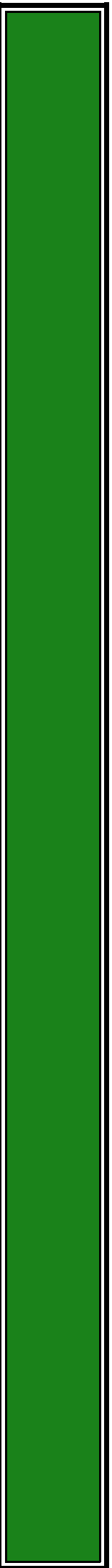
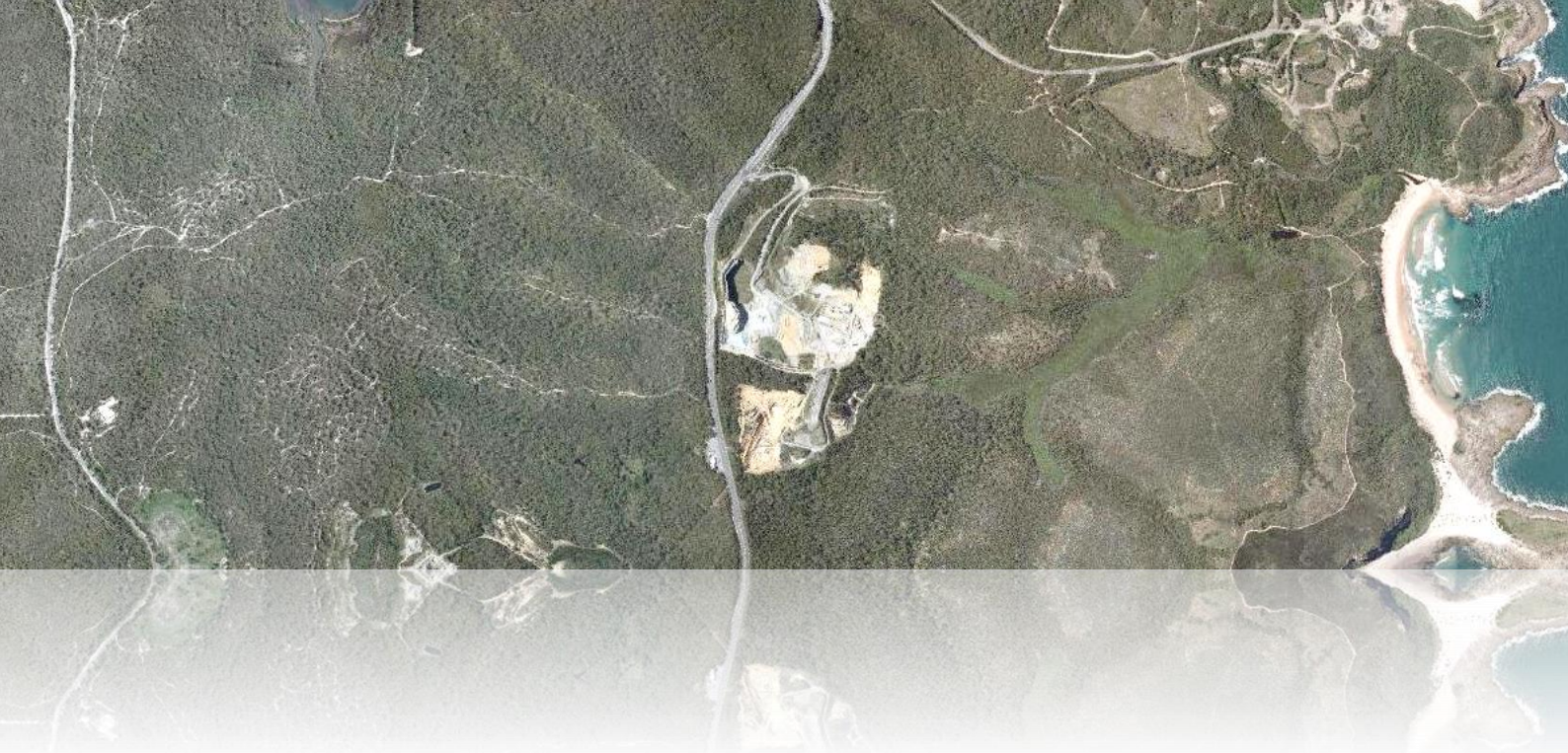


Appendix 8

Traffic Impact Assessment





State Significant Development Application

TRAFFIC IMPACT ASSESSMENT

LOTS 1 & 2 DP 549905, AND LOT 465 DP 755266,

800-900 PACIFIC HIGHWAY, MOONEE



**Address: Shop 7, 720 Old Princes Highway Sutherland NSW 2232
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Division of RAMTRANS Australia ABN: 45067491678

Transport Planning, Traffic Impact Assessments, Road Safety Audits, Expert Witness

Development Type: STATE SIGNIFICANT DEVELOPMENT APPLICATION

Site Address: LOTS 1 & 2 DP549905, AND LOT 465 DP755266,
800-900 PACIFIC HIGHWAY, MOONEE

Prepared for: Nexus Environmental Planning Pty Ltd for Hodgson
Quarries & Plant Pty Ltd

Document Reference: 15075.01FA

Status	Issue	Prepared By	Checked By	Date
Draft	A	JW	CM	12 th November 2013
Draft	B	JW	CM	17 th June 2015
Draft	C	TH	CM	21 st August 2015
Final	A	TH	CM	16 th November 2015

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1 INTRODUCTION

McLaren Traffic Engineering has been commissioned by Nexus Environmental Planning to undertake a traffic impact assessment for a proposed state significant development located at 800-900 Pacific Highway, Moonee.

Reference is made to the *Preliminary Environmental Assessment* produced by Nexus Environmental Planning dated 23 April 2014 which includes the following description of the proposed development:

It is proposed to import cementitious materials which would:

- 1. In some circumstances, be crushed and blended with the extractive materials won on the Site to produce a more marketable product.*
- 2. In other circumstances, include materials which could not be blending with quarry products but could be sorted and/or processed for recycling at other facilities not on the Site.*

It is proposed to import:

- Cementitious materials*
- Brick*
- Tiles*
- Glass*
- Ash*
- Clay, sand and soil.*

The construction and building demolition waste materials which Hodgson Quarry Products intends to bring to the quarry would be sourced and delivered to the Site as either sorted or mixed loads. Mixed loads would most likely also include the following materials:

