

TRAFFIC REPORT

Gerroa Sand Resource Southern Extraction Area Extension to Period of Extraction

February 2001

**Prepared for
Cleary Bros (Bombo) Pty Ltd**

M A S S O N | W I L S O N | T W I N E Y

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Contents

1. Introduction.....	1
2. Existing Situation	2
3. Historical Data	4
4. Implications of Proposed Extension to Duration of Sand Extraction	11
5. Summary.....	13
Appendix A - Traffic Counts.....	A-1
Appendix B - Accident Statistics.....	B-1

1. Introduction

In late 1990 development consent was granted by the Land and Environment Court for the extraction of sand from the area known as the Southern Extraction Area.

The approved extraction area provided an estimated resource of some 1.7 million tonnes of sand which is primarily used in the production of ready mixed concrete.

The development consent was for a period of twelve years which expires at the end of 2002.

Extraction of sand is planned in 8 stages and is currently within the eastern portions of Stage 3D and 4D. At current rates of extraction there will still be approximately 50% of the sand resource remaining at the expiration of the current consent.

As a result an application will be made to enable extraction beyond 2002. This report reviews the traffic aspects of the statement of effects which accompanies the application.

The application therefore is to continue the same extraction operation as has been underway for the last ten years.

Our traffic report is structured through the following chapters:-

- Chapter 2 - reviewing the site location and components of the operation
- Chapter 3 - describing the history of sand extraction, traffic flows and accident data
- Chapter 4 - assessing the implications of the proposed extension of extraction license
- Chapter 5 - summarising the report

Appended are copies of recent traffic counts and accident information.

2. Existing Situation

Site Location

The Southern Extraction Area lies to the west of the Seven Mile Beach Road to the south of Gerroa as shown in Figure 1. Vehicular access to the site is from Berry Beach Road, approximately 350 metres west of its intersection with Seven Mile Beach Road.

The quarry operates within the hours:

7:00am to 6:00pm Monday to Friday and
7:00am to 1:00pm Saturdays

Road Network

Berry Beach Road is a 2 lane undivided road of some 6 metres width and links Seven Mile Beach Road to the Princes Highway at Berry. Berry Beach Road has a signed 100 kilometres per hour speed limit west of Seven Mile Beach Road.

Seven Mile Beach Road is a two lane undivided road some 6-7 metres wide. The road has a weight limit immediately south of its intersection with Berry Beach Road. The road generally has a 100 kilometres per hour limit but has a 50 kilometres per hour speed limit in Gerroa.

Seven Mile Beach Road is designated a main road (Number 571) north of the Crooked River.

Belinda Street (MR 571) is the signed northern route to Kiama and Wollongong (via the Princes Highway). There is a 50 kilometre per hour speed limit on MR 571 on its approach to Gerringong and an 80 kilometre per hour limit between Gerringong and Gerroa.

Existing Extraction Operations

The existing extraction operation produces two categories of product:-

- 1 Site Generated Products
 - clean (washed) sand – the majority of which is used for readymixed concrete production
 - fill sand
 - stones
 - topsoil (minor)

- 2 Other Products – these products are transported to the site by trucks travelling to site to pick up and deliver a sand sale
 - brickies sands and blends
 - hard rock aggregate (Blue Metal)
 - mulch
 - road base

Site generated products generally make up some 95% of product sales.

Analysis of sales indicates that the split of direction is some 70% to the north and 30% to the south with minor variations between years.

Ex bin sales destinations are not known but are likely to have a similar split of north/south destination.

3. Historical Data

Traffic Flows

Roads and Traffic Authority Data show the following average annual (AADT) traffic flows on MR 571.

Year	1982	1984	1986	1988	1990	1992	1994	1997
East of Princes Hwy (Belinda St)	1250	-	1015	-	-	-	-	-
0.8 km South of Gerringong	5218	-	5287	5768	6017	6788	7413	6951

It can be seen that there has been significant growth in traffic flows on MR 571 south of Gerringong with around (on average) some 2% growth per year.

Sand Resource Sales

Site generated and other product sales from the southern extraction area (by financial year) are shown in Table 3.1.

