



Proposed Redevelopment of 71-
79 Macquarie Street
Response to Traffic and Parking
Related Submissions

transportation planning, design and delivery

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Response to Traffic and Parking Related Submissions

Issue: A 01/05/12

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1. Introduction

This report responds to matters raised relating to traffic and parking in submissions made in respect of a proposal by AMP Capital and Mirvac Projects to develop a residential/ serviced apartments/ retail development at 71-79 Macquarie Street at Circular Quay.

Chapter 2 of this submission responds to matters raised by the Council of the City of Sydney. Chapter 3 responds to submissions made by or on behalf of private parties. Chapter 4 responds to a consultant report provided by Varga Traffic Planning Pty Ltd on behalf of the Quay Grand Building Owners Corporation.

It is noted that the concept application transport assessment report was prepared by consultant Halcrow. Since it was prepared Halcrow has ceased to offer services in the transport planning and traffic engineering field in Australia. A number of Halcrow staff have moved to work for GTA Consultants who do practise in these fields and accordingly this response to the submission has been prepared by GTA Consultants.

Having considered the application and submissions thereto, the Department of Planning and Infrastructure requested that the applicant address the following two parking and traffic issues:

- Additional justification is to be submitted in support of the car parking rates proposed having regard to those included in the Sydney Local Environmental Plan 2005 and having particular regard to the proximity of nearby transport facilities.
- Additional traffic surveys are to be undertaken to address the concerns raised by submitters on the accuracy of the submitted Transport Assessment Report.

The first one was also raised in the Council of the City of Sydney submission and is addressed on item (a) in Chapter 2 of this report.

Additional traffic surveys were conducted as requested and are discussed in Chapter 4 of this report. Results are presented in Appendix B.

2. Sydney City Council Submission

This submission is generally supportive of the development. In relation to traffic and parking it makes five points as follows:

- a) *Given the site's proximity to all forms of public transport including Circular Quay railway station, ferry wharves, buses, and a future light rail link, the car parking must not exceed the City's current controls prescribed in the Sydney LEP 2005. We note that the provision of car parking as proposed also conflicts with the DGRs which requires, 'the demonstration of a minimalist approach to car parking provision'.*
- b) *Bicycle parking and end of trip facilities should also be accommodated within the basement, in line with the New South Wales Planning Guidelines to Walking and Cycling.*
- c) *The proposal seeks to extend the building over a Council-owned reserve in order to continue the colonnade which exists on buildings to the north of the site. The City supports the closure of this remaining portion of road reserve for this purpose.*
- d) *The proposal to provide an underground link to Quay Grand in accordance with the existing Breakthrough Deed is supported as it removes all remaining vehicular traffic from East Circular Quay, clearing the ground plane to allow for exclusive pedestrian access in this area.*
- e) *The proponent must provide documentation that demonstrates why the proposed basement entry point is preferred over an entry that is accessed from underneath the Cahill Expressway, behind (to the east of) the rail viaduct abutment structure.*

Support for the design in items c) and d) is noted.

In relation to item b) it is noted that bicycle parking and end of trip facilities are proposed. More detail on these aspects will be provided in the future DA.

In relation to item a) it is noted that the matter of parking provision is discussed extensively in the Concept Application Transport Assessment. Arguments in favour of the proposed parking provision which moderately exceeds the LEP parking provisions are:

- The development is aimed at the very high end of the market and owners and tenants in such buildings have an expectation that they will have access to car parking.
- While occupants of such buildings tend to require car parking, they tend to make only low use of their vehicles as they have chosen their residence location because it is highly convenient to their work and leisure activities.
- Because of this surveys of adjoining buildings and by the former RTA at high density residential developments in metropolitan centres indicate that there is not a high correlation between parking supply and traffic generation.
- Having regard to this, the LEP objective of reducing traffic generation by reducing the parking supply is not applicable, rather the traffic generation of residential development in locations such as Circular Quay will be inherently low irrespective of any moderate exceedance of the LEP parking ratios.
- Finally the parking ratios proposed are based on Mirvac's experience of residential expectations in what will be an exceptional apartment development.

In relation to Item e) this is a matter of physical feasibility and is separately addressed in the Submissions Package by others.

3. Public Submissions

3.1 Mr Peter Bulluss and Mrs Amanda Bulluss

Traffic concerns are summarised and responded to below:

Issue

Impacts of extra traffic on Albert Lane and Albert Street

Response

As discussed in Chapter 4 of this report, the proposed development is expected to generate only 21 additional vehicle movements in the morning peak hour and 18 additional vehicle movements in the evening peak hour.

These traffic increases will be reduced to the extent that the removal of the public roadway on East Circular Quay will displace from the area passenger pick ups/ set downs and loading related to businesses in the East Circular Quay business north of Quay Grand. Overall the increase in traffic will only be one vehicle movement every three to four minutes in peak periods.

Such traffic increases are low and would not be likely to have any significant traffic impacts on conditions on roads in the area.

Issue

Albert Street/ Macquarie Street Interface.

Response

Traffic generated by the proposed development will be able to spread onto all of Young, Phillip and Albert Streets. Accordingly impacts at any one point would be low.

Notwithstanding this, resident concerns regarding their access in and out of the area are noted. This is a matter that extends beyond consideration of the subject application and it would be worth a review by representatives of the Council and Roads and Maritime Services as part of their ongoing planning for traffic efficiency and amenity in the Sydney CBD.

Issue

Blockages at the Albert Lane/Alfred Street interface.

Response

Observations indicate that while Alfred Street does carry a large number of buses and that delays to traffic leaving Albert Lane do occur, the situation is not very different from other busy parts of the CBD. The situation is not considered to be so severe as to render unreasonable development of the last redevelopment site in East Circular Quay.

The subject site currently gains access via Albert Lane and there is no reasonable alternative thereto.

Issue

Traffic Conditions on Macquarie Street

Response

As the proposed development will have no vehicular access across its Macquarie Street frontage it will not generate any significant traffic on Macquarie Street north of Albert Street. Foreshadowed valet parking on Macquarie Street is not proposed.

Issue

Truck noise due to manoeuvring.

Response

It is proposed that all loading take place within the site. With the confinement of all loading for both Quay Grand and the subject proposed within each site and the elimination of open air loading in the East Circular Quay roadway which is to be closed to traffic, there should be an overall reduction in noise due to service vehicles.

Issue

Trucks may be too long for the proposed development.

Response

It is anticipated that there would be a consent condition that limited the size of trucks that could service the development. This would allow the Council to take action if nuisance due to large trucks was to occur.

Notwithstanding this, it is proposed that building management implement a loading management plan whereby all deliveries to and from the site would need to be given a time slot and in doing so restrictions on vehicle sizes and protocols for loading on the site would be advised.

3.2 Briony Mitchell on Behalf of Quay Apartments Owners Corporation

Issue

As there are no serviced apartments in Quay Apartments there is concern that a traffic generation survey of this site may not properly reflect traffic generation of the proposed development because it would have serviced apartments.

Response

In fact serviced apartments typically have lower traffic generation than permanently occupied apartments as they tend to be used by short staying residents who do not have cars. Thus use of traffic generation figures from the Quay Apartments does not detract from the traffic analysis.

Issue

Traffic Survey issues

Response

Results of traffic surveys conducted are appended to this submission in Appendix A.

Issue

Service Vehicle accommodation capacity.

Response

The proposed development can accommodate up to three service vehicles at once. This is in accordance with Sydney City Council DCP requirements.

As stated above, use of those spaces will be the subject of a plan of management.

Issue

Performance of Alfred Lane.

Response

This is discussed above in terms of an increase in traffic. As with any change in the CBD, there will be a need to review traffic and parking controls and to implement enhanced enforcement immediately after changes are made.

In this regard it is noted that all changes including any pedestrianisation of parts of roads in the area will need to be approved by the Sydney Traffic Committee after consultation with local residents and businesses.

Issue

Timing of Traffic Survey.

Response

The Transport Assessment report explicitly states that a check survey was made outside of the school holiday period and was found to be consistent with the survey in a school holiday period.