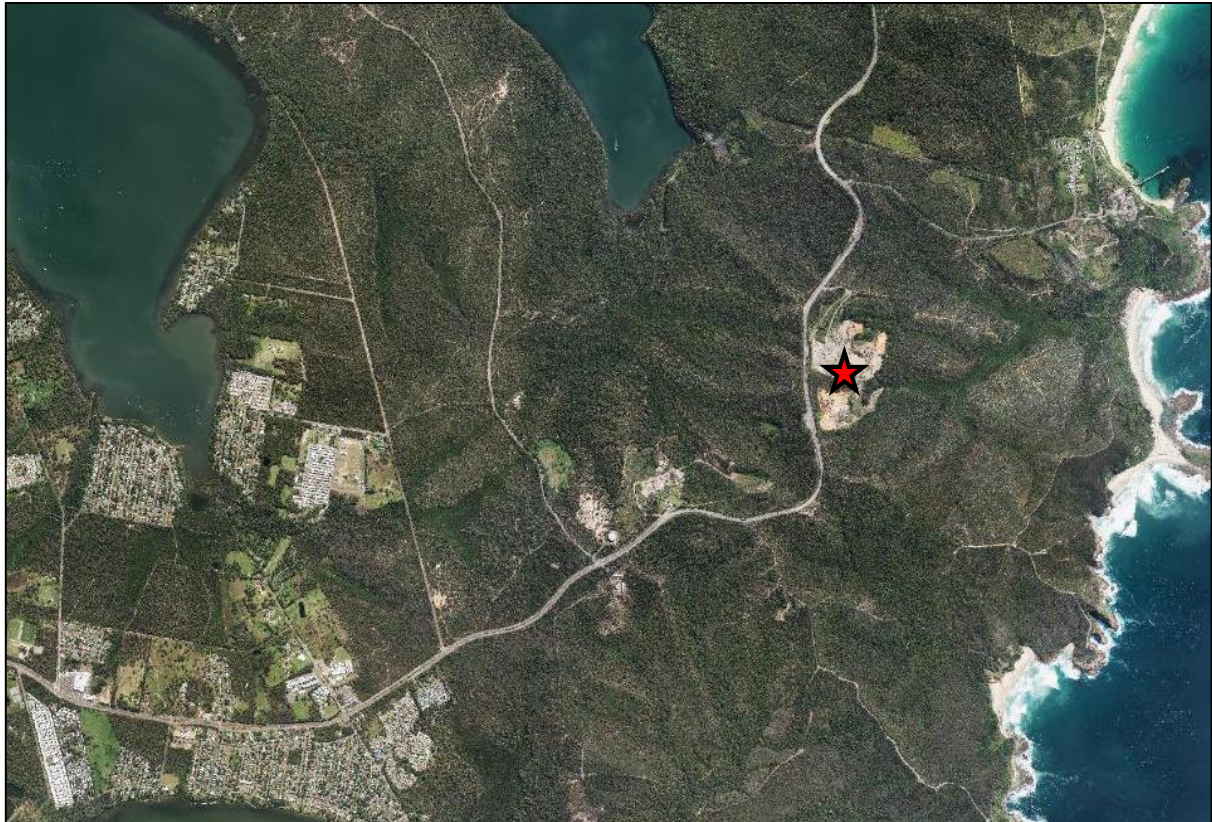
- various timbers such as hardwoods and pine*
- metals such as copper, aluminium and steel.*

It is estimated that the maximum amount of materials to be imported would be 200,000 tonnes per annum. If 200,000 tonnes of material is imported to the Site over a period of 48 weeks, the average weekly importation of material would be 4,200 tonnes which, assuming an average load of 30 tonnes, would generate an additional 28 one-way truck movements per day. It may well be, however, that there would be peaks in the number of truck movements above the 28 one-way movements, depending on contracts won for receiving construction and demolition materials.

In addition to the importation of materials, the proposed development will require 4 additional staff on-site for a maximum total of 8.

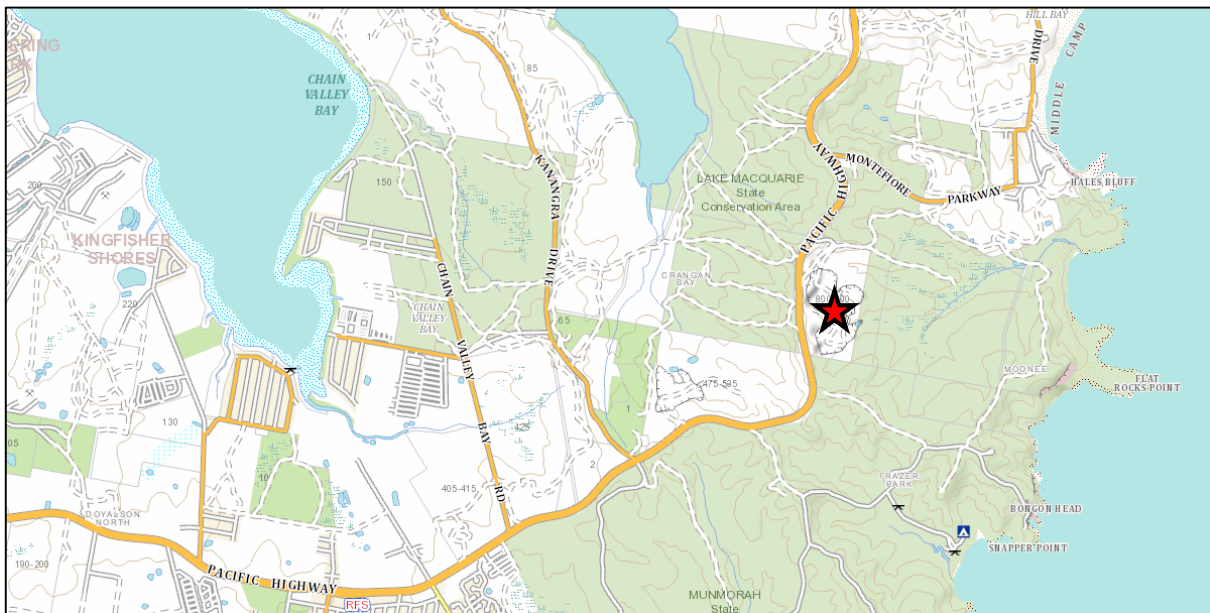
The subject site is located within the Lake Macquarie City Council local government area, with access to the site via the existing driveway from the Pacific Highway.

1.1 Site Context



★ Site Location

FIGURE 1: SITE CONTEXT – AERIAL PHOTO



★ Site Location

FIGURE 2: SITE CONTEXT – MAP

1.2 State Environmental Planning Policy (Infrastructure) 2007

The proposed development qualifies as a development with relevant size or capacity under Clause 104 of State Environmental Planning Policy (Infrastructure) 2007 considering its total area of approximately 400,000m² exceeds the maximum referral threshold of 4000m² for *Commercial Premises and Industry with access to a classified road* stated in Schedule 3 of the SEPP.

Accordingly, the proposed development requires formal referral to the *Roads and Maritime Services* (RMS), particularly in view of retaining all vehicular access to the Pacific Highway (a classified road).