Table 3.1 – Southern Extraction Area Yearly Sales (By Financial Year)

Year	Site Generated Products	Other Products	Total
1991/92	62,776	8,027	70,803
1992/93	59,398	6,065	65,463
1993/94	60,545	3,917	64,462
1994/95	61,260	4,709	65,969
1995/96	58,369	2,953	61,322
1996/97	44,784	2,041	46,825
1997/98	46,908	1,930	48,837
1998/99	56,296	3,397	59,692
1999/00	71,564	3,718	75,282

It can be seen that following a period of sales of some 65 to 70,000 tonnes per annum between 1991 to 1995 there was a drop in 1996 - 1998 to around 47,000 tonnes per annum followed by recovery in recent years to just over 75,000 tonnes in 1999 - 2000.

Financial years 1998 – 1999 and 1992 – 2000 have been analysed with regard to the direction of sales and average tonnages per load as shown in Table 3.2.

Table 3.2 – Yearly Sales by Direction

Period	Direction										Totals				
	North					South					Ex-Bin				
	No of Loads	Tonnes	Avg Tns/Load	% of Nth/Sth Sales	No of Loads	Tonnes	Avg Tns/Load	% of Nth/Sth Sales	Total Nth/Sth	No of Loads	Tonnes	Avg Tns/Load	No of Loads	Tonnes	Avg Tns/Load
July 1998- June 1999	1,414	32,360	22.89	69%	898	14,319	15.95	31%	46,679	1,059	12,885	12.17	3,371	59,564	17.67
July 1999- June 2000	1,573	41,264	26.23	71%	979	17,264	17.63	29%	58,528	1,088	15,200	13.97	3,640	73,728	20.25
										Total Period Averages =			3,506	65,646	19.01

It can be seen that the north-south split of sales is reasonably consistent at some 70% north and 30% south.

Average tonnes per load vary from some 12.9 tonnes to 20.3 tonnes with the overall average (including ex bin sales) of 19.01 tonnes per load.

The number of truck loads generated by sales is analysed (for the financial year 1998 – 1999) in Table 3.3.

Table 3.3 – Transportation Movements (1998 – 1999 Financial Year)

Direction	Sales Summary				No of Loads	Transportation Movements						
	Total	No of Days	Min Daily Sales ¹	Max Daily Sale		Yearly No of trucks used	Avg No of trucks per day	Min No of trucks used	Max No of trucks used	Daily Avg No of trucks used	Min No of trucks used	Max No of trucks used
North	32,355	259	3.0	777	1,414	994	3.84	1	17	5.46	1	29
South	14,319	225	12.0	565	898	290	3.99	1	7	3.99	1	39
Ex-Bin	12,885	257			1,054					4.10		

¹ Min sale where sale took place, ie non sale days excluded

Total: 13.55 say 14

70% North = 10
 30% south = 4

During this financial year the average day saw 10 truck loads sold to the north (creating some 20 truck trips to/from) and some 4 truck loads (8 truck trips) to the south.

The operators indicate that it is usual for a small number of trucks to transport several loads during the day. It is unusual if a large fleet of trucks are used within a day. Such an occurrence may only occur if transportation out of other quarry areas cannot be undertaken for a particular reason (viz wet weather on construction sites has reduced quarry sales and trucks are deployed to replenish the concrete plant stockpiles).

The type of trucks used for deliveries is assessed in Table 3.4.

Table 3.4 – Vehicular Types

Truck Type	Direction			Total	
	North	South	Ex-Bin ¹	No	%
Tri-Axle	732	83	358	1,173	35
Eight Wheeler	83	12	-	95	3
Six Wheeler and Dog	163	33	-	196	6
Six wheeler	434	770	106	1,310	39
Small Trucks (1-9 tns)	-	-	274	274	8
Other (Utes/Box Trailers)	2	-	316	318	9
Totals - No	1,414	898	1,054	3,366	
Totals - %	42	27	31		

¹ Trucks grouped by load weights and type.

In summary the prime mode of transport are six wheelers and tri-axle trailers, with a small number of eight wheelers and six wheelers and dog. Other vehicles make up nearly 1/5 of the vehicles with these primarily responsible for ex-bin sales.

We commissioned installation of automatic counters at two locations for a 1 week count (5-12 November 2000). Counters were installed at:-

- Gerroa Road (just north of Gerroa)
- Berry Bead Road (just west of the sand quarry entrance)

The results of these counts are appended and are summarised in Table 3.5 and Table 3.6.