More recent survey information is provided in Appendix B of this submission.

Issue

Construction Traffic Management Plan.

Response

It would be premature to provide a Construction Traffic Management Plan at Concept Application stage as the Concept Application only seeks to outline details of the proposed development. It would be appropriate to provide an indicative construction traffic management plan at future DA. A final construction traffic management plan would then be prepared for approval of the Council Local Traffic Committee prior to the commencement of construction.

3.3 Leonie Bell

Issue

Concern at access to Quay Grand being made worse. Access roadway should be by a two lane roadway 8.5m wide.

Response

The matter of vehicular access to Quay Grand and to the proposed development is addressed in full in Chapter 4 of this report.

According to the Australian Standard minimum required roadway widths in a car park are 5.5m for two way car traffic and 6.5m for two way truck traffic. As discussed in Chapter 4 of this report, 6.5m width will be provided for trucks in the straight section of the proposed car park. However on the curved section at the entry to the car park, the balance required to provide suitable vehicular access to the site and a high quality through site pedestrian link will not allow two trucks to pass. A traffic management system will be implemented to regulate truck flows through this section (See Chapter 4 of this report). The connections to the site between the entry driveway and Albert Lane will be maintained as they presently exist.

Issue

Request for a Construction Traffic Management Plan

Response

As mentioned above, such a plan will be provided with a future DA.

3.4 Carmel Holmes

Issue

There are already traffic issues for Quay Grand residents. The proposed development will result in unacceptable waiting times.

Response

This aspect is responded to in detail in Chapter 4 of this report.

3.5 Ian Walters

Issue

None relating to traffic or parking raised.

3.6 Pat Wilde

Issue

Already problems with inadequate provisions for passing lanes, dock facilities, parking generally and visitor parking in particular in the Quay Grand Building. Traffic proposals for the new building do not make adequate provision for removalist vans, garbage trucks, large maintenance vans and the like.

Response

The original design of the Quay Grand building anticipated that all future vehicular access to it would be through the subject site. The current application cannot change traffic facilities within the Quay Grand development. The solution to its internal traffic arrangements will most likely lie with a more rigorous vehicular access management plan being implemented.

Any parking deficiencies within the development have arisen through state and local government policies to minimise traffic generation through limitations on parking provision. However this concern does give backing to the provision of an appropriate level of parking within the proposed development.

In relation to provision for service vehicles in the proposed development, the City of Sydney DCP requires that three loading bays be provided within the development. These will be provided as two spaces for trucks up to 8.6m in length plus one for couriers or smaller vans.

A plan of management will regulate use of these. In this regard it is noted that there will only be a small component of office/retail space in the proposed building so the service vehicle generation of these will be low. Residential and serviced apartment service vehicles will be regulated through a booking system. Waste will normally be collected at night when no other servicing takes place.

3.7 Suzanne Llewellyn-Jones (Abraham)

Issue

Concerned at the adequacy of proposed access to Quay Grand through the proposed development. Objects to single lane access and concerned at how trucks will turn around in Quay Grand.

Response

The matter of access to Quay Grand is discussed in Chapter 4 of this submission. The Transport Assessment Report that accompanied the Concept Plan application provides a diagram illustrating how trucks will turn around within the Quay Grand car park.

Issue

Concern at displacement of service traffic from the East Circular Quay roadway.

Response

When the buildings on East Circular Quay north of the subject site were developed, they were obliged to provide internal loading facilities.

It was always intended that in due course all traffic would be removed from the East Circular Quay roadway except for that directly entering and exiting a future building on the subject site.

The service traffic that presently loads and unloads within the East Circular Quay roadway will need to instead rely on loading facilities within each individual building. This may require more regulation of loading times to ensure that service vehicles arrive and depart in a manner consistent with internal loading facility capacities.

To the extent that this loading traffic is not related to the Amatil and Quay Grand buildings, its displacement will actually assist vehicular access to these two sites.

3.8 Name Obscured

Issue

Proposal does not provide enough capacity for increased vehicle movements under the railway underpass to cater for vehicular access to "2 hotels, bars, restaurants and over 200 residences".

Response

The traffic capacity beneath the railway will be retained. The adequacy of vehicular access to the proposed development beneath the railway and through it is discussed in Chapter 4.

3.9 Simone Hood

Issue

Entrance/ exit driveway in Albert Lane are too small and will cause traffic chaos around the surrounding buildings.

Response

This is dealt with in Chapter 4 of this report.

Issue

Macquarie Street is already at full capacity and unable to cope with exiting traffic.

Response

As discussed in the Concept Application Transport Report and in Chapter 4 of this submission, the traffic generation at the proposed development will be very low. It will spread onto three approach routes. Thus the impact on any one approach route will be minimised.

Issue

Traffic increases in Albert Lane, Alfred Street and Phillip Street will add to an existing traffic hazard.

Response

The traffic increases arising from the proposal will be low at 18-21 vehicle movements per hour. The impact of such low traffic will be low. Nevertheless it may be worth Council's Traffic and Transport Group conducting a study of traffic operations in the area to minimise any illegal parking or standing that might take place.

Issue

Increased noise due to service vehicles.

Response

It is likely that waste trucks that currently service Quay Grand will also service the subject site. Otherwise there will be only a small amount of retails and office space in the development. Residential development is not a major generator of service vehicles.

In addition some delivery vehicles that currently use the East Circular Quay road way will no longer be able to do so.

Overall service vehicles related to the proposal are likely to be relatively low and spread throughout the day. The noise impacts of such activity would be low.

3.10 John Parker

Issue

Traffic congestion due to shared use of the inbound driveway through the proposed development.

Response

This is dealt with in detail in Chapter 4 of this response.

Issue

Suggests a three lane internal roadway within the proposed development.

Response

This is not possible due to space constraints.

4. Response to Varga Traffic Planning Pty Ltd Submission

This submission raises four main issues as follows:

- a) Discrepancy between Halcrow and Varga surveys
- b) Internal access road needs to be modified to allow a truck to pass a car within the site and should comply with the Australian Standard for loading arrangements.
- c) The internal truck turning area should be lengthened to enable a turning truck to stand clear of the internal roadway
- d) Existing on-street loading facilities in front of the existing Amatil building should be retained.

The Concept Plan has been amended to satisfy item (c) above. The other three aspects are discussed below.

4.1 Traffic and Parking Surveys

The Halcrow report provides counts of vehicles entering the Quay Grand building on the basis that when the proposal is completed, the vast majority of other traffic on the roadway adjacent to the Amatil building would no longer have access to East Circular Quay and would be redirected to load and unload elsewhere.

However to settle the matter a further survey of traffic activity was undertaken on Friday 30th March 2012. The surveys involved the following:

- Count of vehicles passing the Amatil building driveway to/from either Quay Grand or on-street parking /loading on East Circular Quay.
- Counts of vehicles entering and exiting the Quay Grand car park.
- Recordings of the arrival and departure time of vehicles that stopped on the East Circular Quay roadway along with the location of goods deliveries. These were either to Quay Grand or to destinations to the north of Quay Grand (recorded as "other").

Results of these surveys are provided in Appendix B of this submission.

Table 4.1 below compares the AM and PM peak hourly flows recorded in the Halcrow, Varga and GTA surveys.

Table 4.1: Comparison of Traffic Survey Results

	Halcrow Survey	Varga Survey	GTA	GTA
	(1) Quay Grand Only	(2) Quay Grand + On Street	(1)	(2)
AM Peak Hour				
In	9	13	11	12
Out	13	25	22	24
2 Way	22	38	33	36
PM Peak Hour				
In	18	22	11	14
Out	9	22	10	8
2 Way	27	44	21	22

The fresh GTA surveys in Table 4.1 tend to corroborate the Varga surveys in the morning peak and the Halcrow surveys in the evening. The conclusions from this is that there is some variation from day to day.

However overall the peak flow into and out of Quay Grand is relatively low at a bit above one vehicle every two minutes.