1.3 Environmental Assessment Requirements (EARs)

Reference is made to the Secretary's Environmental Assessment Requirements, which have the following traffic related EARs:

traffic and transport – including:

- *details of all traffic and transport predictions for the development during construction and operation, including a description of haul routes;*
- *details on access to the site from the road network including land ownership, intersection location, design and sight distance;*
- *an assessment of predicted impacts on road safety and the capacity of the road network to accommodate the project;*
- *plans of any road upgrades, rail and other infrastructure works or new roads required for the development; and*
- *detailed plans of the proposed layout of the internal road network and parking on site in accordance with the relevant Australian standards.*

The issues outlined above have been assessed as a part of this report.

2 EXISTING CONDITIONS

2.1 Site Description

The subject site is located on the Pacific Highway at Moonee, approximately 750 m south of Montefiore Street, Catherine Hill Bay.

Aside from the existing quarry land use, the immediate area is bushland within the Lake Macquarie State Conservation Area (west of the highway) and the Munmorah State Conservation Area (east of the highway).

Resurfacing work has recently been carried out on the Pacific Highway at the subject site, and linemarking work is ongoing. **Annexure A** contains photographic exhibits of the site entrance driveway and intersection linemarking.

2.2 Existing Operations

It is noted that activity related to the quarry is heavily dependent on weather, with rain diminishing or stopping work. Bureau of Meteorology (BOM) data for Nobbys Head, approximately 32 km NNE of the site has been used to estimate a total of 173 annual working days without significant rain. An assumption was made for 45 possible working weeks per year (two weeks for holidays) and 6 working days per week (no significant traffic generation on Sundays), for a total of 270 possible working days annually. BOM data showed an annual average of 98.7 rainy days and 221.9 clear or cloudy days, or 30.8% and 69.2% respectively, of a total recorded 320.6 days (note that data does not extend to a full 365 days). The BOM data is reproduced in **Annexure B** for reference.

The details of the current production of the site and consent for vehicle movements is indicated in **Figure 3**, extracted from the *Preliminary Environmental Assessment* produced by *Nexus Environmental Planning* dated 23 April 2014.

The Environmental Impact Statement submitted with Development Application No.83/240, when discussing truck movements to the site, indicates that the following existing truck deliveries from the site were approved pursuant to the 1979 consent:

• Gravel	11
• Sand	1
• Lime stabilisation plant	2
Total	14

As such, the 1979 approval related to 28 truck movements per day.

As stated in the Environmental Impact Statement, the above truck movements are based on the following:

- a 45 week working year.
- production of 60,000 tonne per annum of gravel.
- production of 4,000 tonne per annum of sand.
- trucks carrying an average load of 20 tonnes.

FIGURE 3: DETAILS OF CURRENT CONSENT

2.3 Road Network

In the vicinity of the site, the Pacific Highway has a width of approximately 18m, increasing to 21m to accommodate dedicated turning lanes at the site's access driveway. It carries two lanes of traffic in each direction, separated by a 3m chevron line marked median and recently installed BRIFEN fencing. The road has 3m shoulders on each side.

The Pacific Highway is a State Road with a sign-posted speed limit of 90km/h near the site entrance.

Resurfacing works were recently carried out along the Pacific Highway at the site entrance. Linemarking has since been replaced, however, the dedicated right turn bay for northbound traffic has been left without turning arrows, and is separated from the northbound through lanes by a solid line rather than a broken line. The linemarking should be finalised by RMS to retain the right turn bay as previously provided.

2.4 Traffic Flows

An intersection survey was conducted on Wednesday 20th May 2015 at the site entrance along the Pacific Highway between the times of 5:00AM – 10:00AM and 2:00PM and 7:00PM, representing a typical weekday. The survey included both traffic flows along the Pacific Highway and movements entering and exiting the site. The results are summarised in **Table 1**, with the full survey results depicted in **Annexure C** for reference.

TABLE 1: INTERSECTION COUNT SUMMARY

Peak Period	Pacific Highway Through Traffic	
	Northbound	Southbound
7:15AM – 8:15AM	925	666
4:00PM – 5:00PM	734	912

Historic tube counts conducted on the Pacific Highway at Nord's Wharf, approximated 3.5km north of the site, from Monday 17th June to Wednesday 26th June 2013 by the RMS indicate average weekday peak volumes of 1527 and 1615 in the AM and PM peak periods respectively and are in agreement with the above data. The complete RMS tube count data is shown in **Annexure D** for reference.

2.5 Intersection Performances

The above traffic volumes have been used to assess the efficiency of the intersection in SIDRA Intersection 6.0. The gap acceptance for truck movements into and out of the site has been set at 12s to determine a worst case for heavily laden vehicles with acceleration rates of approximately 0.5m/s². The results of the analysis are summarised in **Table 2**.

TABLE 2: INTERSECTION PERFORMANCES (SIDRA INTERSECTION 6.0)

Intersection	Peak Hour	Degree of Saturation ⁽¹⁾	Average Delay ⁽²⁾	Level of Service ⁽³⁾	Control Type	Worst Movement ⁽⁴⁾
			(sec/vehicle)			
EXISTING PERFORMANCE						
Pacific Highway / Site Entrance	AM	0.28	0.2 (Worst: 34.5)	A (Worst: C)	Give Way	RT from Pacific Highway (S)
	PM	0.39	0.6 (Worst: 199)	A (Worst: F)		RT from Pacific Highway (S)

NOTES:

- (1) Degree of Saturation is the ratio of demand to capacity for the most disadvantaged movement.
- (2) Average delay is the delay experienced on average by all vehicles. The value in brackets represents the delay to the most disadvantaged movement.
- (3) Level of Service is a qualitative measure of performance describing operational conditions. There are six levels of service, designated from A to F, with A representing the best operational condition and level of service F the worst. The LoS of the intersection is shown in bold, and the LoS of the most disadvantaged movement is shown in brackets.
- (4) Origin of traffic indicated by (N) for North etc.

As shown, the Pacific Highway is operating at a Level of Service “A” at the site frontage under the existing conditions, including the currently approved maximum 28 daily truck movements, denoting high levels of efficiency and extra capacity.

3 TRAFFIC ASSESSMENT

3.1 Traffic Generation

The development application proposes the importation of an estimated maximum 200,000 tonnes of construction/demolition waste to be processed on site. This change will require an increase in truck movements into and out of the site. A maximum extraction rate of 64,000 tonnes in any 12 month period is to be maintained.

The tonnage of vehicles delivering and removing materials from the site varies from 18 tonne – 50 tonne. An average truck of 30 tonnes has been used for the following generation of existing and estimated future traffic generation, shown in **Table 3**.

TABLE 3: ESTIMATED DAILY TRUCK VOLUMES

Material	t/year	t/week	days / year	t/day	Truck ⁽¹⁾⁽²⁾ movements per day	Estimated peak hourly truck movements
EXISTING OPERATIONS						
Road Base Exports (Existing)	64000	1420	170	240	28 (14 in, 14 out)	3 IN, 3 OUT
Total					28 (14 in, 14 out)	3 IN, 3 OUT
PROPOSED OPERATIONS						
Material Imports (Proposed)	200000	4200	173	840	56 (28 in, 28 out)	4 IN, 4 OUT
Road Base Exports (Existing)	64000	1420	170	240	28 (14 in, 14 out)	3 IN, 3 OUT
Total					84 (42 in, 42 out)	7 IN, 7 OUT

Note: (1) Calculation of truck movements based on truck capacity, 5 days weekly. Example: 300 / 30 tonne truck and dog loads = 10 Loaded Trips or 20 movements in total (inbound and outbound).

