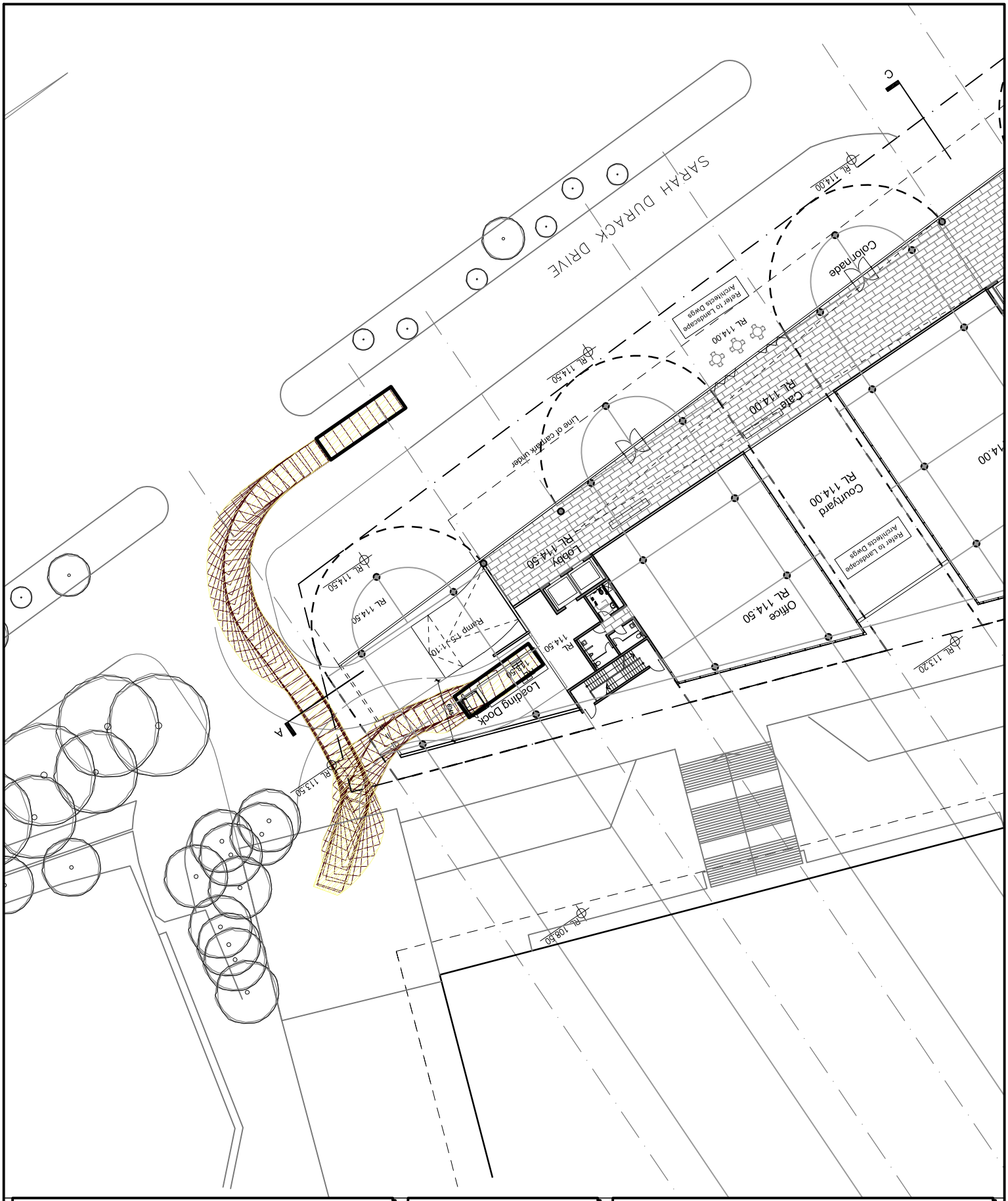
* the proposed vehicle access arrangements will be suitable and appropriate

* the traffic generation will be convenient with that assessed for the SOP Masterplan and will not result in any adverse traffic circumstances

* a high level of public transport use will be achieved as a result of the proximity to bus and rail services as well as the provision for walking/cycling.

