



**TRAFFIC MANAGEMENT & SAFETY CONSULTANTS**

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## **TRAFFIC ASSESSMENT REPORT**

# **PROPOSED Super Clinic**

Jacaranda Avenue & Swan Street  
RAYMOND TERRACE

January 2012

Hunter New England Local Health District (HNELHD)

Port Stephens Council Local Government Area

Prepared by  
Terry Keating  
Director  
TPK & Associates Pty Ltd

# **C O N T E N T S**

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6 . S U M M A T I O N

# **PROPOSED Super Clinic Facility**

## **TRAFFIC ASSESSMENT**

### **1 – INTRODUCTION**

#### **1.1. – The Project**

TPK & Associates Pty Ltd (TPK) was commissioned by Kemp Consulting Pty Ltd (for HNELHD) to join the project team preparing a DA submission for a proposed Super Clinic (Medical Centre) at:

**Jacaranda Avenue & Swan Street, Raymond Terrace**

(See Figure 1 for Locality View)

#### **1.2. – Task Description**

The assessment and report focuses on the following objectives: -

- Road function and road environment around the site with a focus on road safety
- Confirmation that the proposed road network and on-site amenity will service all user needs in terms of road safety and traffic management
- Establish that appropriate road safety and traffic management guidelines and standards have been addressed by the proposal

This assessment report is a supplement to the development application.

#### **1.3. – Project Representative**

Mr. Terry Keating, Director, TPK & Associates Pty Ltd undertook the evaluation and preparation of the report. He has over 40 years experience in the road safety and traffic management profession, including the assessment of traffic generating developments.

#### **1.4. - References**

The assessment and report have been provided as an outcome of reference to:

- Port Stephens Council DCP 2007, in particular B3 & C1
- AS2890.1
- RTA Guide to Traffic Generating Developments
- Austroads Part 5 Intersections at Grade
- Project plans as provided; See Appendix A for Site Layout Plan & Appendix C for the Site Survey Plan.



FIGURE 1 – LOCALITY OF SITE

## **2 – EXISTING CONDITIONS**

### **2.1. - Locality**

The proposed development site is located on the north-west corner of the intersection of Jacaranda Avenue and Swan Street, Raymond Terrace; the site is vacant land, identified on Figure 1 of this report and street views are shown in Photo's 1 & 2 below.

PHOTO 1 – SWAN STREET APPROACH TO JACARANDA AVENUE



PHOTO 2 – JACARANDA AVENUE NORTH OF SWAN STREET



## **2.2. – Road Network**

Swan Street (southern leg) – Jacaranda Avenue is a local road classification; it has a traffic function for managing traffic flow primarily northbound from the Old Pacific Highway and to also service local amenity including a school and bowling club. The route is not an attractive link to the Highway for southbound as Swan Street is restricted to left in/left out at the Highway.

Swan Street (northern leg) is also a local road classification; it has a more localised traffic function. The bowling club adjoining the subject site has access to this section of Swan Street.

An intersection in the vicinity of the subject site, Jacaranda Avenue, Sturgeon Street & Swan Street currently presents the opportunity for multiple traffic movements where driver decision could be impacted upon due to lack of definitive traffic guidance/discipline.

## **2.3. – Traffic Management**

The existing traffic management amenity relevant to the site is:

- 50 Urban Speed Limit
- Priority afforded Sturgeon Street at Jacaranda Avenue intersection.
- Traffic calming, 40 School Zone and School Children Crossing on Swan Street south of Sturgeon Street intersection and the Jacaranda Avenue approach to the Sturgeon Street intersection.

### **SECTION 3 – GUIDELINES**

The traffic assessment of this project has been based on the following new land use activity:

<b>LAND USE</b>	<b>Medical Centre, 2500m<sup>2</sup> GFA</b>
<b>STAFF</b>	<b>66 (See Section 3.1.1)</b>

#### **3.1. – Road Network & Traffic Generation**

##### **3.1.1 – Traffic Generation Determination**

The RTA Guide to Traffic Generating Developments suggests rates for a range of land use activities. The Medical Centre land use is not provided in the guideline; TPK submit that the traffic demands are driven by the following:

- Staff arrival
- Patient/Visitor rotation throughout the Business Day
- Staff Departure

The majority of staff will arrive at the site before 8am; the arrival of patients/visitors will then commence around 8.45am with rotation through to around 5pm when staff departure begins. A limited number of staff will work a 1-9pm shift.

The potential staff levels are 46 Professional Staff and 20 Support Staff; what is very relevant is that some staff members are “field orientated” and regularly do not commence or finish their shift at the Medical Centre. Furthermore all professional staff will not occupy the centre at the same time; some professional staff will only attend the centre a few days a week based on bookings.

TPK has adopted a peak hour trip demand of 70vph embracing the potential for am peak staff arrives and commencement of patient/visitor trips plus the later departure of patient/visitors and staff for the pm peak.