(2) Imports are to be conducted in 30 tonne loads by truck and dog vehicles, exports in 15 - 20 tonne loads by medium to heavy rigid vehicles.

Based on the proposed maximum 200,000 tonnes to be imported annually and the unchanged rate of approved extracted materials leaving the site, the site will generate 84 truck movements per day, with an estimated 14 (7 IN, 7 OUT) during the peak hour.

In addition to the truck movements estimated above, the arrival and departure of the 8 employees at the site results in 16 car trips per day, which can be assumed to occur during the peak hour.

The estimated total traffic generated by the quarry, with the increase of imported materials to 200,000 tonnes per year, is 88 vehicle movements per day, comprising 84 heavy vehicle movements (42 in, 42 out) and 16 car movements (8 in, 8 out). The resulting peak traffic movements can be estimated as 14 truck movements (7 in, 7 out) and 8 car movements (4 in).

3.2 Traffic Assignment

Based on intersection survey results and the recommended restriction on heavy traffic conducting right turns onto the Pacific Highway from the site, the resulting traffic assignment and volumes are shown in **Table 4**.

TABLE 4: TRAFFIC ASSIGNMENT

Peak Period	Left In		Right In		Left Out		Right Out	
	Car	Truck	Car	Truck	Car	Truck	Car	Truck
AM	50% (4)	25% (2)	50% (4)	75% (5)	0	100% (7)	0	0
PM	0	25% (2)	0	75% (5)	50% (4)	100% (7)	50% (4)	0

3.3 Projected Growth

Based on the RMS AADT data from the Swansea counting site for the years of 1984, 2004 and 2010, a growth rate of 0.62% has been assumed to calculate the volume of traffic along the Pacific Highway in 2035, summarised in **Table 5**.

TABLE 5: ESTIMATED 20 YEAR TRAFFIC VOLUME GROWTH

Year	Volume
1984	14000
2004	15700
2010	16621
2035 (predicted)	19187

3.4 Traffic Impact

The traffic generation and assignment of the site detailed in 3.1 & 3.2 have been added to the existing traffic volumes and the impact assessed using SIDRA Intersection for the current and future (2035) volumes. The analysis is summarised in **Table 6**.

TABLE 6: INTERSECTION PERFORMANCES (SIDRA INTERSECTION 6.0)

Intersection	Peak Hour	Degree of Saturation ⁽¹⁾	Average Delay ⁽²⁾ (sec/vehicle)	Level of Service ⁽³⁾	Control Type	Worst Movement ⁽⁴⁾
EXISTING PERFORMANCE						
Pacific Highway / Site Entrance	AM	0.28	0.2 (Worst: 34.5)	A (Worst: C)	Give Way	RT from Pacific Highway (S)
	PM	0.39	0.6 (Worst: 199)	A (Worst: F)		RT from Pacific Highway (S)
FUTURE PERFORMANCE						
Pacific Highway / Site Entrance	AM	0.277	0.4 (Worst: 42)	A (Worst: C)	Give Way	RT from Pacific Highway (S)
	PM	0.39	1.3 (Worst: 224)	A (Worst: F)		RT from Pacific Highway (S)
2035 PERFORMANCE						
Pacific Highway / Site Entrance	AM	0.31	0.4 (Worst: 40)	A (Worst: C)	Give Way	RT from Pacific Highway (S)
	PM	0.52	2.6 (Worst: 525)	A (Worst: F)		RT from Pacific Highway (S)

NOTES:

- (1) Degree of Saturation is the ratio of demand to capacity for the most disadvantaged movement.
- (2) Average delay is the delay experienced on average by all vehicles. The value in brackets represents the delay to the most disadvantaged movement.
- (3) Level of Service is a qualitative measure of performance describing operational conditions. There are six levels of service, designated from A to F, with A representing the best operational condition and level of service F the worst. The LoS of the intersection is shown in bold, and the LoS of the most disadvantaged movement is shown in brackets.
- (4) Origin of traffic indicated by (N) for North etc.

As shown, the intersection maintains a high level of efficiency, with an overall Level of Service of “A”, representing minimal delays and ample capacity. The additional traffic generation as a result of the increased volume of imports has no detrimental effect on the Pacific Highway.

A sensitivity analysis has been performed, based on the number of vehicles required to create a queue length exceeding the 80m right turn lane. The results of this analysis is shown in **Table 7**.

**TABLE 7: PM PEAK QUEUE LENGTH SENSITIVITY
(SIDRA INTERSECTION 6.0)**

Number of Peak Hour Trucks	Probability of Lane Blockage	Frequency of Occurrence
14 (Proposed Volume)	0%	N/A
20	0%	N/A
26	0%	N/A
30	1%	Once per quarter
32	7.6%	Once per fortnight
34	17%	Once per week

As shown, the proposed volume of 14 peak hour trucks does not approach the point at which the efficiency of the Pacific Highway is detrimentally affected and further that the intersection has the capacity for increased traffic volumes should scope of the development be increased in the future.

3.5 Driveway Safety Performance

The driveway location has been assessed against the sight distances required by AS2890.2, being 125m and 200m for 5 and 8 second gaps along a 90km/h roadway. The sight distances to the north of the site exceed the 200m required for an 8 second gap, while only 175m is available to the south. The sight distances from the driveway are depicted in **Figure 4 & Figure 5**.



FIGURE 4: DRIVEWAY SIGHT DISTANCE - SOUTH



FIGURE 5: DRIVEWAY SIGHT DISTANCE - NORTH

Based on the sight distances available and the size and performance of the vehicles exiting the site, it is recommended that right turns be restricted out of the driveway for vehicles of over 8m length.

4 INTERNAL DESIGN

4.1 Parking Provision

The Lake Macquarie Council DCP 2014 does not provide a specific rate at which parking must be provided for Quarries or Waste Disposal Facilities. The most similar listed development type, Industry with a requirement of 1 space per 50m² GFA, has been adopted. **Table 8** shows the resulting parking requirement.

TABLE 8: PARKING REQUIREMENT

Land Use	Rate	Scale	Spaces Required	Spaces Provided
Industry	1/50m ²	236m ²	4.8	15
Total			4.8 (5)	15

The area surrounding the site shed currently operates as an informal parking area with a total capacity of minimum 15 spaces. Considering that the area currently operates effectively as an informal parking area, no modifications are necessary. An aerial image of the area is shown in **Figure 6**.