Table 3.5 – Traffic Count North of Gerroa Township on Gerroa Road

Year 2000	North Bound		South Bound		Total	
	Light ⁽¹⁾	Heavy ⁽²⁾	Light ⁽¹⁾	Heavy ⁽²⁾	Light ⁽¹⁾	Heavy ⁽²⁾
6 Nov Monday	3113	167	2788	148	2936	315
7 Nov Tuesday	2638	159	2602	126	2728	285
8 Nov Wednesday	2964	191	2970	178	3148	369
9 Nov Thursday	3072	196	3187	164	3351	360
10 Nov Friday	3397	232	4966	208	5174	440
11 Nov Saturday	3522	155	4187	138	4325	293
5 Nov Sunday	4624	113	2700	103	2803	216
Total		1213		1065	24465	2278

(1) Classes 1 & 2 of Austroads Class Scheme

(2) Classes 3 + of Scheme.

Five Day AADT

3226

6693

Seven Day AADT

3506

3467

7001

Table 3.6 – Traffic Count on Berry Beach Road (west of Sand Pit Entry)

Year 2000	East Bound		West Bound		Total	
	Light ⁽¹⁾	Heavy ⁽²⁾	Light ⁽¹⁾	Heavy ⁽²⁾	Light ⁽¹⁾	Heavy ⁽²⁾
6 Nov Monday	310	11	143	76	219	87
7 Nov Tuesday	289	17	114	90	204	107
8 Nov Wednesday	310	20	138	92	230	102
9 Nov Thursday	356	22	143	90	233	112
10 Nov Friday	355	31	167	108	275	139
11 Nov Saturday	389	14	232	112	344	126
5 Nov Sunday	372	8	208	85	293	93
Total		123		653	1798	766

(1) Classes 1 & 2 of Austroads Class System

(2) Classes 3 + Scheme

Five Day AADT

344

576

Seven Day AADT

358

232

615

It can be seen that Gerroa Road carries some 7,000 vehicles per day with, an average, some 325 trucks (or 4.6%) of daily flows.

Berry Beach Road carries some 615 vehicles per day with, an average, some 109 trucks (17.7%) within the daily flow.

Table 3.7 – Truck Generation from Southern Extraction Area

Year 2000	South Destination			North Destination		
	Tonnage Sold	No of Truck Loads	Avg Load	Tonnage Sold	No of Truck Loads	Avg Load
6 Nov Monday	43.7t	3	14.6t	155.2t	6	25.9t
7 Nov Tuesday	43.1t	2	21.6t	165.7t	6	27.6t
8 Nov Wednesday	57.7t	3	19.2t	-	-	-
9 Nov Thursday	85.3t	4	21.3t	-	-	-
10 Nov Friday	141.4t	6	23.6t	57.3t	3	19.1t
11 Nov Saturday	-			476.4t	16	29.18t
Total		18			31	
Average (on days when sales)		3.6 loads/day			7.8 loads/day	

During the survey period there were some 3.6 loads per day sold to the south and some (on average) 7.8 loads/day sold to the north. These represent some 7.2 and 15.6 truck trips per day to the south and north respectively.

Comparing these existing site truck generations with the overall number of trucks on Berry Beach Road and Gerroa Road (shown in Table 3.5 and Table 3.6) it can be seen that the site truck generation is roughly 6.6% of existing trucks on Berry Beach Road and 4.8% of existing trucks on Gerroa Road (during the survey week).

The generation of the site represents approximately 1.1% of total traffic flows on Berry Beach Road and some 0.2% of total daily on Gerroa Road (during the survey period).

Accident Statistics

Accident statistics in the area have been obtained from the RTA for the three-year period 1997 – 1999. These results are shown in Figure 2 and more detailed results appended.

It should be noted that these statistics relate to injury and towaway crashes where the police are involved and as a result does not provide information on more minor drive away accidents.

It can be seen that the Princes Highway is the main source of accidents.

Analysis of the type of accidents on Berry Beach Road and Gerroa Road – Belinda Street routes to the Highway shown only one accident involving a truck (a truck drove into a parked bus in Belinda Street on 3/5/1998).