Appendix A

SWEPT PATH ANALYSIS



LEGEND

This drawing has been prepared using vehicle modelling computer software AutoTrack V5.00a in conjunction with AutoCAD 2000. The vehicle used is based upon vehicle data provided by Austroads and incorporates a reasonable degree of tolerance. However, it is not possible to account for all vehicle types/characteristics and/or driver ability.

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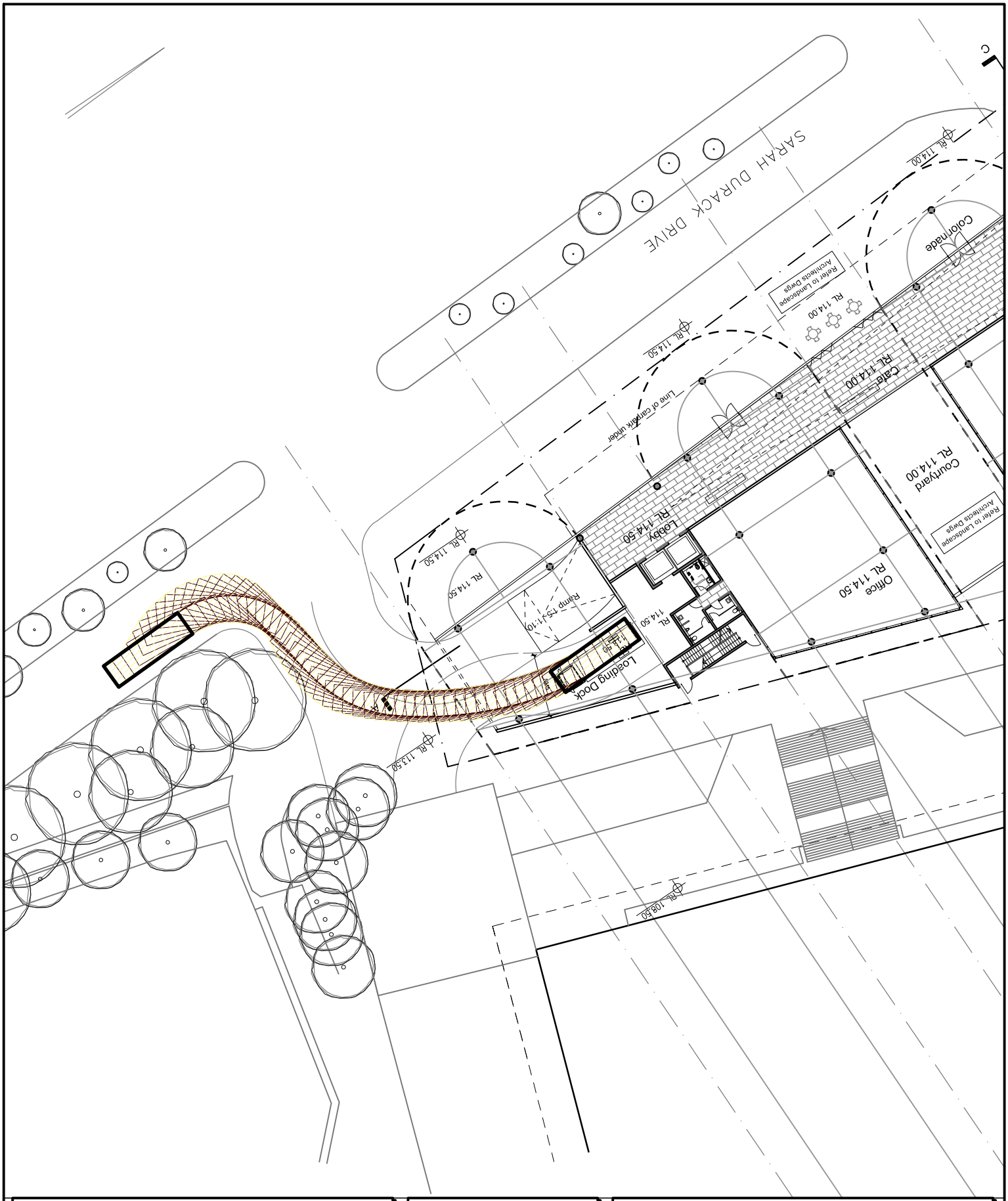
SWEPT PATH ANALYSIS OF AN 8.8m RIGID VEHICLE ENTERING THE LOADING DOCK