FIGURE 6: SITE SHED

4.2 Site Access

Access to the site is provided via the Pacific Highway by an 18m wide driveway, tapering to a 10m width entrance gate, shown in **Figure 7**.



FIGURE 7: SITE ENTRANCE

The driveway width and design is sufficient to accommodate vehicles of up to and including 20m length truck and dogs and exceeds the requirements for access driveways set in AS2890.2-Figure 3.1 for articulated vehicles (AVs).

Vehicles of over 8m length leaving the site are restricted to left turns only, entry to the site is permitted from both directions.

4.3 Internal Roadway Design

The layout and design of the internal roadways is compliant with the relevant sections of AS2890.2 in terms of its widths and grades. The design includes a maximum gradient of 7.6% for heavy vehicles and minimum carriageway widths of 8m. The internal road layout is depicted in **Annexure E** for reference.

5 CONCLUSIONS

The traffic impacts of the proposed state significant development located at 800-900 Pacific Highway, Moonee have been assessed.

The impact of the estimated peak hour traffic generation of 14 truck movements (7 in, 7 out) and 16 car movements (8 in AM, 8 out PM) on the Pacific Highway / Site Access Driveway intersection have been assessed to have no detrimental impact based on the existing and estimated 2035 volumes along the Pacific Highway.

The site provides informal parking for up to 15 vehicles for staff and visitors, exceeding the Council requirement by a numerical 10 spaces.

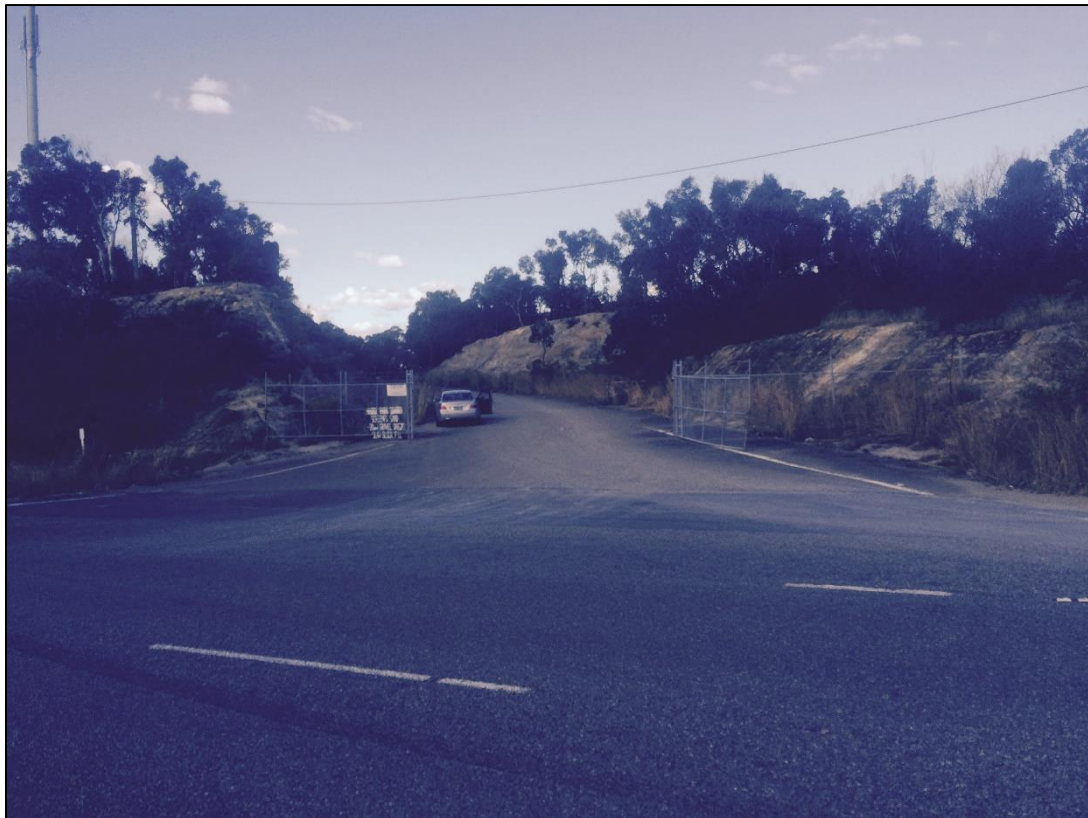
The sight distances at the access driveway from the Pacific Highway have been found as 175m to the south and at least 250m to the north. It is therefore determined under AS2890.2 that the access is safe for on the condition that no right turn is permitted for vehicles over 8 metres length.

In view of the foregoing, the proposed state significant development is fully supported on traffic and parking grounds.

**ANNEXURE A: PHOTOGRAPHS OF SITE ENTRANCE
(SHEET 1 OF 2)**



**ANNEXURE A: PHOTOGRAPHS OF SITE ENTRANCE
(SHEET 2 OF 2)**



ANNEXURE B: BUREAU OF METEOROLOGY WEATHER DATA

Australian Government
Bureau of Meteorology

Climate statistics for Australian locations

Monthly climate statistics
All years of record

Site information

Site name: NEWCASTLE NOBBYS SIGNAL STATION AWS
 Site number: 061055
 Latitude: 32.92 °S Longitude: 151.80 °E
 Elevation: 33 m
 Commence date: 1962 Status: Open
 Latest available data: 11 Jun 2015

Additional information
Additional site information

Nearest alternative sites

- 1 051223 MARYVILLE (4.3m)
- 2 051590 NEWCASTLE UNIVERSITY (9.0km)
- 3 051076 WILLIAMTOWN RAAF (14.3m)

View larger map

0 150 300 500 800m
Elevation - metres

View: Main statistics All available
Period: Use all years of data
Text size: Normal Large

Statistics	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Years
Temperature														
Mean maximum temperature (°C)	25.6	25.4	24.7	22.8	20.0	17.5	16.7	18.0	20.2	22.1	23.5	24.9	21.8	151 1862-2015
Mean minimum temperature (°C)	19.2	19.4	18.3	15.3	12.0	9.7	8.5	9.2	11.5	14.0	16.1	18.0	14.3	151 1862-2015
Rainfall														
Mean rainfall (mm)	87.9	108.1	118.9	117.2	117.0	117.1	93.8	73.8	72.1	72.5	71.4	80.9	1132.4	150 1862-2015
Decile 5 (median) rainfall (mm)	70.0	88.0	94.5	92.8	104.1	93.3	80.0	57.7	56.7	63.4	65.1	62.8	1052.8	151 1862-2015
Mean number of days of rain ≥ 1 mm	8.2	8.2	9.1	9.2	9.0	9.1	8.2	7.4	7.1	7.8	7.8	7.6	98.7	150 1862-2015
Other daily elements														
Mean daily sunshine (hours)														
Mean number of clear days	6.3	5.3	6.4	7.4	6.9	7.5	9.7	10.8	9.3	7.4	5.5	6.3	88.8	44 1957-2001
Mean number of cloudy days	12.4	11.9	11.7	10.7	11.9	11.7	9.5	8.3	9.0	12.1	12.2	11.7	133.1	44 1957-2001
9 am conditions														
Mean 9am temperature (°C)	21.9	21.9	20.9	18.1	14.6	12.1	10.9	12.2	15.1	17.9	19.5	21.1	17.2	103 1907-2010
Mean 9am relative humidity (%)	77	80	79	78	79	79	77	72	69	68	72	74	75	103 1907-2010
Mean 9am wind speed (km/h)	20.9	20.8	20.8	21.5	23.6	26.4	26.3	25.8	25.1	23.7	23.2	21.7	23.3	53 1957-2010
3 pm conditions														
Mean 3pm temperature (°C)	23.3	23.5	22.9	21.3	18.8	16.5	15.9	16.9	18.5	19.8	21.0	22.4	20.1	101 1909-2010
Mean 3pm relative humidity (%)	72	74	72	66	64	63	59	56	59	64	68	71	66	101 1909-2010
Mean 3pm wind speed (km/h)	33.2	32.6	30.6	28.0	26.1	28.2	28.9	30.5	33.9	34.4	35.3	35.2	31.4	52 1957-2010