Appendix B includes the East Circular Quay Loading on-street survey. This recorded 39 on-street loading events between 6.00am and 5.30pm. Observations indicated that only two of these were associated with Quay Grand. 22 of these were car, utility or small van style vehicles. Only seven were large vans or trucks. Of the five trucks recorded, two were medium sized and three were small sized. The implications of this is that all of the vehicles that were observed to load from the East Circular Quay roadway could reasonably be expected to use off-street loading facilities in the building they were servicing.

In relation to service vehicles accessing the Quay Grand building, the survey found that over the day the site was serviced internally by:

- 10 small vans
- 3 large vans
- 9 small trucks
- 2 medium trucks
- 1 medium waste truck
- 25 total vans and trucks.

Externally it was serviced by one medium truck and one smaller vehicle. Typically there were only two or less service vehicle arrivals in any 15 minute period with just one 15 minute period with three.

The proposed development is expected to have only about 80 percent of the apartments in Quay Grand and somewhat less retail/restaurant space.

In view of this it is expected that the combined traffic using the driveway into and out of the proposed development would be as follows:

Table 4.2: Estimate of Future Traffic In and Out of the Site (veh/hr)

	Highest Quay Grand Traffic	Combined Future Traffic
AM Peak Hour		
In	11	20
Out	22	40
2 Way	33	54
PM Peak Hour		
In	18	32
Out	9	16
2 Way	27	45

Note: Allows for removal of existing site generation of 6vph in the AM peak and 3vph in the PM Peak.

Thus it is expected that in peak periods there would typically be less than one vehicle per minute entering or exiting the proposed through site driveway.

Daily service vehicles (excluding car size vehicles) could be likely to total of about 47 Vans or small or medium trucks. Generally there would be about five per hour with maybe two or three in a busy 15 minute period.

4.2 Implications for a Controlled Parking System

Due to external public domain constraints it would not be possible to make the curved section of the internal access driveway wide enough to allow a truck to pass another vehicle. Thus a control system would be required to hold oncoming vehicles while a truck passed. The system would detect a vehicle larger than about 5.5m and then either hold that vehicle while oncoming traffic already in the driveway entry section cleared or, if there was no oncoming traffic in the controlled section, allow the small vehicle to pass while any oncoming traffic arriving after the service vehicle was permitted passage to wait until it was out of the way.

This system is described more fully with diagrams in the following section of this report.

The estimated delay to a vehicle arriving just as oncoming traffic was stopped to allow a service vehicle to pass would be about 35 seconds. This would be the longest typical delay. The average delay to a vehicle arriving while a service vehicle was passing in the opposite direction would only be half this.

This could potentially occur 5 times per hour in each direction during a weekday but much less on weekends and very infrequently at night. In practise not every arriving or departing service vehicle would hold up other traffic because frequently they would not encounter oncoming traffic.

Overall an average delay of about 18 seconds occurring on average maybe five times per hour is not considered to present a serious problem.

4.3 Concept Traffic Control System

As the project is just at the Concept Application stage, internal details are still fluid and will not be finalised until after a design competition is held. Accordingly a potential traffic control system has been developed to a level that establishes its essential feasibility. This is intended to give confidence that traffic effects of the proposed development are capable of satisfactory resolution.

The system will be further explored in the design of an actual building at which time it may prove possible to improve it further.

Figure C.1 in Appendix C indicates that car and car sized vehicles would be able to pass through the proposed car park in opposite directions.

Figure C.2 indicates a lengthening of the proposed truck turning bay within the site so that an 8.6m long truck would be able to stop in it without inhibiting traffic passing it.

Figure C.2 also indicates proposed widening of the roadway beneath the railway between Alfred Street and the car park entrance to create passing positions locally at points A and B.

The principles of the management system would be as follows:

- all vehicles would enter the site using the roadway directly in from Alfred Street.
- all vehicles less than 2.7m in height would make a hard left turn after exiting the car park to travel beneath the railway to access Albert Lane and thence to Alfred Street.
- This would mean that only trucks higher than 2.7m would need to exit via the entry roadway to Alfred Street. This arrangement is similar to that which presently applies.
- The difference would be that the entry roadway would be widened at two locations to allow trucks moving in opposite directions to pass.
- All trucks exiting the car park would be required to stop at the Point C. At this point their height and length would be checked. If no oncoming traffic was detected, a red traffic light would be displayed to hold any subsequently arriving traffic at Point B. After a period of 3 seconds the departing truck would be given a green light to exit.
- Immediately outside the car park signage would direct vehicles with height less than 2.7m to turn left to pass beneath the railway to Albert Lane. Vehicles with height greater than 2.7m would be directed to exit via the direct roadway to Alfred Street.
- Trucks arriving from Alfred Street would be required to pause at Point B to establish their length. If longer than 5.5m they would be:
 - given a green traffic light if there was no oncoming traffic
 - given a red light until any oncoming traffic had cleared.
- Car sized vehicles arriving from Alfred Street would be given an amber light with a "proceed with caution sign" if there was no on-coming traffic.
- Position A would provide a waiting position for a second vehicle if one was already waiting for an exiting high truck to pass at Position B.

This concept management system is considered to be capable of controlling entering and exiting traffic satisfactorily without causing undue delay to regular uses of the subject and the Quay Grand car parks.

5. Conclusions

The proposed development will be a low intensity generator of traffic. Accordingly it will have little impact on traffic leading to and from East Circular Quay.

The East Circular Quay roadway presently serves as a vehicular access to the Quay Grand building and to the subject site. It also accommodates on-street loading which is principally for buildings to the north of Quay Grand. These buildings have purposed built loading facilities and should be able to manage all of their loading within these facilities.

The Concept Plan for the subject site provides an entry driveway that will allow two way movements for car size vehicles but not for larger sized vehicles. However a traffic management system will allow this condition to be satisfactorily managed without undue delay to arriving and departing vehicles.

Overall with a traffic management system in place it is concluded that traffic and parking aspects of the application will be satisfactory.

Appendix A

Original Survey Results

Appendix A



RESULTS

To

Michael Lee

at *Halcrow*

your results for

SYDNEY CBD Circular Quay

supplied by

R.O.A.R. DATA Pty. Ltd.

www.roardata.com.au



R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob.0418-239019

Location:

QUAY GRAND ACCESS

Client : Halcrow

Job No/Name : 3544 SYDNEY CBD Circular Quay

Day/Date : Wednesday 13th April 2011

TRUCKS ONLY

Small Just over car length

Medium Up to 2 car lengths

Large Longer than medium

Time	IN										OUT										Totals
	Lights		Vans		Trucks			Waste			Lights		Vans		Trucks			Waste			
	Priv	Utility	Small	Large	Small	Medium	Large	Small	Medium	Large	Priv	Utility	Small	Large	Small	Medium	Large	Small	Medium	Large	
1200 - 1215	2	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	6
1215 - 1230	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	3
1230 - 1245	2	0	0	0	0	1	0	0	0	0	3	0	0	0	0	0	0	0	0	0	6
1245 - 1300	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	3
1300 - 1315	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2
1315 - 1330	1	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	3
1330 - 1345	1	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	5
1345 - 1400	1	0	0	0	1	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	5
1400 - 1415	1	0	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	4
1415 - 1430	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
1430 - 1445	4	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	6
1445 - 1500	5	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	7
1500 - 1515	1	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	4
1515 - 1530	3	1	1	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	8
1530 - 1545	4	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	7
1545 - 1600	2	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	5
1600 - 1615	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3
1615 - 1630	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2
1630 - 1645	3	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	6
1645 - 1700	3	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	5
1700 - 1715	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
1715 - 1730	5	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	7
1730 - 1745	6	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	12
1745 - 1800	3	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	4
1800 - 1815	4	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	5
1815 - 1830	4	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	5
1830 - 1845	4	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	7
1845 - 1900	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3
1900 - 1915	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3
1915 - 1930	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2
1930 - 1945	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2
1945 - 2000	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2
2000 - 2015	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2
2015 - 2030	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
2030 - 2045	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
2045 - 2100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2100 - 2115	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
2115 - 2130	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3
2130 - 2145	2	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	9
2145 - 2200	1	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	3
Totals	74	1	2	1	1	1	0	0	0	0	76	3	3	1	1	1	0	0	0	0	132