##### **3.1.2 – Traffic Distribution**

The potential peak hour trips are distributed as shown in Figure 2.

Intersection Traffic Counts taken as part of the project assessment are provided in Appendix B





FIGURE 2 – PEAK TRAFFIC DISTRIBUTIONS OF ADDITIONAL TRIPS

### 3.2. – Parking

Port Stephens Council provides guidance to their required provisions for parking when considering new land use development; the reference is Port Stephens Council DCP 2007 Element B3 – Parking, Traffic & Transport.

The relevant DCP category is: - **Medical Centre**

The required provision for parking rate that will be adopted is therefore:

- 4 spaces per 100m<sup>2</sup> GFA including
- 1 disabled space per 10 parking spaces

The number of spaces that will be required based on the proposed 2500m<sup>2</sup> GFA is:

- 100 spaces including
- 10 disabled spaces



## **SECTION 4 – PARKING AND SITE AMENITY**

### **4.1 – Overview**

A project summation of key site elements is provided in Table1.

**TABLE 1 – PARKING & ACCESS ASSESSMENT**

Ref. AS/NZS 2890.1-2004 (AS)

<b>CRITERIA</b>	<b>CLAUSE</b>	<b>ASSESSMENT or REQUIRED</b>	<b>PROVIDED</b>	<b>COMPLIES</b>
Classification of Use	(AS) Table 1.1	3	NA	NA
Road Frontage type	(AS) Table 3.1	Local	NA	NA
Number of Parking spaces	(AS) Table 3.1	25 - 100	100	NA
Parking Bays	(AS) Figure 2.2	90 Degree, 5.4m X 2.6m	5.5 x 2.6m	Yes
Parking Aisles	(AS) Figure 2.2	5.8m	+5.8m	Yes
Driveway Category	(AS) Table 3.1	Category 2	NA	NA
Driveway Design	(AS) Table 3.2	6.0 to 9.0 combined.	2 Access Points	Yes
Driveway location	(AS) Clause 3.2.3 and Figure 3.1	Not at Intersection	NA	Yes
Sight distances	(AS) Figure 3.2	Desirable 69m	+69m	Yes
Ramps	(AS) Sect 2.4.6.1	Less than 20m Max 1 in 5 Over 20m Max 1 in 4	A Range of Compliant Grades	Yes

### **4.2. – Parking**

The provisions for parking proposed within this development comply with the Council's DCP requirements (100 spaces), including the numbers of disabled spaces (10 spaces).

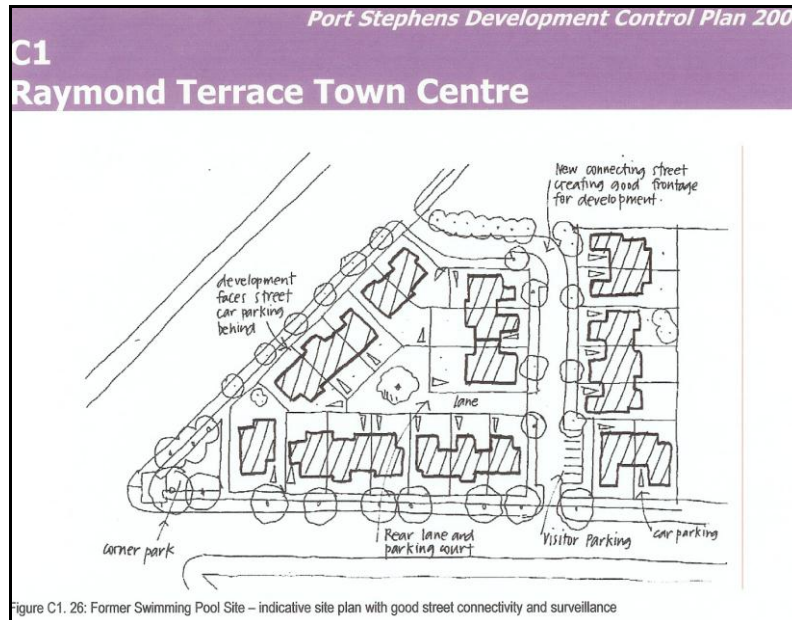
The lower level/basement level car parks will be dedicated to staff use only hence there was no concern assessed over the use of longer blind aisles.

The assessment of parking found:

- Table 1, Section 4.1 of this report confirms car park compliance with AS2890.1.
- The connectivity between the parking modules and the two frontage roads is acceptable
- Circulation around and between the car park modules is available for anticipated traffic demands.

#### **4.3. – Site Traffic Access**

Port Stephens DCP 2007 Element C1, Figure C1.26 (See Below) provides a concept access arrangement where the site is accessed from both Jacaranda Avenue and Swan Street.



In adopting that concept for access the impact of traffic on the public road frontage is minimised. The two access locations as proposed are submitted to be acceptable in their geometric layout as:

##### **Swan Street**

- Traffic flow is a small volume per hour in the business peaks.
- The carriageway has generous width at the access point.
- Acceptable sight distance is available.