red = highest value blue = lowest value

Product IDCJCM0028 Prepared at Thu 11 Jun 2015 01:32:02 AM EST

ANNEXURE D: RMS TUBE COUNT DATA (SHEET 1 OF 10)

MetroCount Traffic Executive Weekly Vehicle Counts (Virtual Week)

VirtWeeklyVehicle-0 -- English (ENA)

Datasets:

Site: [N10659SBRL] Pacific Hwy, Nords Wharf Southbound Right Lane
Attribute: LM2
Direction: 3 - South bound, A trigger first. **Lane:** 1
Survey Duration: 19:22 Monday, 17 June 2013 => 19:01 Wednesday, 26 June 2013,
Zone:
File: SITE 9 SB_RL_26Jun2013.EC1 (Plus)
Identifier: DX6558X4 MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm: Factory default axle (v4.06)
Data type: Axle sensors - Paired (Class/Speed/Count)

Site: [N10659NBLL] Pacific Hwy Nords Wharf Northbound Left Lane
Attribute: LM2
Direction: 1 - North bound, A trigger first. **Lane:** 0
Survey Duration: 19:35 Monday, 17 June 2013 => 19:08 Wednesday, 26 June 2013,
Zone:
File: SITE 9 NB_LL_26Jun2013.EC0 (Plus)
Identifier: DY68A687 MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm: Factory default axle (v4.06)
Data type: Axle sensors - Paired (Class/Speed/Count)

Site: [N10659NBRL] Pacific Hwy Nords Wharf Northbound Right Lane
Attribute: LM2
Direction: 1 - North bound, A trigger first. **Lane:** 0
Survey Duration: 19:37 Monday, 17 June 2013 => 19:03 Wednesday, 26 June 2013,
Zone:
File: SITE 9 NB_RL_26Jun2013.EC0 (Plus)
Identifier: DT82VPY2 MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm: Factory default axle (v4.06)
Data type: Axle sensors - Paired (Class/Speed/Count)

Site: [N10659SBLL] Pacific Hwy, Nords Wharf Southbound Left Lane
Attribute: LM2

ANNEXURE D: RMS TUBE COUNT DATA (SHEET 2 OF 10)

Direction: 3 - South bound, A trigger first. **Lane:** 0
Survey Duration: 19:20 Monday, 17 June 2013 => 18:50 Wednesday, 26 June 2013,
Zone:
File: SITE 9 SB_LL_26Jun2013.EC0 (Plus)
Identifier: DY7063Y8 MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm: Factory default axle (v4.06)
Data type: Axle sensors - Paired (Class/Speed/Count)

Profile:
Filter time: **19:20 Monday, 17 June 2013 => 19:08 Wednesday, 26 June 2013 (8.99227)**
Included classes: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Speed range: 10 - 160 km/h.
Direction: North, East, South, West (bound), P = North
Separation: Headway > 0 sec, Span 0 - 100 metre
Name: Default Profile
Scheme: Vehicle classification (AustRoads94)
Units: Metric (metre, kilometre, m/s, km/h, kg, tonne)
In profile: Vehicles = 153360 / 153416 (99.96%)

ANNEXURE D: RMS TUBE COUNT DATA (SHEET 3 OF 10)

Weekly Vehicle Counts (Virtual Week)

VirtWeeklyVehicle-0

Site: N10659SBRL.1.0S N10659NBLL.0.ON N10659NBRL.0.ON N10659SBLL.0.0S

Description: Multiple sites - See Header sheet for site descriptions.

Filter time: 19:20 Monday, 17 June 2013 => 19:08 Wednesday, 26 June 2013

Scheme: Vehicle classification (AustRoads94)

Filter: Cls(1 2 3 4 5 6 7 8 9 10 11 12) Dir(NESW) Sp(10,160) Headway(>0) Span(0 - 100)

Hour	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Averages	
								1 - 5	1 - 7
0000-0100	47.0	75.0	102.0	86.0	86.0	127.0	158.0	81.9	95.3
0100-0200	28.0	35.5	44.5	45.0	40.0	71.0	73.0	39.0	46.3
0200-0300	27.0	35.5	39.5	36.0	38.0	42.0	41.0	35.9	37.1
0300-0400	79.0	70.0	73.0	58.0	68.0	35.0	26.0	70.1	61.6
0400-0500	192.0	149.5	152.5	150.0	154.0	83.0	57.0	157.1	137.8
0500-0600	502.0	531.5	487.0	519.0	486.0	228.0	105.0	506.3	430.8
0600-0700	1061.0	1234.0	1162.0	1164.0	1172.0	430.0	232.0	1169.9	983.4
0700-0800	1512.0	1603.5	1491.0	1512.0	1478.0	642.0	312.0	1527.3	1293.9
0800-0900	1317.0	1400.0	1402.5	1369.0	1422.0	892.0	569.0	1387.6	1241.6
0900-1000	918.0	1014.0	1058.0	1080.0	1138.0	1126.0	835.0	1040.0	1026.8
1000-1100	887.0	906.5	911.0	905.0	1064.0	1245.0	1059.0	927.3	977.2
1100-1200	867.0	892.5	879.5	899.0	1045.0	1322.0	1182.0	907.9	984.3
1200-1300	855.0	897.0	911.0	937.0	1060.0	1273.0	1274.0	924.0	1001.7
1300-1400	885.0	936.5	950.5	927.0	1130.0	1266.0	1229.0	959.4	1023.4
1400-1500	962.0	1090.0	1083.5	1129.0	1346.0	1371.0	1107.0	1112.0	1140.2
1500-1600	1311.0	1461.5	1418.5	1392.0	1747.0	1279.0	1191.0	1458.6	1408.9
1600-1700	1478.0	1655.0	1543.5	1653.0	1779.0	1214.0	1122.0	1615.3	1515.9
1700-1800	1457.0	1498.5	1518.5	1568.0	1739.0	1163.0	873.0	1542.6	1426.0
1800-1900	813.0	937.0	913.0	916.0	1060.0	808.0	516.0	927.0	868.1
1900-2000	169.0	430.0	255.0	502.0	566.0	400.0	386.0	347.0	356.2
2000-2100	229.5	314.5	356.0	394.0	386.0	371.0	302.0	317.7	321.9
2100-2200	229.5	268.0	280.0	389.0	329.0	328.0	219.0	284.7	282.2
2200-2300	166.0	195.0	185.0	222.0	349.0	258.0	133.0	211.1	207.7
2300-2400	100.5	129.5	101.0	105.0	222.0	232.0	69.0	126.9	132.1
Totals									
0700-1900	13262.0	14292.0	14080.5	14287.0	16008.0	13601.0	11269.0	14328.9	13908.0
0600-2200	14951.0	16538.5	16133.5	16736.0	18461.0	15130.0	12408.0	16448.1	15851.8
0600-0000	15217.5	16863.0	16419.5	17063.0	19032.0	15620.0	12610.0	16786.1	16191.5