The accident statistics do not reveal any general or particular concerns raised by truck activity generated by the existing sand quarry activity.

4. Implications of Proposed Extension to Duration of Sand Extraction

The proposal is to extend the duration of sand extraction beyond the 12 years approved by the Land and Environment Court. The extension would thus involve continuation of the existing pattern of truck generation (described in Chapter 2) which has been occurring for the past ten years.

It is considered that the continuation of the traffic generation of the Sand Quarry does not raise any significant traffic issues because:-

- the truck generation of the Sand Quarry represents only a small proportion of truck activity on Gerroa Road – Belinda Street and Berry Beach Road routes to the highway (some 4.8% and 6.6% respectively over a recent survey week)
- the level of truck generation is at a level which does not provide any traffic engineering capacity concerns
- a review of accident statistics (over 3 years) does not raise any concerns of accidents related to the truck generation of the Sand Quarry.

The conditions on the earlier approval for Sand Quarrying include a number of conditions. Those related to Roads and Transportation were:-

8. *Roads and Transportation:*

- No motor car, truck or other vehicle shall enter or leave the quarry area except through the entrance situated at Berry Beach Road.*
- The only route to be used for the movement of trucks in a southerly direction towards Nowra or Berry shall be by way of Berry Beach Road and the Princes Highway.*
- No trucks either entering or leaving the quarry area shall travel along Seven Mile Beach Road south of its intersection with Berry Beach Road, except where the destination of the truck lies along or adjacent to it.*
- Truck movements to or from the quarry area shall occur only between the hours of 7:00am and 6:00pm Mondays to Fridays and 7:00am and 1:00pm on Saturdays.*
- The only route to be used for the movement of trucks to and from the quarry area in a northerly direction towards Gerringong and Kiama shall be by way of Berry Beach Road to the intersection with Crooked River Road (commonly known as “Seven Mile Beach Road”) along Seven Mile Beach Road to Fern Street, along Fern Street to Belinda Street, Gerringong and thence along Belinda Street to the Princes Highway.*
- No truck involved in transportation shall exceed the speed of:*
 - 40km/hr when travelling through Gerroa and Gerringong to or from the quarry area;*

-
- ii) *50km/hr when travelling along Berry Beach Road, Seven Mile Beach Road or Fern Street outside the townships of Gerroa and Gerringong.*
 - (g) *the quarry operator shall ensure that these transportation conditions are understood and met by all persons transporting any material from the quarry area.*

These conditions are generally considered reasonable. However the condition requiring a 50km/hr speed limit when travelling along Berry Beach Road or Seven Mile Beach Road or Fern Street outside the townships of Gerroa and Gerringong is considered likely to be counter productive.

If sand trucks are required to travel at 50 kilometres/hour whilst cars and other trucks are allowed to travel up to the posted speed limit (of 80 or 100 kilometres/hour) then this situation leads to frustration for following vehicles and an increased need for overtaking than if all vehicles are travelling within the same speed limits. It is recommended that this 50km/hr condition be deleted so that sand trucks are controlled by the same speed controls as other trucks on these sections of road.

5. Summary

In 1990 the Land and Environment Court granted development consent from the area known as the Southern Extraction Area.

The development consent was for a period of twelve years which expires at the end of 2002.

It is proposed to extend the duration of the extraction and therefore to continue the same extraction operations as has been operating for the last ten years.

The Southern Extraction Area lies to the west of the Seven Mile Beach Road to the south of Gerroa as shown in Figure 1. Vehicular access to the site is from Berry Beach Road, approximately 350 metres west of its intersection with Seven Mile Beach Road.

Berry Beach Road is a 2 lane undivided road of some 6 metres width and links Seven Mile Beach Road to the Princes Highway at Berry.

Seven Mile Beach Road is a two lane undivided road some 6-7 metres wide. The road has a weight limit immediately south of its intersection with Berry Beach Road.

Existing Extraction Operations

The existing extraction operation produces two categories of product:-

- 1 Site Generated Products
- 2 Other Products – imported onto site by normally empty trucks travelling to the site.

Site generated products generally make up some 95% of product sales.

Analysis of sales indicates that the split of direction is some 70% to the north and 30% to the south with minor variations between years.