##### **Jacaranda Avenue**

- The traffic flow, southbound in the peak period is minimal (47 am peak & 61 pm peak) and due to an opposing peak hour volume of less than 100vph (both peaks) the introduction of the right turn into the site will not create congestion. TPK submits that it is unnecessary to require provision of sealed pavement for overtaking on the near side and considers preservation of the current shoulder road environment is the preferred option.
- Acceptable sight distance is available.

#### **4.4. – Pedestrians**

The site proposes acceptable internal pedestrian amenity and access to the road frontages. The road frontages footways are to be upgraded and will provide acceptable connectivity to the surround pedestrian footway network.

To enhance connectivity in the road network pedestrian kerb blisters/thresholds are proposed on the Jacaranda Avenue frontage (See Appendix D).

#### **4.5. – Service & Delivery**

The key sectors of service and delivery that require consideration are:

- Waste
- Trade Service
- Delivery Service

The underpinning requirement is that vehicles can manoeuvre on site to ensure trips to/from the site are in the forward direction.

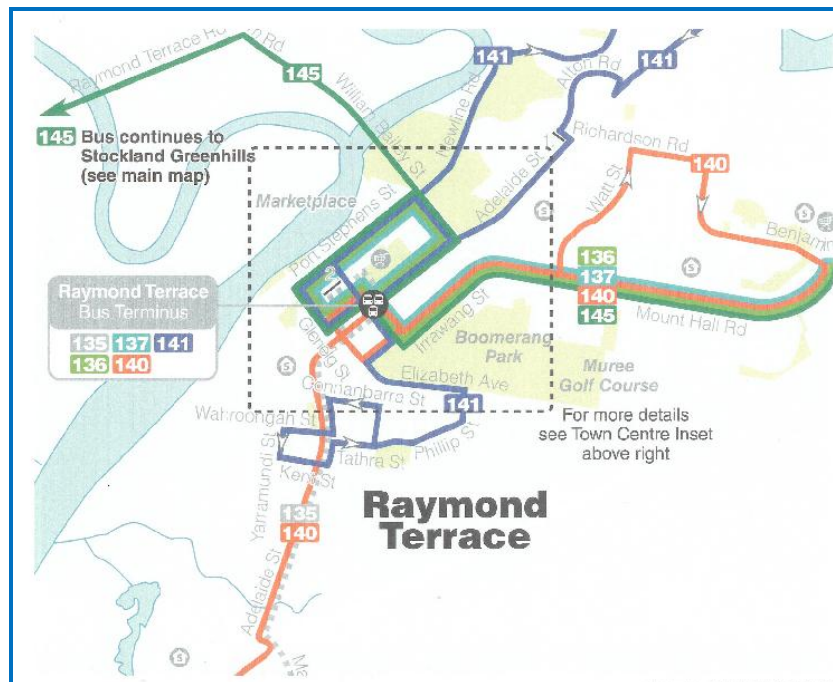
Waste will be collected from the road frontage; storage bins will be placed and removed by on-site staff to match the service provider timetable.

The provision of linen, medical supplies, pathology etc and all provided by small vehicle classifications; those vehicles will be advised to use the loading area/Ambulance Bay off Swan Street and the on-site turn head proposed will provide for vehicle manoeuvre.

Delivery of plant or other equipment/furniture subsequent to site set up will be infrequent. Those vehicles will be advised that delivery is to be made before or after the prime business period of patients/visitors to enable use of the drop off zone at the Main Entrance. The site layout allows for the option to enter off Jacaranda Avenue and exit to Swan Street or circulate the site and exit back to Jacaranda Avenue.

#### **4.6. – Public Transport**

Hunter Valley Buses provide a number of bus services along Glenelg St, Raymond Terrace servicing both locally and to wider precincts; the route stops are within acceptable distance to this site.



This assessment has concluded that this development in itself will not generate the user demand increase to a level of patronage that would require consideration of route alternation; hence no recommendation for additional bus amenity has been submitted in this assessment.

## **SECTION 5 – ROAD NETWORK**

TPK submit that the “area of influence” for road network assessment of this projects traffic impact can be contained to the intersection adjoining the development site; Jacaranda Avenue, Swan & Sturgeon Streets.

Connectivity to the nearby arterial routes has high level traffic management such as traffic signal or roundabout control; the quantum of traffic increase generated by this development will not impact on the capacity of those intersections and detailed analysis was not assessed by TPK to be a requirement.

The Jacaranda Avenue, Swan & Sturgeon Streets intersection has been surveyed; a copy is provided in Appendix C. The current intersection:

- Provides priority to the smaller volumed traffic route, Sturgeon Street.
- Swan Street is controlled under the T-Junction road rule just north of the Sturgeon Street intersection.
- Supplements the Give Way control on Jacaranda Avenue approaches to Sturgeon Street with raised thresholds; obviously a traffic calming focus.