SP 1



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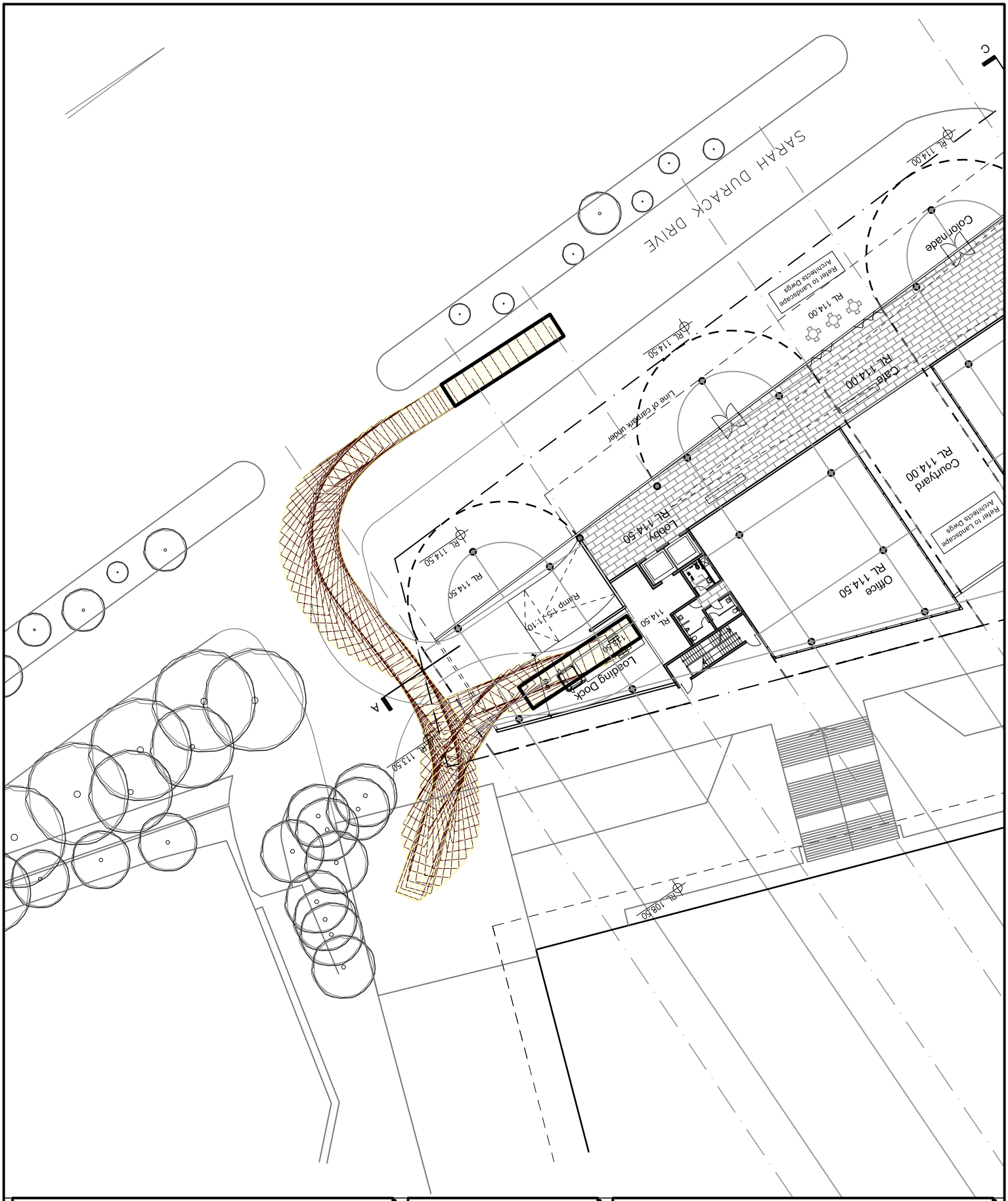
SWEPT PATH ANALYSIS OF AN 8.8m RIGID VEHICLE EXITING THE LOADING DOCK