R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob.0418-239019

Client : Halcrow
 Job No/Name : 3544 SYDNEY CBD Circular Quay
 Day/Date : Wednesday 13th April 2011

Location:	LOADING BAYS	Classifications
------------------	---------------------	------------------------

1: Lights

A: Private
 B: Utility

2: Vans

A: Small
 C: Large

3: Trucks

A: Small
 B: Medium
 C: Large

4: Waste

A: Small
 B: Medium
 C: Large

TRUCKS ONLY

Small: Just over car length

Medium: Up to 2 car lengths

Large: Longer than medium

Time Arrive	Space Location	Classification	STA or ?	Time Depart	Length of Stay	Motor Bikes
6:00	1	2A	Interior	7:32	1:32	6 at 0600
6:15	4	1A		6:25	0:10	
6:37	4	1A	AC Duct Clean	6:51	0:14	9 at 0630
6:37	3	2A	Interior	7:16	0:39	
6:45	2	1A		7:04	0:19	
6:48	6	2A	Electrical	7:41	0:53	
6:55	Quay App S-D-Way	1A		7:20	0:25	
6:58	Concourse	2A	Electrical	9:10	2:12	10 at 0700
7:06	5	2C	Plant	9:16	2:10	
7:14	2	2A	Electrical	7:35	0:21	
7:17	4	2A	Thrifty	8:19	1:02	
7:35	1	2A	Electrical	14:32	6:57	11 at 0730
7:42	3	1B	?	13:52	6:10	
7:45	Concourse	1B	Forum Transport	8:08	0:23	
7:48	2	2A	?	8:28	0:40	
8:08	6	2A	?	8:45	0:37	12 at 0800
8:14	Additional	1A		8:19	0:05	
8:14	Concourse	3B	TOLL	9:18	1:04	
8:15	Quay App S-D-Way	1A	?	9:40	1:25	
8:15	Quay App S-D-Way	2A	?	16:08	7:53	
8:15	Informal	4B	Rubbish	8:30	0:15	
8:33	Informal	3B	Catering	8:39	0:06	13 at 0830
8:38	2	2C	?	8:40	0:02	
8:41	4	2C	?	8:47	0:06	
8:41	Concourse	3B	Food Service	8:55	0:14	
8:46	6	2C	?	9:01	0:15	
8:48	4	2A	?	8:57	0:09	
9:10	4	1B	Worldmald	10:58	1:48	14 at 0900
9:14	Informal	2C	Cleaning	9:18	0:04	
9:16	6	2C	Plant	10:13	0:57	
9:17	5	2A	Electrical	10:49	1:32	
9:17	2	2A	TOLL	9:44	0:27	
9:30	Concourse	3A	Cleaning	9:54	0:24	14 at 0930
9:30	Concourse	2A	?	9:41	0:11	
9:40	Concourse	2A	Eagle Service	10:20	0:40	
9:41	2	1B	Hastie Service	13:20	3:39	
10:07	Concourse	3B	Delivery	10:47	0:40	14 at 1000
10:10	Informal	1A		10:17	0:07	
10:14	5	3A	Delivery	10:55	0:41	
10.25	Additional	2A	?	10.46	5:02	
10.32	4	1B	Delivery	10.39	1:40	15 at 1030
10.39	Concourse	2A	?	10.45	1:26	
10.44	Concourse	1A		10.50	1:26	



R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob.0418-239019

Client : Halcrow
 Job No/Name : 3544 SYDNEY CBD Circular Quay
 Day/Date : Wednesday 13th April 2011

Location:	LOADING BAYS	Classifications
------------------	---------------------	------------------------

TRUCKS ONLY

Small: Just over car length

Medium: Up to 2 car lengths

Large: Longer than medium

1: Lights

A: Private

B: Utility

2: Vans

A: Small

C: Large

3: Trucks

A: Small

B: Medium

C: Large

4: Waste

A: Small

B: Medium

C: Large

Time Arrive	Space Location	Classification	STA or ?	Time Depart	Length of Stay	Motor Bikes
10:47	Additional	2A	Delivery	10:59	0:12	
10:47	Concourse	3C	Delivery	11:36	0:49	
11:05	4	1A		11:30	0:25	15 at 1100
11:10	5	2A	?	12:36	1:26	
11:34	Additional	2A	?	13:25	1:51	16 at 1130
11:35	6	2A	Locksmith	13:01	1:26	
11:36	4	2C	Courier	11:50	0:14	
11:50	Concourse	2A	Courier	11:52	0:02	
12:14	4	2A	Courier	12:47	0:33	15 at 1200
12:14	Additional	3B	Delivery	12:57	0:43	
12:38	Informal	2C	Courier	13:04	0:26	16 at 1230
12:39	5	1B	Security System	13:04	0:25	
12:50	4	1B	Courier	13:41	0:51	
13:10	6	2C	Courier	14:38	1:28	17 at 1300
13:20	Additional	2A	?	13:27	0:07	
13:20	Quay App S-D-Way	1A	Delivery	13:37	0:17	
13:41	Informal	2A	Delivery	13:50	0:09	16 at 1330
13:50	3	1B	Courier	14:10	0:20	
13:58	2	2A	Delivery	14:15	0:17	
14:10	4	1A		14:27	0:17	16 at 1400
14:10	Concourse	3B	Delivery	15:28	1:18	
14:27	5	1B	Hastie Service	14:37	0:10	
14:27	Concourse	3B	Delivery	15:29	1:02	
14:38	6	1B	Hastie Service	15:01	0:23	15 at 1430
14:50	4	2A	Delivery	15:01	0:11	
14:58	2	3A	Delivery	17:09	2:11	
14:58	Quay App S-D-Way	1A	Delivery	15:30	0:32	
15:18	4	2A	?	18:05	2:47	14 at 1500
15:22	6	2C	Courier	15:28	0:06	
15:38	3	1A	Delivery	16:25	0:47	14 at 1530
16:10	5	3B	Delivery	16:25	0:15	15 at 1600
16:12	1	2A	Delivery	16:16	0:04	
16:34	6	1A		16:41	0:07	15 at 1630
16:45	1	2A	Delivery	19:07	2:22	14 at 1700
17:18	2	2A	Electrical	19:00	1:42	10 at 1730
18:47	4	1A		19:07	0:20	7 at 1800
19:07	3	1A		19:47	0:40	8 at 1830
19:14	6	1A		Still there	#VALUE!	7 at 1900
21:22	5	1A		21:35	0:13	8 at 1930
					0:00	5 at 2000
					0:00	4 at 2030
					0:00	3 at 2100
					0:00	2 at 2130



R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob.0418-239019

Client : Halcrow

Job No/Name : 3544 SYDNEY CBD Circular Quay

Day/Date : Wednesday 13th April 2011

Location: UNMARKED LOADING AREA **Classifications**

1: Lights

A: Private
B: Utility

2: Vans

A: Small
C: Large

3: Trucks

A: Small
B: Medium
C: Large

4: Waste

A: Small
B: Medium
C: Large

TRUCKS ONLY

Small: Just over car length
Medium: Up to 2 car lengths
Large: Longer than medium