ANNEXURE D: RMS TUBE COUNT DATA (SHEET 4 OF 10)

0000-0000	16092.5	17360.7	17818.0	17987.0	18904.1	16206.0	18072.3	117676.4	17000.4
AM Peak:	0700	0700	0700	0700	0700	1100	1100		
	1512.0	1603.0	1491.0	1512.0	1475.0	1302.0	1382.0		
PM Peak:	1600	1600	1600	1600	1600	1400	1200		
	1478.0	1655.0	1643.5	1655.0	1773.0	1371.0	1274.0		
* - No data.									

ANNEXURE D: RMS TUBE COUNT DATA (SHEET 5 OF 10)

MetroCount Traffic Executive Daily Classes

DailyClass-2 -- English (ENA)

Datasets:

Site: [N10659SBRL] Pacific Hwy, Nords Wharf Southbound Right Lane
Attribute: LM2
Direction: 3 - South bound, A trigger first. **Lane:** 1
Survey Duration: 19:22 Monday, 17 June 2013 => 19:01 Wednesday, 26 June 2013,
Zone:
File: SITE 9 SB_RL_26Jun2013.EC1 (Plus)
Identifier: DX6558X4 MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm: Factory default axle (v4.06)
Data type: Axle sensors - Paired (Class/Speed/Count)

Site: [N10659NBLL] Pacific Hwy Nords Wharf Northbound Left Lane
Attribute: LM2
Direction: 1 - North bound, A trigger first. **Lane:** 0
Survey Duration: 19:35 Monday, 17 June 2013 => 19:08 Wednesday, 26 June 2013,
Zone:
File: SITE 9 NB_LL_26Jun2013.EC0 (Plus)
Identifier: DY68A687 MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm: Factory default axle (v4.06)
Data type: Axle sensors - Paired (Class/Speed/Count)

Site: [N10659NBRL] Paacific Hwy Nords Wharf Northbound Right Lane
Attribute: LM2
Direction: 1 - North bound, A trigger first. **Lane:** 0
Survey Duration: 19:37 Monday, 17 June 2013 => 19:03 Wednesday, 26 June 2013,
Zone:
File: SITE 9 NB_RL_26Jun2013.EC0 (Plus)
Identifier: DT82VPY2 MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm: Factory default axle (v4.06)
Data type: Axle sensors - Paired (Class/Speed/Count)

ANNEXURE D: RMS TUBE COUNT DATA (SHEET 6 OF 10)

Site: [N10659SBLL] Pacific Hwy, Nords Wharf Southbound Left Lane
Attribute: LM2
Direction: 3 - South bound, A trigger first. Lane: 0
Survey Duration: 19:20 Monday, 17 June 2013 => 18:50 Wednesday, 26 June 2013,
Zone:
File: SITE 9 SB_LL_26Jun2013.EC0 (Plus)
Identifier: DY7063Y6 MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm: Factory default axle (v4.06)
Data type: Axle sensors - Paired (Class/Speed/Count)

Profile:
Filter time: 0:00 Tuesday, 18 June 2013 => 0:00 Wednesday, 26 June 2013 (8)
Included classes: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Speed range: 10 - 160 km/h.
Direction: North, East, South, West (bound), P = North
Separation: Headway > 0 sec, Span 0 - 100 metre
Name: Default Profile
Scheme: Vehicle classification (AustRoads94)
Units: Metric (metre, kilometre, m/s, km/h, kg, tonne)
In profile: Vehicles = 136496 / 153416 (88.97%)

ANNEXURE D: RMS TUBE COUNT DATA (SHEET 7 OF 10)

Daily Classes

DailyClass-2

Site: N10659SBRL.1.0S N10659NBLL.0.0N N10659NBRL.0.0N N10659SBLL.0.0S

Description: Multiple sites - See Header sheet for site descriptions.

Filter time: 0:00 Tuesday, 18 June 2013 => 0:00 Wednesday, 26 June 2013

Scheme: Vehicle classification (AustRoads94)

Filter: Cls(1 2 3 4 5 6 7 8 9 10 11 12) Dir(NESW) Sp(10,160) Headway(>0) Span(0 - 100)

Monday, 17 June 2013

	1	2	3	4	5	6	7	8	9	10	11	12	Total
Mon*	0	0	0	0	0	0	0	0	0	0	0	0	0
(%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Tue	16480	186	916	106	12	36	15	26	134	35	0	1	17947
(%)	91.8	1.0	5.1	0.6	0.1	0.2	0.1	0.1	0.7	0.2	0.0	0.0	
Wed	16174	184	870	83	10	17	26	30	124	20	2	0	17540
(%)	92.2	1.0	5.0	0.5	0.1	0.1	0.1	0.2	0.7	0.1	0.0	0.0	
Thu	16527	209	883	90	10	28	31	31	123	25	0	0	17957
(%)	92.0	1.2	4.9	0.5	0.1	0.2	0.2	0.2	0.7	0.1	0.0	0.0	
Fri	18234	287	1012	104	22	38	14	29	139	24	1	0	19904
(%)	91.6	1.4	5.1	0.5	0.1	0.2	0.1	0.1	0.7	0.1	0.0	0.0	
Sat	15322	278	470	17	20	10	6	8	62	12	0	1	16206
(%)	94.5	1.7	2.9	0.1	0.1	0.1	0.0	0.0	0.4	0.1	0.0	0.0	
Sun	12483	195	309	21	2	6	5	8	33	10	0	0	13072
(%)	95.5	1.5	2.4	0.2	0.0	0.0	0.0	0.1	0.3	0.1	0.0	0.0	

Average daily volume

Entire week

	15869	223	743	70	12	22	16	22	102	21	0	0	17104
(%)	92.8	1.3	4.3	0.4	0.1	0.1	0.1	0.1	0.6	0.1	0.0	0.0	

Weekdays

	16853	216	920	95	13	29	21	29	130	26	0	0	18337
(%)	91.9	1.2	5.0	0.5	0.1	0.2	0.1	0.2	0.7	0.1	0.0	0.0	

ANNEXURE D: RMS TUBE COUNT DATA (SHEET 8 OF 10)

Weekend	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
	13360	236	389	19	11	2	5	2	47	11	2	0	14639																																																																																							
(%)	96.7	1.6	2.7	0.1	0.1	0.1	0.0	0.1	0.3	0.1	0.0	0.0																																																																																								

* - Incomplete

ANNEXURE D: RMS TUBE COUNT DATA (SHEET 9 OF 10)

Daily Classes

DailyClass-2

Site: N10659SBRL.1.0S N10659NBLL.0.0N N10659NBRL.0.0N N10659SBLL.0.0S

Description: Multiple sites - See Header sheet for site descriptions.