RTA traffic counts on MR 571 (Gerroa Road south of Gerringong) show significant growth with an average annual daily flow of just under 7,000 vehicles in 1997.

Historically yearly sales from the Southern Extraction Area have varied between some 47 and 75,000 tonnes per annum.

Analysis of sales shows a reasonably consistent pattern of some 70% of sales to the north and 30% to the south.

Over a two year period, the average sales load was 19 tonnes/vehicle.

Analysis of data for 1998-1999 indicates an average daily sale of some 10 loads to the north and 4 loads to the south equivalent to 20 and 8 truck trips to and from the north and south per day respectively.

The prime mode of transport are six wheelers and tri-axle trailers, with a small number of eight wheelers and six wheelers and dog. Other vehicles make up nearly 1/5 of the vehicles with these primarily responsible for ex-bin sales.

Traffic counts were undertaken in November 2000 and collated with information supplied by the Quarry operator.

It can be seen that Gerroa Road carries some 7,000 vehicles per day with, an average, some 325 trucks (or 4.6%) of daily flows.

Berry Beach Road carries some 615 vehicles per day with, an average, some 109 trucks (17.7%) within the daily flow.

During the survey period there were some 3.6 loads per day sold to the south and some 7.8 loads/day sold to the north. These represent some 7.2 and 15.6 truck trips per day to the south and north respectively.

Comparing these existing site truck generations with the overall number of trucks on Berry Beach Road and Gerroa Road it can be seen that the site truck generation is roughly 6.6% of existing trucks on Berry Beach Road and 4.8% of existing trucks on Gerroa Road (during the survey week).

The generation of the site represents approximately 1.1% of total traffic flows on Berry Beach Road and some 0.2% of total daily on Gerroa Road.

Accident Statistics

Accident statistics in the area have been obtained from the RTA for the three-year period 1997-1999.

It can be seen that the Princes Highway is the main source of accidents.

The accident statistics do not reveal any general or particular concerns raised by truck activity generated by the existing sand quarry activity.

Implications of Proposed Extension to Sand Extraction Duration

It is considered that the continuation of the traffic generation of the Sand Quarry does not raise any significant traffic issues because:-

- the truck generation of the Sand Quarry represents only a small proportion of truck activity on Gerroa Road – Belinda Street and Berry Beach Road routes to the highway (some 4.8% and 6.6% respectively over a recent survey week)
- the level of truck generation is at a level which does not provide any traffic engineering capacity concerns
- a review of accident statistics (over 3 years) does not raise any concerns of accidents related to the truck generation of the Sand Quarry.

Transport Conditions on the previous approval are generally considered reasonable. However it is recommended that the 50km/hr condition on sand trucks (outside town) be deleted so that sand trucks are controlled by the same speed controls as other trucks on these sections of road.