The intersection traffic counts disclose:

- No intersection approach carries traffic volumes above 150vph indicating intersection capacity is not an issue under existing volumes and will not be subject to adverse impact, in terms of capacity with the potential traffic from this development distributed onto the intersection. Austroads Part 5, Intersections at Grades provides a table indicating conflict traffic levels that do not require modelling to confirm capacity; that table is inserted below.

**Table 4.1 — Intersection Capacity - Uninterrupted Flow Conditions**

Major Road Type <sup>1</sup>	Major Road Flow (vph) <sup>2</sup>	Minor Road Flow (vph) <sup>3</sup>
Two-lane	400	250
	500	200
	650	100
Four-lane	1000	100
	1500	50
	2000	25

Notes:

1. Major road is through road (i.e. has priority).
2. Major road design volumes include through and turning movements.
3. Minor road design volumes include through and turning volumes.

- Traffic currently ignores existing movement restrictions in the short one way section of carriageway (in Swan Street north)

Observation at the intersection indicates that the traffic discipline of the overall intersection precincts can be better defined by improved roadmarking, signposting and a closure at one end of the Swan Street north one way slip lane regardless of this development proceeding.

The implementation of the proposed development will require resolution of road boundaries and alignment by Council as Council's existing carriageway appears to intrude into the southern area of the development site (see Appendix C).

TPK has translated the outcome of the observed traffic conditions and assessed potential improvements into a concept plan for the benefit of Council; the plan is provided in Appendix D.

These potential traffic management and traffic discipline improvements will:

- Supplement the upgraded road frontages required for the site.
- Provide two defined intersections and priority can be left with Sturgeon Street.
- Leaving the Give Way on Swan Street(south)-Jacaranda Avenue approaches adds further support to the traffic calming measures in place and the 40 School Zone on that route.
- Provide improved lane discipline to Swan Street (north) and centralise the traffic movements to a simple T-Junction.
- Remove weave movements through the closure of the slip lane Swan Street (north) at Sturgeon Street. The closure is proposed for implementation through the use of bollards; the bollards are the preferred device as they maintain/complement the current environment both road and surrounds. The impact on a small residential precinct is minimal, if any in comparison to the potential improvement in traffic discipline and road safety.

Council may wish to consider implementing this concept in conjunction with the realignment of the road carriageway frontages.

## **SECTION 6 – CONCLUDING STATEMENT**

The assessment by TPK & Associates has concluded that:

- The proposed development will not have an adverse impact on the public road network.
- The proposed development will provide off street parking capacity in accordance with Council requirements.
- The adjoining intersection of Jacaranda Avenue, Swan Street & Sturgeon Street can be considered by Council for realignment in conjunction with the adjustment to the site frontage carriageways which currently occupy part of the development site. The realignment has minimal impact on current road users and needs to be viewed in balance to the potential road safety improvement.
- The proposed development will provide acceptable on-site traffic amenity to manage the needs of all users including pedestrians and delivery vehicles.