Time Arrive	Classification	STA or ?	Time Depart
6:00	4B	?	6:05
6:00	1A		6:11
6:00	3A	Delivery	6:05
6:10	3A	Delivery	6:37
6:12	1B	Electrical	7:27
6:18	3B	Delivery	6:35
6:25	1B	Electrical	6:42
6:26	2C	Delivery	7:05
6:42	2A	Delivery	7:35
6:43	1B	Construction	14:30
6:50	2C	Chubb	8:28
6:50	1A	Chubb	8:28
6:55	2A	Delivery	7:41
7:11	1B	Cleaning	7:25
7:19	1A	Pick up people	7:20
7:42	1B	Cleaning	10:25
7:46	2A	Delivery	7:52
7:58	1A		14:47
8:09	3B	Delivery	8:16
8:18	1B	Electrical	8:29
8:30	1A		14:32
8:36	2A	Delivery	8:40
8:48	2A	Delivery	9:03
8:48	2A	Delivery	9:31
8:54	2A	Delivery	9:08
9:10	2A	Delivery	11:00
9:48	1A		10:03
9:53	3C	Delivery	10:57
9:55	2A	Delivery	10:23
9:56	2A	Delivery	10:33
10:34	1A		14:03
11:05	1A		12:06
11:14	2A	Cleaning	11:28
11:24	2A	Locksmith	11:29
11:26	2A	Spaceship	11:40
12:08	2A	Delivery	12:24
12:14	2A	Delivery	12:35

Lenght of Stay
0:05
0:11
0:05
0:27
1:15
0:17
0:17
0:39
0:53
7:47
1:38
1:38
0:46
0:14
0:01
2:43
0:06
6:49
0:07
0:11
6:02
0:04
0:15
0:43
0:14
1:50
0:15
1:04
0:28
0:37
3:29
1:01
0:14
0:05
0:14
0:16
0:21

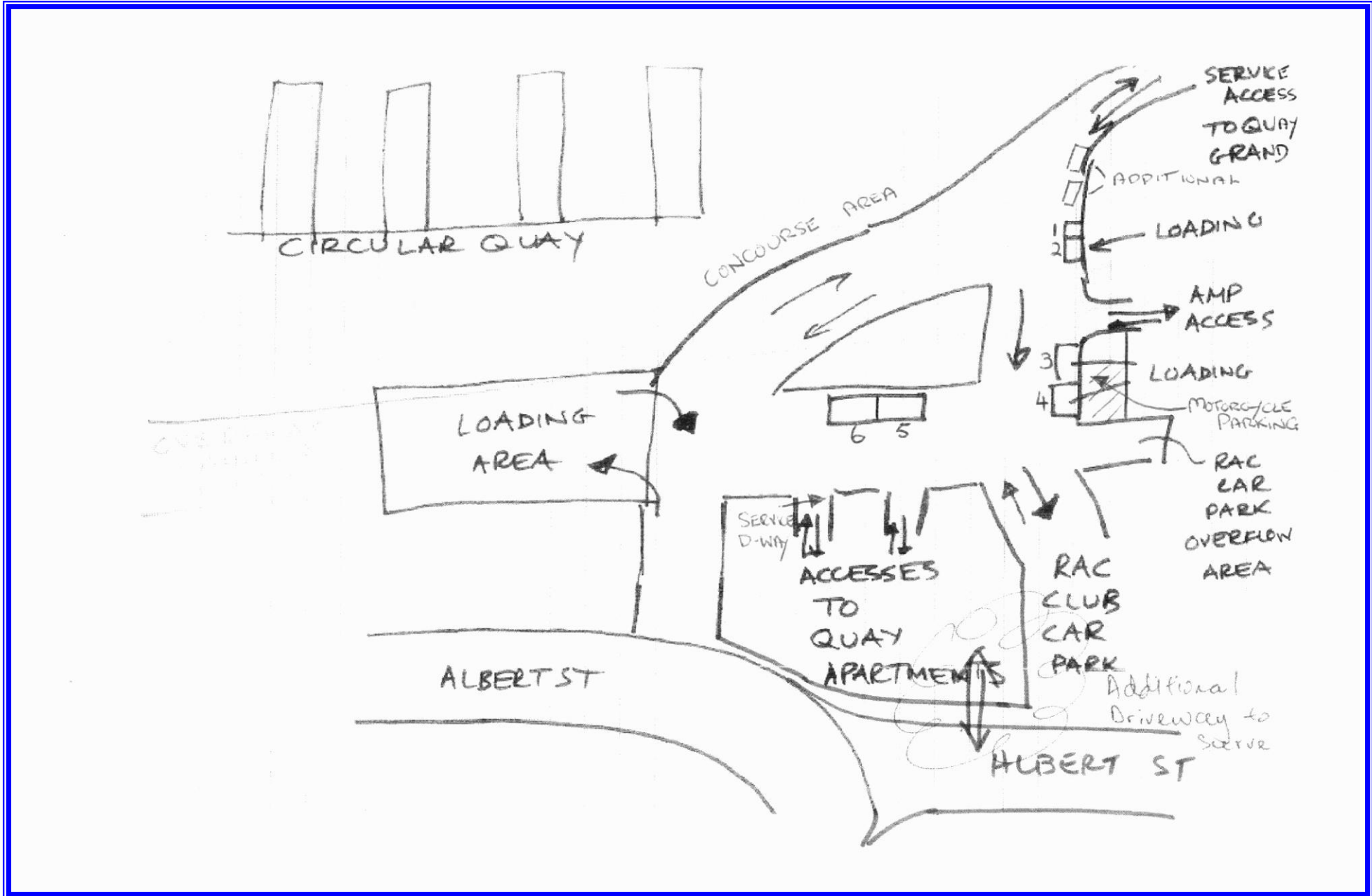


R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob.0418-239019

Client : Halcrow
Job No/Name : 3544 SYDNEY CBD Circular Quay
Day/Date : Wednesday 13th April 2011



Appendix B

New Survey Results



Quay Grand Building

Quay Grand Access

Traffic and Parking Surveys
Friday 30 March 2012
6:00am to 6:00pm



RESULTS

To

Michael Lee

at *Halcrow*

your results for

CIRCULAR QUAY Parking

supplied by

R.O.A.R. DATA Pty. Ltd.

www.roardata.com.au



R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob.0418-239019

Location: QUAY GRAND ACCESS

Client : Halcrow
Job No/Name : 4054 CIRCULAR QUAY Parking
Day/Date : Friday 30th March 2012

AM

TRUCKS ONLY

Small Just over car length

Medium Up to 2 car lengths

Large Longer than medium

Time	IN										OUT										Totals
	Lights		Vans		Trucks			Waste			Lights		Vans		Trucks			Waste			
	Priv	Utility	Small	Large	Small	Medium	Large	Small	Medium	Large	Priv	Utility	Small	Large	Small	Medium	Large	Small	Medium	Large	
0600 - 0615	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2
0615 - 0630	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	3
0630 - 0645	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0645 - 0700	7	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	8
0700 - 0715	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	4
0715 - 0730	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3
0730 - 0745	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3
0745 - 0800	3	0	0	0	1	0	0	0	0	0	3	0	0	0	1	0	0	0	0	0	8
0800 - 0815	4	0	1	0	0	0	0	0	0	0	3	0	1	0	0	0	0	0	0	0	9
0815 - 0830	4	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	7
0830 - 0845	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2
0845 - 0900	8	1	1	1	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	15
0900 - 0915	3	0	0	0	1	0	0	0	0	0	4	0	0	0	1	0	0	0	0	0	9
0915 - 0930	1	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	4
0930 - 0945	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3
0945 - 1000	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2
1000 - 1015	2	0	0	0	3	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	8
1015 - 1030	5	0	0	1	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	9
1030 - 1045	2	0	2	0	0	0	0	0	0	0	3	0	2	1	0	0	0	0	0	0	10
1045 - 1100	1	0	1	0	0	0	0	0	0	0	5	0	1	0	0	0	0	0	0	0	8
1100 - 1115	0	0	0	0	1	0	0	0	0	0	3	0	0	0	2	0	0	0	0	0	6
1115 - 1130	2	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	4
1130 - 1145	4	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	7
1145 - 1200	2	1	0	0	0	0	0	0	0	0	5	1	0	0	0	0	0	0	0	0	9
Totals	58	2	7	2	9	1	0	0	1	0	41	2	7	2	9	1	0	0	1	0	143



R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob.0418-239019

Location: STREET ACCESS

Client : Halcrow
 Job No/Name : 4054 CIRCULAR QUAY Parking
 Day/Date : Friday 30th March 2012