Appendix A - Traffic Counts

Appendix B - Accident Statistics

3 YEAR ACCIDENT HISTORY 1/1/97 TO 31/12/99

VARIOUS ROUTES WITHIN SHOALHAVEN CITY COUNCIL

<u>CRASHID</u>	<u>CRDATE</u>	<u>DIST</u>	<u>IDENTIFYING OBJECT</u>	<u>TOWN</u>	<u>TIME</u>	<u>WEATHER</u>	<u>LOC</u>	<u>SURFACE</u>	<u>LIMIT</u>	<u>ITEM1</u>	<u>ITEM2</u>	<u>UNIT</u>	<u>DCA</u>	<u>KILLE D</u>	<u>INJURE</u>	<u>DEG REE</u>	
KIAMA																	
BELINDA																	
971844481	MO	10/03/19	0 AT FERN	ST	GERRINGO	11:20 DAYL	FINE	XJN	DRY	STRT	60	LTK	CAR	3	301	0	5
982372893	SU	03/05/19	0 AT NUMBER 70	HN	GERRINGO	18:30 DAR	RAIN	2WY	WET	STRT	50	TRK	BUS	2	601	0	2
981357343	MO	23/03/19	25 W ROWLINS	RD	GERRINGO	15:00 DAYL	FINE	2WY	DRY	STRT	60	CAR	CAR	1	704	0	3
991441879	TH	04/03/19	0 AT VICTORIA	ST	GERRINGO	21:15 DAR	FINE	TJN	DRY	STRT	60	CAR	CAR	2	406	0	5
CROOKED RIVER																	
994519679	FR	17/12/19	500 N BERNFELS	LA	GERRINGO	17:15 DAYL	FINE	2WY	DRY	STRT	80	CAR	CAR	2	303	0	5
992449432	TU	06/04/19	700 N HEADLAND	DR	GERRROA	9:35 DAYL	FINE	2WY	DRY	STRT	80	CAR	UTE	2	301	0	5
982370388	SU	17/05/19	40 N HEADLANDS	DR	GERRROA	17:45 DAR	OCA	2WY	WET	STRT	60	LTK	4WD	2	406	0	3
992449347	MO	05/04/19	1000 S RIVERLEIGH	AVE	GERRROA	20:30 DAR	FINE	2WY	DRY	CRV	100	CAR	CAR	1	803	0	2
982373798	SA	30/05/19	60 N WINGEEWAH	RD	GERRINGO	18:45 DAR	FINE	2WY	DRY	STRT	80	CAR	CAR	2	201	0	5
FERN																	
993478709	FR	30/07/19	0 AT JUPITER	ST	GERRINGO	20:20 DAR	FINE	XJN	DRY	STRT	60	LTK	4WD	2	101	0	2
984426117	SU	27/12/19	2 S JUPITER	ST	GERRINGO	12:30 DAYL	FINE	XJN	DRY	STRT	60	CAR	UTE	2	303	0	5
994498558	W	20/10/19	50 N WINGERAH	RD	GERRROA	6:30 DAYL	FINE	2WY	DRY	STRT	80	CAR	CAR	2	501	0	3
984417506	SU	22/11/19	300 N WINGEWAR	RD	GERRINGO	1:35 DAR	FINE	2WY	DRY	CRV	80	CAR	CAR	1	803	0	5
GERRROA																	
994512971	SU	19/12/19	1000 N BEACH	RD	GERRROA	11:20 DAYL	RAIN	2WY	WET	STRT	100	CAR	CAR	1	704	0	3
992468687	W	23/06/19	2000 N BEACH	RD	GERRROA	9:40 DAYL	RAIN	2WY	WET	STRT	100	CAR	CAR	1	704	0	5
PRINCES																	
984427319	TH	31/12/19	0 AT BELINDA	ST	GERRINGO	13:15 DAYL	FINE	TJN	DRY	STRT	100	CAR	CAR	2	104	0	5
994505267	TU	09/11/19	0 AT BELINDA	ST	GERRINGO	17:30 DAYL	FINE	TJN	DRY	CRV	100	UTE	4WD	3	201	0	5
974326383	TH	30/10/19	5 N BELINDA	ST	GERRINGO	10:30 DAYL	FINE	TJN	DRY	STRT	100	LTK	4WD	2	102	0	5
984422476	FR	11/12/19	100 S BELINDA	ST	GERRINGO	13:00 DAYL	FINE	2WY	DRY	CRV	100	CAR	CAR	3	207	0	5
973302808	SU	13/07/19	500 S BELINDA	ST	GERRINGO	17:15 DUS	FINE	2WY	DRY	CRV	80	CAR	CAR	1	804	0	3
981370898	SA	10/01/19	1000 S BELINDA	ST	GERRINGO	1:30 DAR	RAIN	2WY	WET	CRV	80	VAN		1	803	0	4