Prepared by

*T Keating*

Mr. T Keating  
Director, TPK & Associates



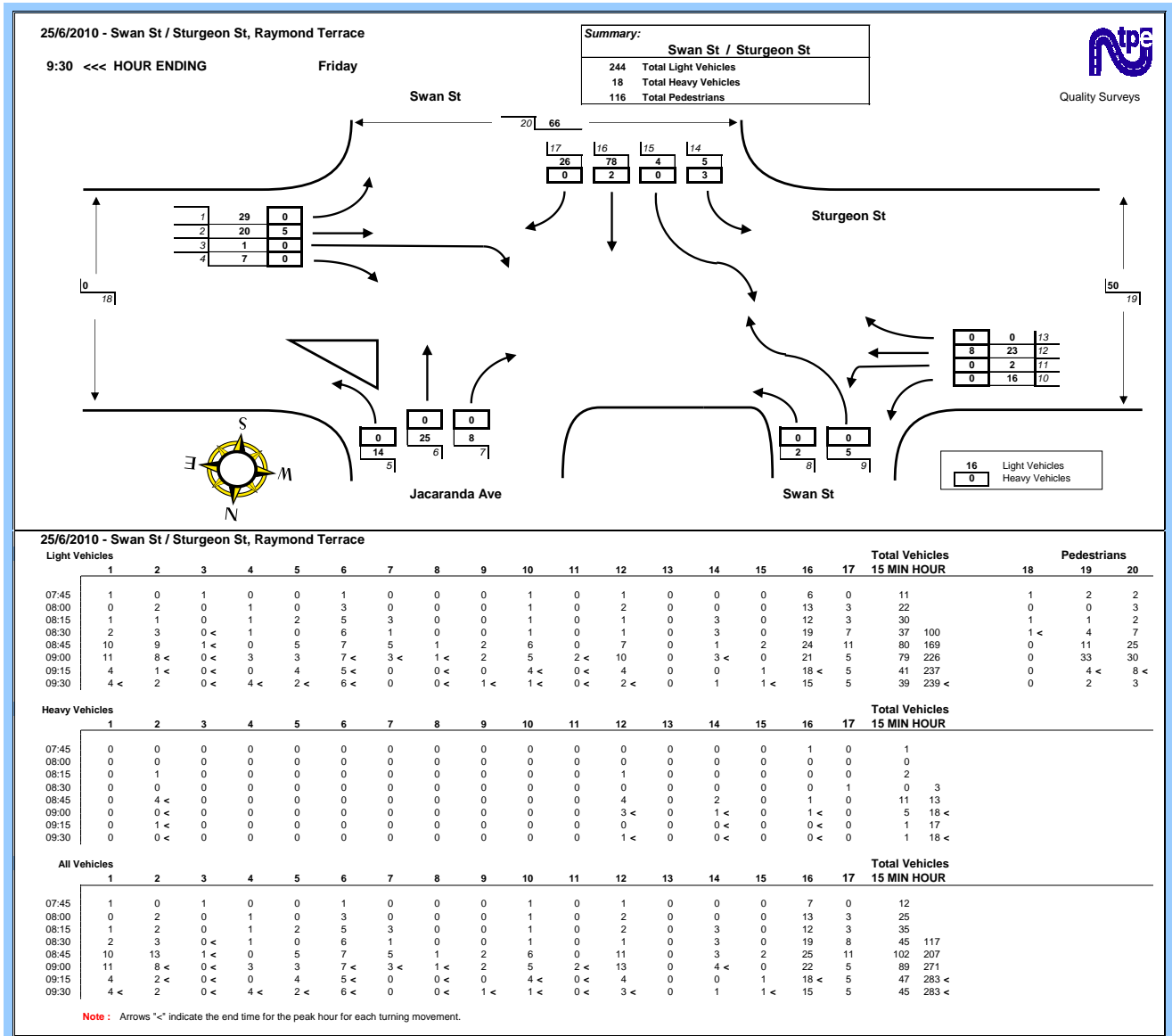
# **APPENDIX A**

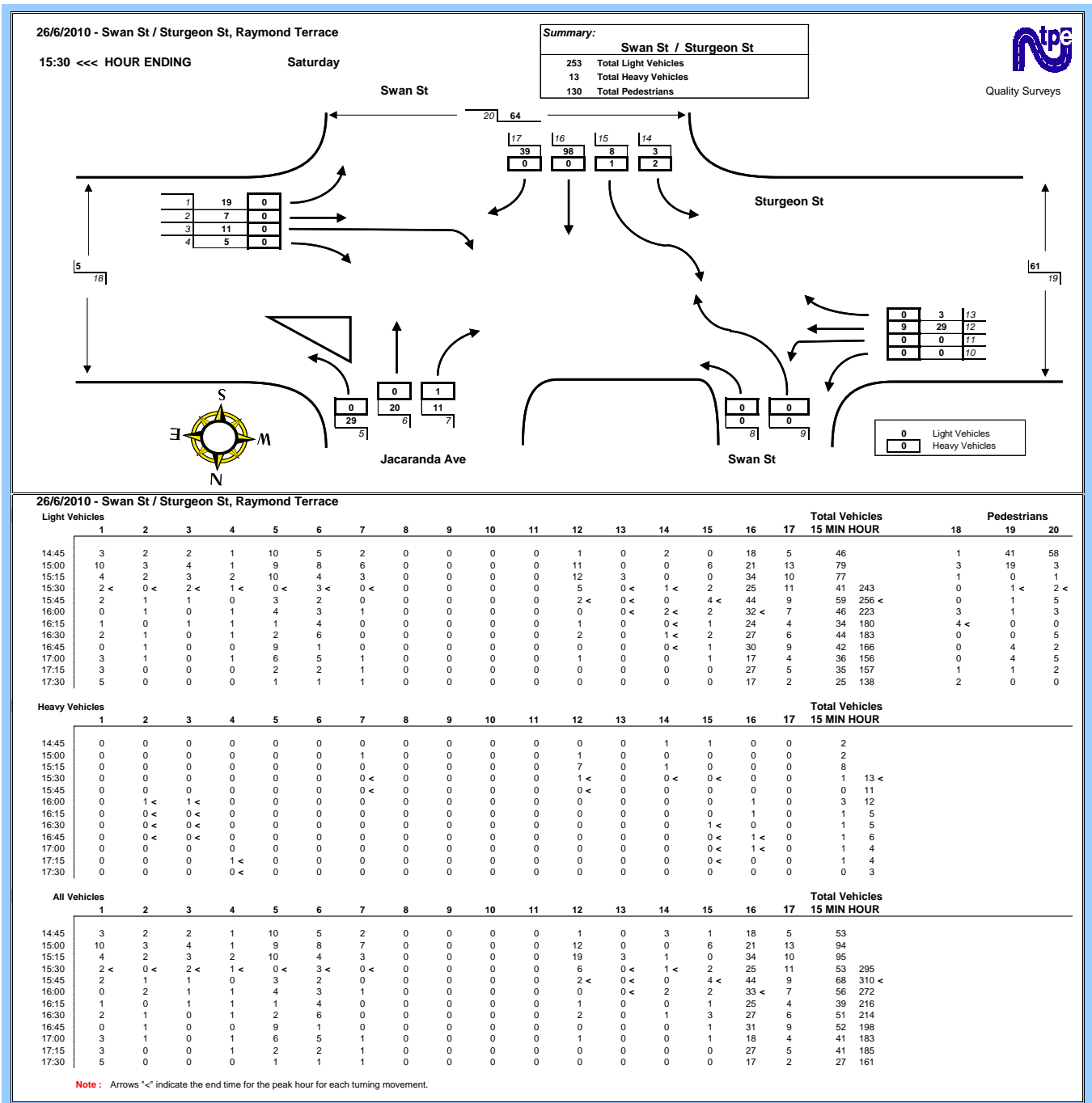
# **SITE LAYOUT**

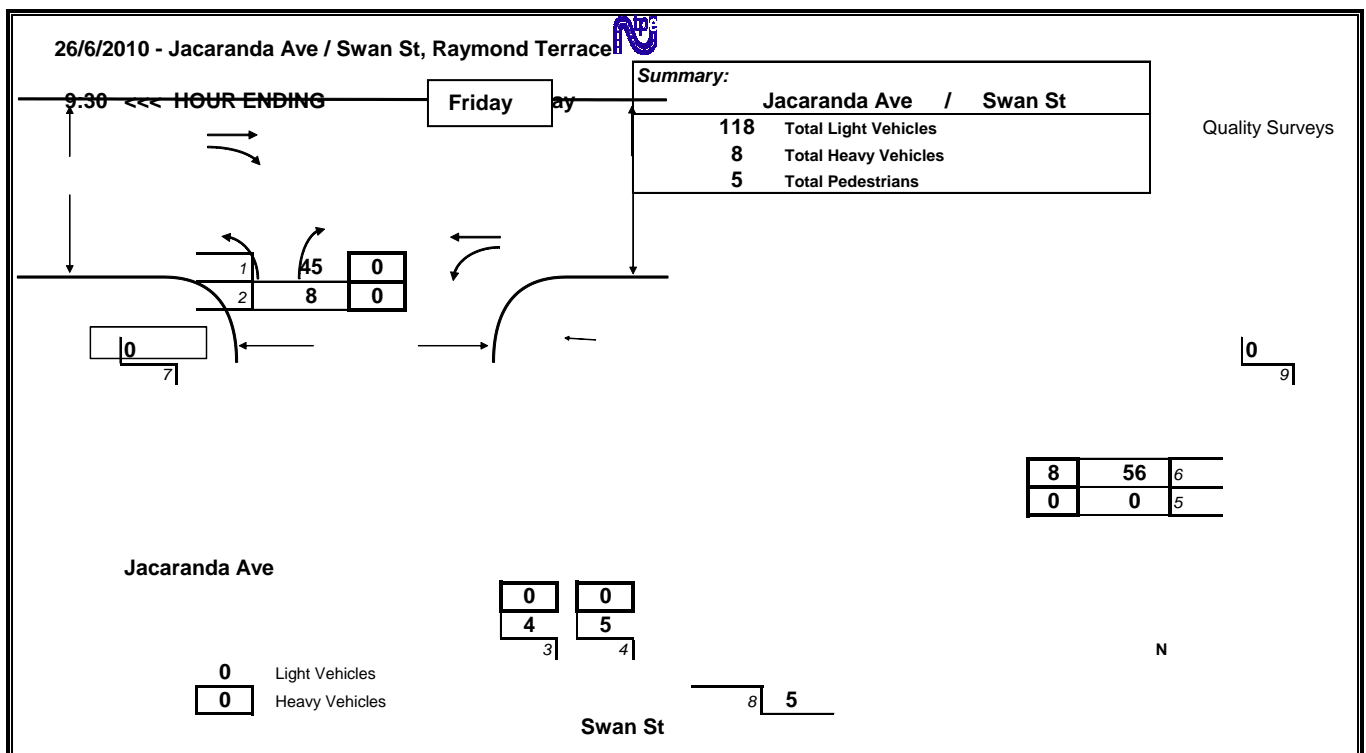


# **APPENDIX B**

# **TRAFFIC DATA**







**26/6/2010 - Jacaranda Ave / Swan St, Raymond