AM

TRUCKS ONLY

Small Just over car length

Medium Up to 2 car lengths

Large Longer than medium

Time	IN										OUT										Totals
	Lights		Vans		Trucks			Waste			Lights		Vans		Trucks			Waste			
	Priv	Utility	Small	Large	Small	Medium	Large	Small	Medium	Large	Priv	Utility	Small	Large	Small	Medium	Large	Small	Medium	Large	
0600 - 0615	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
0615 - 0630	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	5
0630 - 0645	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2
0645 - 0700	7	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	8
0700 - 0715	3	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	6
0715 - 0730	3	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	4
0730 - 0745	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	4
0745 - 0800	3	0	0	0	1	0	0	0	0	0	3	0	0	0	1	0	0	0	0	0	8
0800 - 0815	4	0	1	0	0	0	0	0	0	0	3	0	1	0	0	0	0	0	0	0	9
0815 - 0830	4	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	7
0830 - 0845	1	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3
0845 - 0900	9	1	1	1	0	0	0	0	0	0	1	1	2	1	0	0	0	0	0	0	17
0900 - 0915	4	1	2	0	1	0	0	0	0	0	6	0	1	0	1	0	0	0	0	0	16
0915 - 0930	1	0	2	0	0	1	0	0	0	0	1	0	2	0	0	0	0	0	0	0	7
0930 - 0945	1	0	1	0	1	0	0	0	1	0	0	0	2	0	1	1	0	0	0	0	8
0945 - 1000	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	3
1000 - 1015	2	0	0	0	3	0	0	0	0	0	3	0	1	0	0	0	0	0	0	0	9
1015 - 1030	5	0	0	1	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	9
1030 - 1045	2	0	3	0	1	0	0	0	0	0	3	0	2	1	0	0	0	0	0	0	12
1045 - 1100	2	0	1	0	0	0	0	0	0	0	5	0	2	0	1	0	0	0	0	0	11
1100 - 1115	0	0	2	0	2	0	0	0	0	0	3	0	2	0	2	0	0	0	0	0	11
1115 - 1130	2	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	4
1130 - 1145	4	0	1	1	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	9
1145 - 1200	1	1	0	1	0	0	0	0	0	0	5	1	0	1	0	0	0	0	0	0	10
Totals	63	3	15	4	12	2	0	0	2	0	46	2	16	3	11	3	0	0	1	0	183



R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob.0418-239019

Location: QUAY GRAND ACCESS

Client : Halcrow
 Job No/Name : 4054 CIRCULAR QUAY Parking
 Day/Date : Friday 30th March 2012

PM

TRUCKS ONLY

Small Just over car length

Medium Up to 2 car lengths

Large Longer than medium

Time	IN										OUT										Totals
	Lights		Vans		Trucks			Waste			Lights		Vans		Trucks			Waste			
	Priv	Utility	Small	Large	Small	Medium	Large	Small	Medium	Large	Priv	Utility	Small	Large	Small	Medium	Large	Small	Medium	Large	
1200 - 1215	2	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	4
1215 - 1230	4	1	0	0	0	1	0	0	0	0	2	1	0	0	0	1	0	0	0	0	10
1230 - 1245	3	0	0	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	6
1245 - 1300	4	0	1	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	7
1300 - 1315	0	0	0	0	0	0	0	0	0	0	6	0	1	0	0	0	0	0	0	0	7
1315 - 1330	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1330 - 1345	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
1345 - 1400	4	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	7
1400 - 1415	4	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	6
1415 - 1430	1	0	1	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	5
1430 - 1445	2	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	5
1445 - 1500	2	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	5
1500 - 1515	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2
1515 - 1530	2	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	6
1530 - 1545	3	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	6
1545 - 1600	4	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	6
1600 - 1615	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1615 - 1630	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1630 - 1645	3	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	5
1645 - 1700	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
1700 - 1715	1	0	1	0	0	0	0	0	0	0	4	0	1	0	0	0	0	0	0	0	7
1715 - 1730	1	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	4
1730 - 1745	3	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	6
1745 - 1800	2	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	5
Totals	50	2	3	1	0	1	0	0	0	0	49	3	3	1	1	1	0	0	0	0	115



R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob.0418-239019

Location: **STREET ACCESS**

Client : Halcrow
 Job No/Name : 4054 CIRCULAR QUAY Parking
 Day/Date : Friday 30th March 2012

PM
TRUCKS ONLY

Small Just over car length

Medium Up to 2 car lengths

Large Longer than medium

Time	IN										OUT										Totals
	Lights		Vans		Trucks			Waste			Lights		Vans		Trucks			Waste			
	Priv	Utility	Small	Large	Small	Medium	Large	Small	Medium	Large	Priv	Utility	Small	Large	Small	Medium	Large	Small	Medium	Large	
1200 - 1215	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3
1215 - 1230	4	1	0	0	0	1	0	0	0	0	3	1	0	0	0	1	0	0	0	0	11
1230 - 1245	3	0	0	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	6
1245 - 1300	5	0	1	0	0	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0	9
1300 - 1315	0	0	1	0	0	0	0	0	0	0	6	0	1	0	0	0	0	0	0	0	8
1315 - 1330	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
1330 - 1345	1	0	0	0	0	0	0	0	0	0	2	1	0	1	0	0	0	0	0	0	5
1345 - 1400	4	2	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	9
1400 - 1415	4	0	2	0	0	0	0	0	0	0	1	1	2	0	0	0	0	0	0	0	10
1415 - 1430	1	0	3	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	7
1430 - 1445	2	0	3	0	0	0	0	0	0	0	2	0	5	0	0	0	0	0	0	0	12
1445 - 1500	2	0	1	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	6
1500 - 1515	1	1	2	0	0	0	0	0	0	0	1	1	3	0	0	0	0	0	0	0	9
1515 - 1530	3	0	1	0	0	0	0	0	0	0	4	1	1	0	0	0	0	0	0	0	10
1530 - 1545	3	0	0	0	0	0	0	0	0	0	3	0	0	1	0	0	0	0	0	0	7
1545 - 1600	5	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	7
1600 - 1615	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
1615 - 1630	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
1630 - 1645	3	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	5
1645 - 1700	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
1700 - 1715	1	1	0	0	0	0	0	0	0	0	4	0	1	0	0	0	0	0	0	0	7
1715 - 1730	2	0	0	0	0	0	0	0	0	0	3	0	1	0	0	0	0	0	0	0	6
1730 - 1745	3	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	6
1745 - 1800	2	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	5
Totals	56	5	15	1	0	1	0	0	0	0	52	6	15	3	1	1	0	0	0	0	156



R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob.0418-239019

Client : Halcrow

Job No/Name : 4054 CIRCULAR QUAY Parking

Day/Date : Friday 30th March 2012

Location:	LOADING BAYS	Classifications
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TRUCKS ONLY