SP 2



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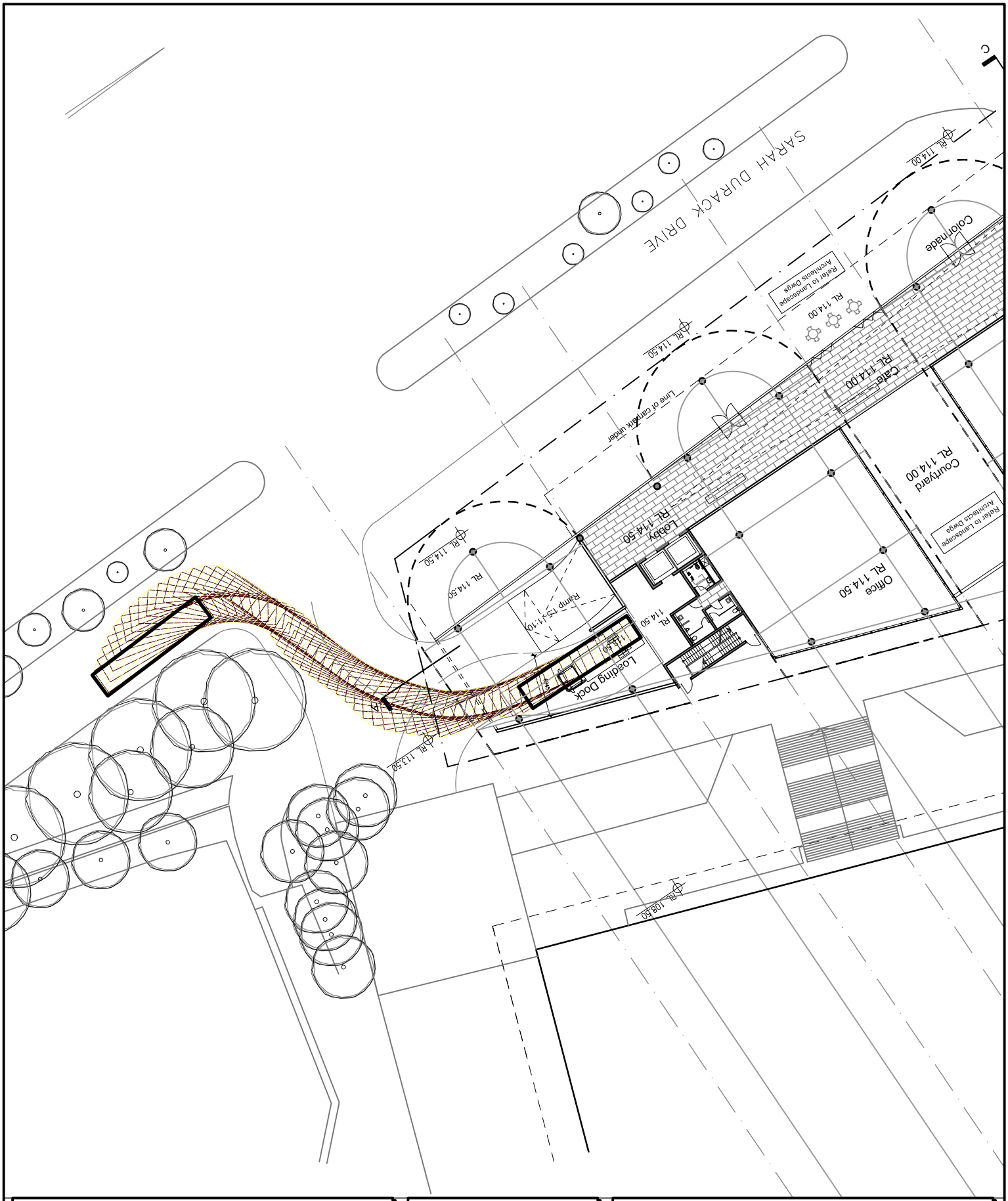
SWEPT PATH ANALYSIS OF A 12.5m RIGID VEHICLE ENTERING THE LOADING DOCK

SP 3



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SWEPT PATH ANALYSIS OF A 12.5m RIGID VEHICLE EXITING THE LOADING DOCK

SP 4