Terrace**

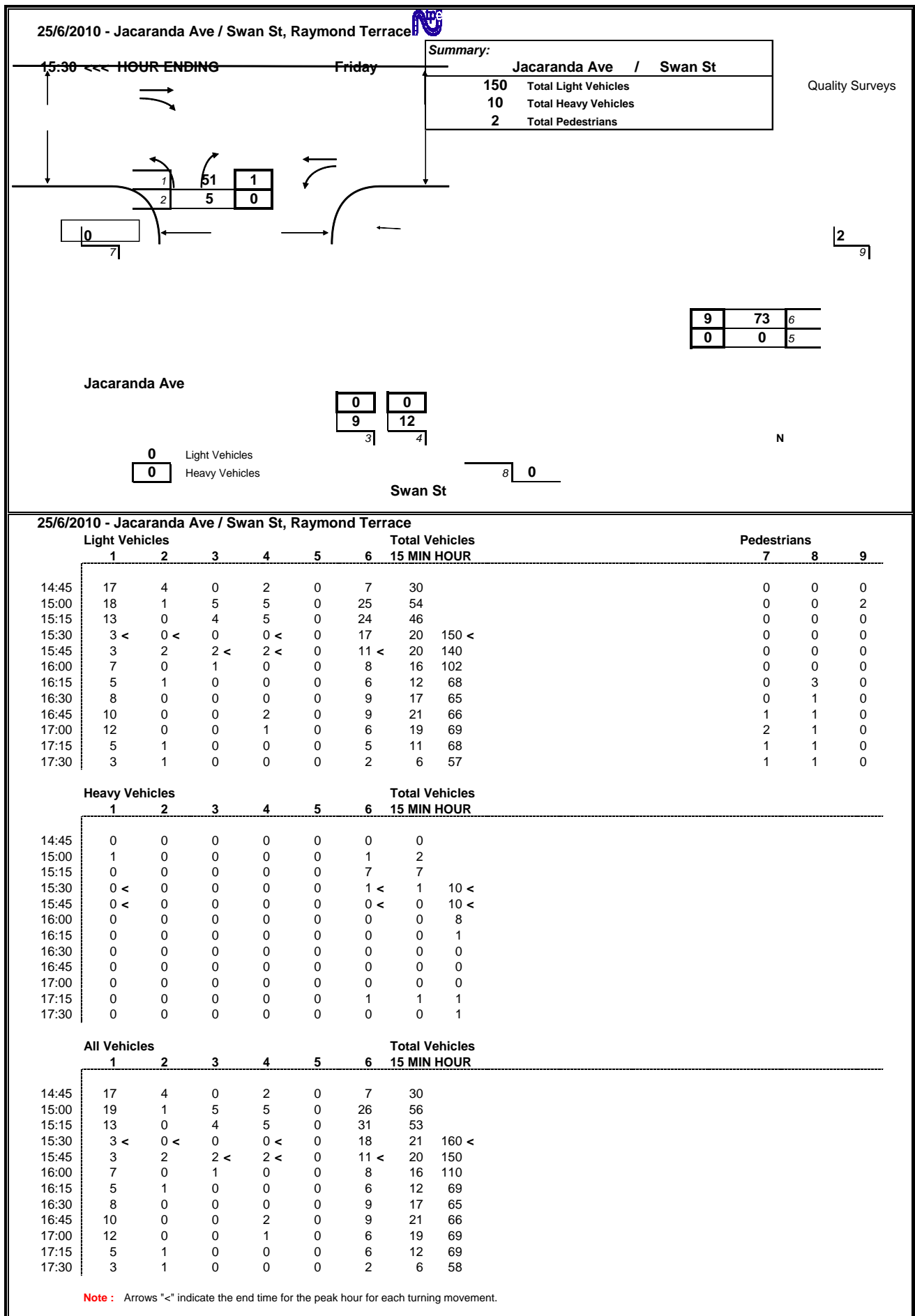
	Light Vehicles						Total Vehicles		Pedestrians		
	1	2	3	4	5	6	15 MIN HOUR		7	8	9
07:45	1	0	0	0	0	1	2		0	0	0
08:00	3	0	0	0	0	6	9		0	2	0
08:15	9	0	1	0	0	5	15		0	0	0
08:30	7	0	0	0	0	9	16	42	1	0	1
08:45	17	0	1	1	0	18	37	77	0	0	0
09:00	13 <	2	1	2	0	18	36	104	0	3	0
09:15	8	4	1	1	0	9	23	112	0	2	0
09:30	7	2 <	1 <	1 <	0	11 <	22	118 <	0	0	0

	Heavy Vehicles						Total Vehicles	
	1	2	3	4	5	6	15 MIN	HOURLY
07:45	0	0	0	0	0	0	0	
08:00	0	0	0	0	0	0	0	
08:15	0	1	0	0	0	1	2	
08:30	0	0 <	0	0	0	1	1	3
08:45	0	0 <	0	0	0	4	4	7
09:00	0	0 <	0	0	0	3 <	3	10 <
09:15	0	0	0	0	0	0	0	8
09:30	0	0	0	0	0	1	1	8