1: Lights

A: Private
B: Utility

2: Vans

A: Small
C: Large

3: Trucks

A: Small
B: Medium
C: Large

4: Waste

A: Small
B: Medium
C: Large

Small: Just over car length

Medium: Up to 2 car lengths

Large: Longer than medium

Time Arrive	Space Location	Classification	Del / P-Up	Destination	Time Depart	Lenght of Stay
6:00	4	2A	Pick Up People	Other	10:04	4:04
6:23	Beside A	1A	Pick Up Barricade	Other	6:33	0:10
6:33	A & B	3B	Dlvry Goods	Other	11:37	5:04
7:07	Opposite 3	1A	Dlvry Goods	Other	7:08	0:01
8:43	Before A	2A	Dlvry Goods	Other	8:45	0:02
9:01	Beside 1	1A	Drop People	Other	9:05	0:04
9:03	Beside A	1A	Dlvry Goods	Other	9:07	0:04
9:03	3	1B	Dlvry Goods	Other	13:35	4:32
9:07	Opposite 3	2A	Dlvry Goods	Other	9:11	0:04
9:07	Before A	2A	Dlvry Goods	Other	9:18	0:11
9:25	Opposite 3 & 4	3B	Dlvry Goods	Quay Grand	9:46	0:21
9:32	Beside 2	2A	Dlvry Goods	Other	9:37	0:05
9:33	Beside A	3A	Dlvry Goods	Other	9:39	0:06
10:32	Beside A	3A	Dlvry Goods	Other	10:48	0:16
10:44	3	2A	Dlvry Goods	Other	10:49	0:05
11:10	Beside 2	2A	Dlvry Goods	Other	11:12	0:02
11:11	Beside 2	3A	Pick Up Goods	Other	12:48	1:37
11:12	Before A	2A	Dlvry Goods	Other	11:17	0:05
11:39	A & B	2C	Dlvry Goods	Other	13:40	2:01
11:53	Beside B & 1	2C	Dlvry Goods	Other	11:56	0:03
13:16	Beside 1	2A	Dlvry Goods	Other	13:22	0:06
13:42	Opposite 1	1A	Drop People	Quay Grand	13:43	0:01
13:47	A	1B	Dlvry Goods	Other	13:57	0:10
14:03	B	2A	Dlvry Goods	Other	14:08	0:05
14:06	A	2A	Dlvry Goods	Other	14:10	0:04
14:28	B	2A	Dlvry Goods	Other	14:35	0:07
14:30	A	2A	Dlvry Goods	Other	14:43	0:13
14:32	Beside 1	2A	Pick Up Goods	Other	14:40	0:08
14:39	B	2A	Dlvry Goods	Other	15:07	0:28
14:41	Opposite 1	2A	Dlvry Goods	Other	14:43	0:02
14:52	A	2A	Dlvry Goods	Other	15:04	0:12
15:03	3	2A	Dlvry Goods	Other	15:05	0:02
15:05	A	1B	Dlvry Goods	Other	15:30	0:25
15:11	Opposite A	1A	Drop People	Other	15:12	0:01
15:13	B	2A	Dlvry Goods	Other	15:18	0:05
15:21	B	2A	Dlvry Goods	Other	15:31	0:10
15:48	A	1A	Dlvry Goods	Other	16:14	0:26
16:19	B	2B	Parking	Other	17:16	0:57
17:17	Opposite A	1A	Parking	Other	17:30	0:13

AREA Parking locations

Beside means beside the numbered spaces inside the steel bollards eastern side
Opposite means opposite the numbered spaces on the western side