Filter time: 0:00 Tuesday, 18 June 2013 => 0:00 Wednesday, 26 June 2013

Scheme: Vehicle classification (AustRoads94)

Filter: Cls(1 2 3 4 5 6 7 8 9 10 11 12) Dir(NESW) Sp(10,160) Headway(>0) Span(0 - 100)

Monday, 24 June 2013

	1	2	3	4	5	6	7	8	9	10	11	12	Total
Mon	14991	170	855	65	12	18	16	16	136	18	0	0	16297
(%)	92.0	1.0	5.2	0.4	0.1	0.1	0.1	0.1	0.8	0.1	0.0	0.0	
Tue	16084	189	931	96	16	28	24	34	143	28	0	0	17573
(%)	91.5	1.1	5.3	0.5	0.1	0.2	0.1	0.2	0.8	0.2	0.0	0.0	
Wed*	0	0	0	0	0	0	0	0	0	0	0	0	0
(%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Thu*	0	0	0	0	0	0	0	0	0	0	0	0	0
(%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Fri*	0	0	0	0	0	0	0	0	0	0	0	0	0
(%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Sat*	0	0	0	0	0	0	0	0	0	0	0	0	0
(%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Sun*	0	0	0	0	0	0	0	0	0	0	0	0	0
(%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Average daily volume

Entire week

	15537	179	893	80	14	23	20	25	139	23	0	0	16935
(%)	91.7	1.1	5.3	0.5	0.1	0.1	0.1	0.1	0.8	0.1	0.0	0.0	

Weekdays

	15537	179	893	80	14	23	20	25	139	23	0	0	16935
(%)	91.7	1.1	5.3	0.5	0.1	0.1	0.1	0.1	0.8	0.1	0.0	0.0	

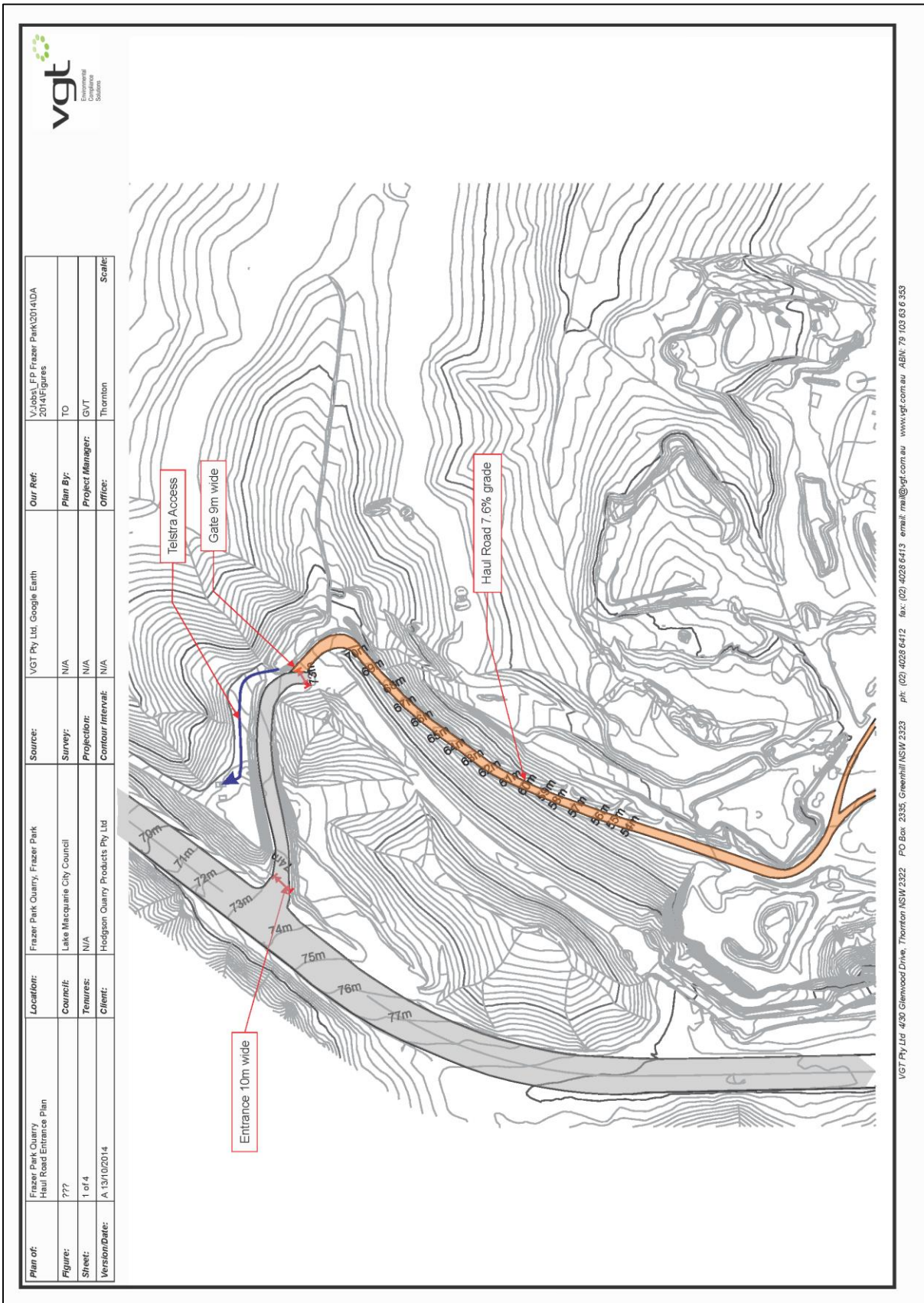
ANNEXURE D: RMS TUBE COUNT DATA (SHEET 10 OF 10)

Weekend No complete days.

* - Incomplete

Location	Year	Month	Day	Count
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ANNEXURE E: INTERNAL ROADWAY LAYOUT (SHEET 1 OF 2)



ANNEXURE E: INTERNAL ROADWAY LAYOUT (SHEET 2 OF 2)