	All Vehicles					Total Vehicles		
	1	2	3	4	5	6	15 MIN HOUR	
07:45	1	0	0	0	0	1	2	
08:00	3	0	0	0	0	6	9	
08:15	9	1	1	0	0	6	17	
08:30	7	0	0	0	0	10	17	45
08:45	17	0	1	1	0	22	41	84
09:00	13 <	2	1	2	0	21	39	114
09:15	8	4	1	1	0	9	23	120
09:30	7	2 <	1 <	1 <	0	12 <	23	126 <

**Note :** Arrows "<" indicate the end time for the peak hour for each turning movement.





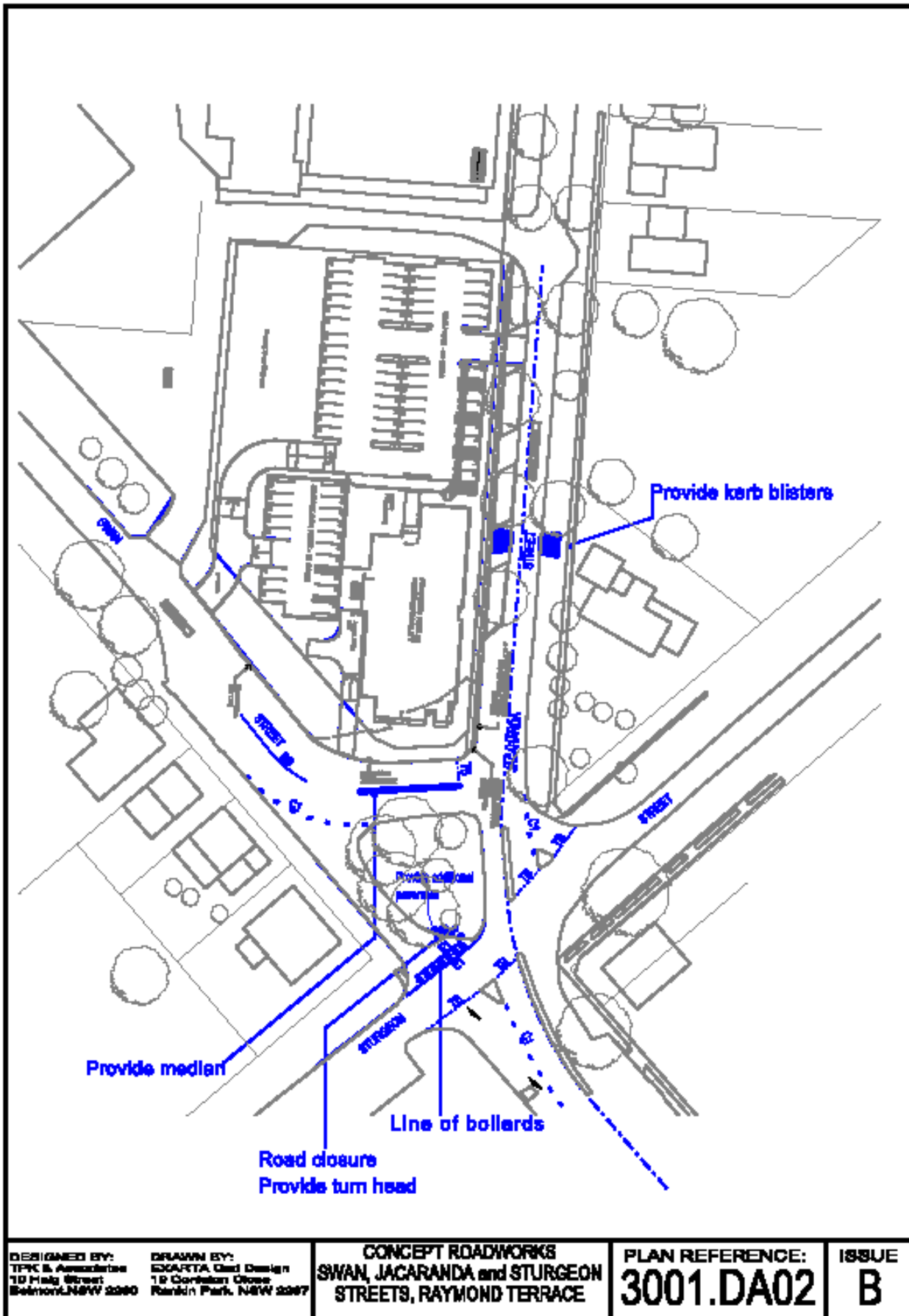
# **APPENDIX C**

## **INTERSECTION SURVEY**



# **APPENDIX D**

# **INTERSECTION CONCEPT**



Plot Information- Date- 12/10/2011 Time- 2:16:55 PM

Cad File- RT.dgn

Scale- 1:8000 m / mm Sheet size- ISO A4