<u>CRASHID</u>	<u>CRDATE</u>	<u>DIST</u>	<u>IDENTIFYING OBJECT</u>	<u>TOWN</u>	<u>TIME</u>	<u>WEATHER</u>	<u>LOC</u>	<u>SURFACE</u>	<u>LIMIT</u>	<u>ITEM1</u>	<u>ITEM2</u>	<u>UNIT</u>	<u>DCA</u>	<u>KILLE D</u>	<u>INJURE</u>	<u>DEG REE</u>
991430298	TH 14/01/19	1000 S	BELINDA	ST	GERRINGO	14:10 DAYL	RAIN	2WY WET	CRV 80	4WD	4WD	2	201	0	5	2
984412617	MO 02/11/19	1900 S	BELINDA	ST	GERRINGO	1:30 DAR	RAIN	2WY WET	CRV 80	CAR	CAR	1	803	0	1	3
981352624	SU 08/03/19	2000 S	BELINDA	ST	GERRINGO	15:00 DAYL	FINE	2WY DRY	CRV 80	CAR	CAR	1	201	0	1	3
974344771	W 10/12/19	3000 S	BELINDA	ST	GERRINGO	2:00 DAR	FINE	2WY DRY	CRV 100	CAR	CAR	1	803	0	0	5
994509408	MO 06/12/19		0AT BROUGHTON CREE	BR	BROUGHTO	8:00 DAYL	OCA	2WY WET	CRV 100	CAR	CAR	1	803	0	1	2
994514508	SU 26/12/19		0AT BROUGHTON CREE	BR	BROUGHTO	16:20 DAYL	RAIN	2WY WET	CRV 90	CAR	CAR	1	803	0	0	5
994514567	MO 27/12/19	20 N	BROUGHTON CREE	BR	BROUGHTO	17:00 DAYL	RAIN	2WY WET	CRV 90	CAR	CAR	1	804	0	0	5
992452754	TH 22/04/19	60 N	BROUGHTON CREE	BR	BROUGHTO	17:30 DAR	RAIN	2WY WET	CRV 80	CAR	CAR	1	802	0	0	5
994512894	SU 19/12/19	100 N	BROUGHTON CREE	BR	BROUGHTO	13:10 DAYL	RAIN	2WY WET	STRT 90	CAR	CAR	1	703	0	1	3
982359357	FR 03/04/19	500 S	BROUGHTON CREE	BR	BROUGHTO	18:47 DAR	FINE	2WY DRY	CRV 80	UTE	CAR	2	201	0	1	3
971832483	SA 18/01/19	20 E	FOXGROUND	RD	FOXGROUN	12:10 DAYL	FINE	2WY DRY	STRT 80	WAG	CAR	3	301	0	0	5
971844176	TU 28/01/19	800 E	FOXGROUND	RD	TOOLJOOA	15:30 DAYL	RAIN	2WY WET	CRV 80	CAR	WAG	2	301	0	0	5
983384125	SA 11/07/19		0AT THE PINES	GTE	BROUGHTO	3:53 DAR	FINE	2WY DRY	CRV 90	STR	CAR	1	803	0	1	2
983390656	TH 06/08/19	500 N	THOMPSON	RD	FOXGROUN	6:15 DAW	RAIN	2WY WET	STRT 100	CAR	CAR	1	704	0	0	5
993483942	SA 21/08/19	50 N	TOMLINS	RD	BROUGHTO	8:15 DAYL	FINE	2WY WET	CRV 80	CAR	VAN	2	201	0	4	2
994517095	W 29/12/19	50 N	TOMLINS	RD	BROUGHTO	12:00 DAYL	RAIN	2WY WET	CRV 80	WAG	STR	2	301	0	0	5
974329526	W 12/11/19	100 S	TOMLINS	RD	FOXGROUN	23:30 DAR	RAIN	2WY WET	CRV 100	CAR	CAR	1	804	0	0	5
994509675	TH 09/12/19	100 S	TOMLINS	RD	BROUGHTO	18:50 DUS	OCA	2WY WET	STRT 90	CAR	CAR	1	704	0	1	3
994514506	SU 26/12/19	100 S	TOMLINS	RD	BROUGHTO	14:10 DAYL	RAIN	2WY WET	CRV 90	CAR	CAR	1	803	0	0	5
984414068	SA 07/11/19	300 N	TOMLINS	RD	BROUGHTO	20:30 DAR	FINE	2WY DRY	CRV 90	TRK	WAG	3	201	0	3	2
993F00334	SA 14/08/19	300 N	TOMLINS	RD	BROUGHTO	16:35 DAYL	RAIN	2WY WET	CRV 90	CAR	4WD	2	201	1	1	1
992465144	TU 08/06/19	500 N	TOMLINS	RD	TOOLJOOA	22:45 DAR	RAIN	2WY WET	CRV 100	CAR	CAR	1	803	0	1	3
993474987	W 14/07/19	500 N	TOMLINS	RD	BROUGHTO	12:36 DAYL	RAIN	2WY WET	CRV 90	CAR	TRK	2	301	0	0	5
993474988	W 14/07/19	500 N	TOMLINS	RD	BROUGHTO	12:34 DAYL	RAIN	2WY WET	CRV 90	CAR	CAR	1	803	0	0	5
981353439	SA 14/02/19		0AT TOOLJOOA	RD	GERRINGO	11:30 DAYL	FINE	TJN DRY	STRT 100	CAR	CAR	1	104	0	5	3
991429989	FR 01/01/19	50 N	TOOLJOOA	RD	TOOLJOOA	19:30 DUS	FINE	2WY DRY	CRV 100	CAR	CAR	1	803	0	0	5
992447808	TH 01/04/19	50 S	TOOLJOOA	RD	GERRINGO	8:00 DAYL	RAIN	2WY WET	STRT 90	CAR	CAR	1	703	0	0	5
992457839	MO 10/05/19	200 S	TOOLJOOA	RD	GERRINGO	15:45 DAYL	FINE	DVD DRY	STRT 80	CAR	CAR	1	703	0	1	3
984406871	TU 06/10/19	300 E	TOOLJOOA	RD	GERRINGO	13:05 DAYL	OCA	2WY DRY	STRT 100	TRK	TRK	1	702	0	0	5
974351374	TH 18/12/19	3000 N	TOOLJOOA	RD	BROUGHTO	18:00 DAYL	OCA	DVD DRY	STRT 100	UTE	CAR	2	301	0	0	5
973312899	W 10/09/19	100 N	WILLOW VALE	RD	GERRINGO	18:25 DAR	FINE	2WY DRY	STRT 100	CAR	CAR	2	609	0	3	2
972864140	MO 28/04/19	1000 S	WILLOW VALE	RD	GERRINGO	14:25 DAYL	FINE	2WY DRY	CRV 80	CAR	CAR	1	803	0	0	5