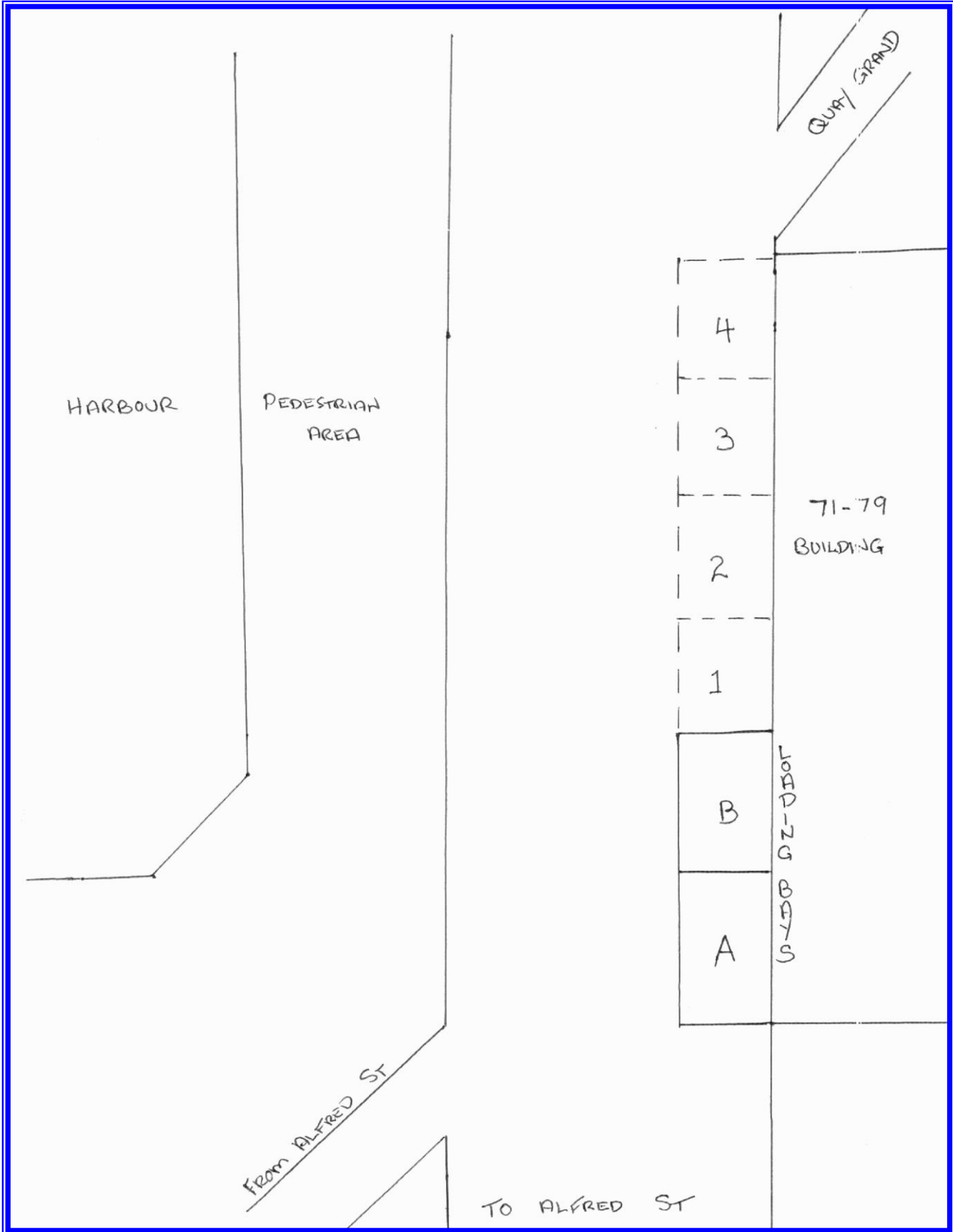


R.O.A.R. DATA

Reliable, Original & Authentic Results

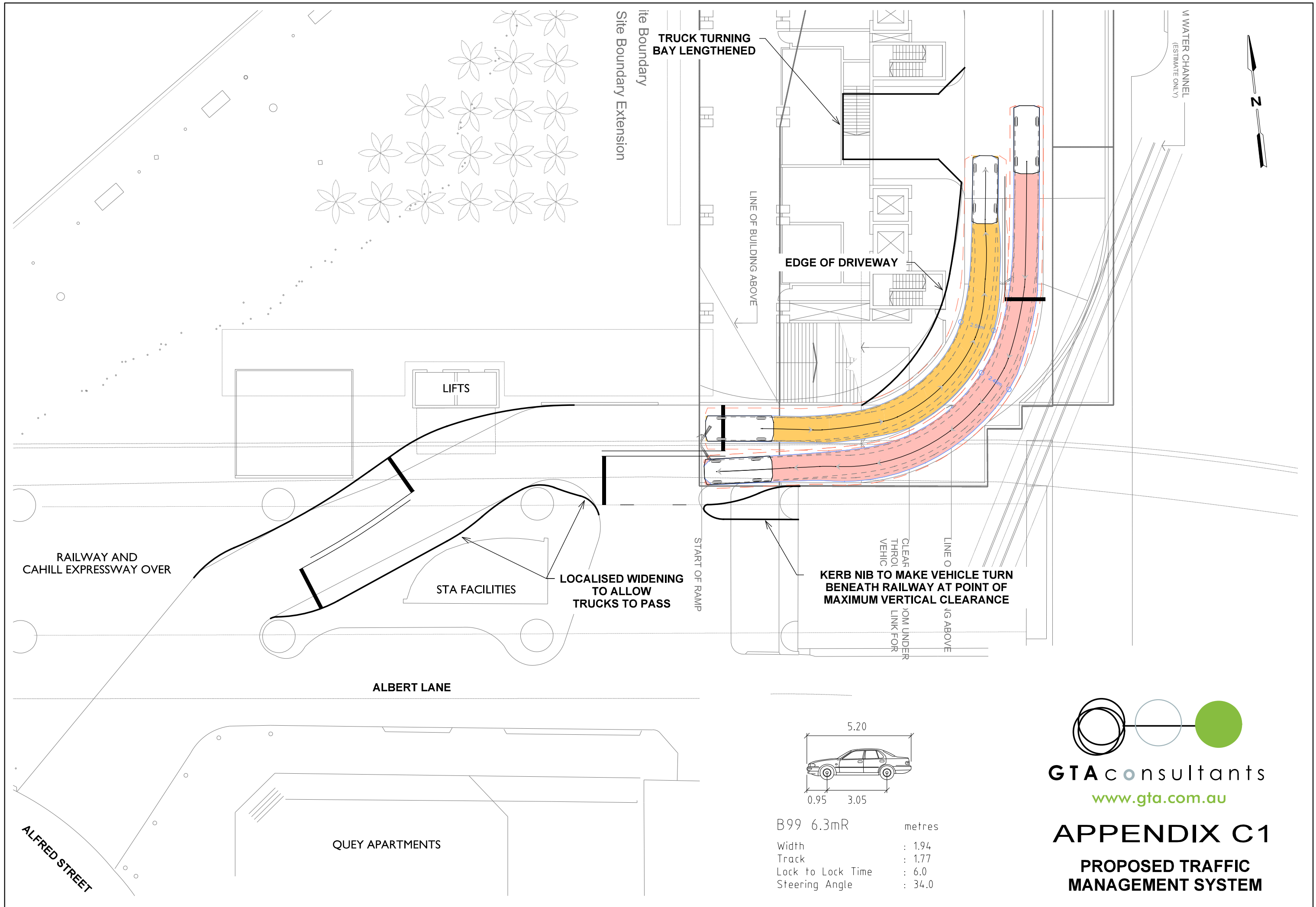
Ph.88196847, Fax 88196849, Mob.0418-239019

Client : Halcrow
Job No/Name : 4054 CIRCULAR QUAY Parking
Day/Date : Friday 30th March 2012



Appendix C

Traffic Management System



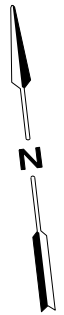
Site Boundary
Site Boundary Extension

TRUCK TURNING BAY LENGTHENED

LINE OF BUILDING ABOVE

EDGE OF DRIVEWAY

WATER CHANNEL (ESTIMATE ONLY)



LIFTS

RAILWAY AND CAHILL EXPRESSWAY OVER

STA FACILITIES

LOCALISED WIDENING TO ALLOW TRUCKS TO PASS

START OF RAMP

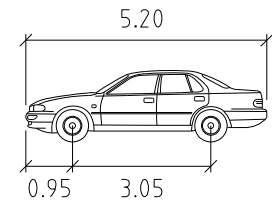
KERB NIB TO MAKE VEHICLE TURN BENEATH RAILWAY AT POINT OF MAXIMUM VERTICAL CLEARANCE

CLEAR THRU VEHIC
10M UNDER LINK FOR
LINE 0
10G ABOVE

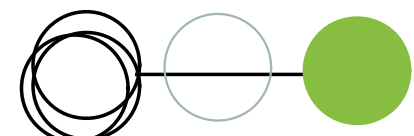
ALBERT LANE

QUEY APARTMENTS

ALFRED STREET

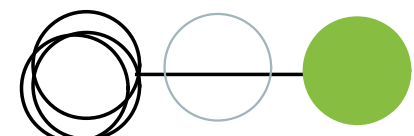
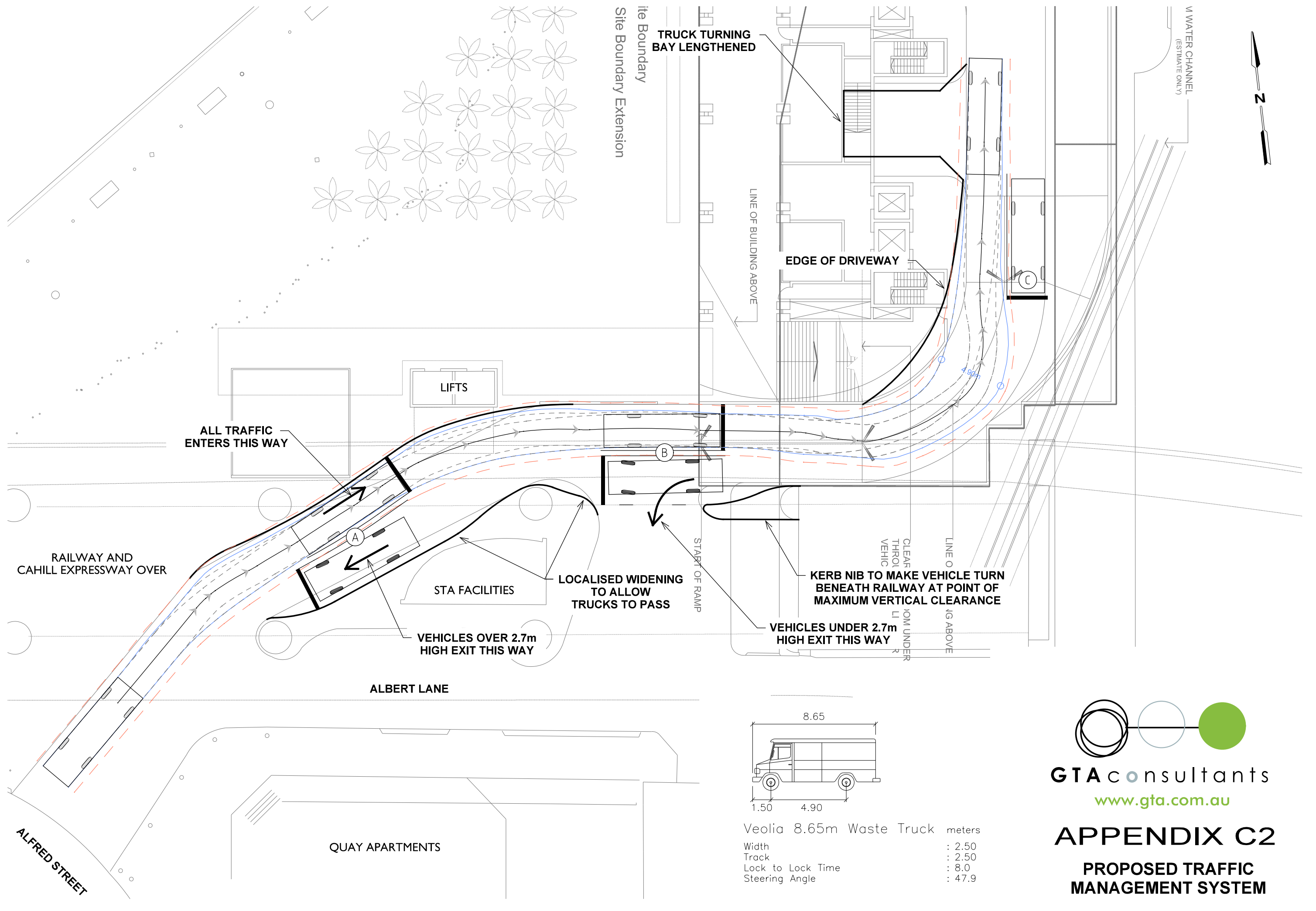


B99 6.3mR	metres
Width	: 1.94
Track	: 1.77
Lock to Lock Time	: 6.0
Steering Angle	: 34.0



GTA consultants
www.gta.com.au

APPENDIX C1
PROPOSED TRAFFIC MANAGEMENT SYSTEM



GTA consultants
www.gta.com.au

APPENDIX C2
PROPOSED TRAFFIC MANAGEMENT SYSTEM

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