Listing Created on: 17-Nov-00

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												<u>S</u>	<u>D</u>	<u>D</u>		<u>REE</u>
982380133	MO 15/06/19	1200 S	WILLOW VALE	RD GERRINGO	18:00	DAR FINE	2WY	DRY CRV	100	WAG		1	803	0	1	3
SHOALHAVEN																
BEACH																
981357942	MO 30/03/19		RD 0AT GERROA	RD SEVEN MILE	14:45	DAYL FINE	XJN	DRY STRT	100	CAR	CAR	1	101	0	0	5
984F00424	MO 26/10/19		RD 0AT GERROA	RD GERROA	7:35	DAYL FINE	XJN	DRY STRT	90	CAR	CAR	3	101	1	6	1
991427919	W 06/01/19		RD 0AT GERROA	RD SEVEN MILE	13:15	DAYL FINE	XJN	WET STRT	100	CAR	CAR	2	101	0	1	4
991433849	SU 31/01/19		RD 0AT GERROA	RD SEVEN MILE	18:00	DAYL OCA	XJN	DRY STRT	100	CAR	CAR	2	107	0	0	5
993473814	MO 12/07/19		RD 0AT GERROA	RD BERRY	5:45	DAR RAIN	XJN	WET STRT	100	WAG	CAR	2	101	0	1	3
993478674	FR 30/07/19		RD 0AT GERROA	RD GERROA	18:05	DAR FINE	TJN	DRY STRT	100	CAR	LTK	2	101	0	1	2
993484374	W 25/08/19		RD 0AT GERROA	RD GERROA	17:25	DUS FINE	XJN	WET STRT	100	CAR	CAR	2	101	0	3	2
993492506	SU 26/09/19		RD 0AT GERROA	RD SEVEN MILE	14:20	DAYL RAIN	XJN	WET STRT	100	BUS	CAR	2	101	0	0	5
992454472	FR 30/04/19	6000 W	GERROA	RD BERRY	18:50	DAR RAIN	2WY	WET STRT	100	CAR	CAR	1	704	0	4	2
982377646	TH 18/06/19		RD 0AT HARLEY HILL	RD BERRY	14:45	DAYL FINE	TJN	DRY STRT	100	CAR	VAN	2	103	0	0	5
983390603	TH 06/08/19		RD 28 W SUNNYMEDE	LA BERRY	21:45	DAR RAIN	2WY	WET STRT	100	CAR	CAR	1	703	0	0	5
981F00111	W 25/03/19		RD 300 W SUNNYMEDE	LA BERRY	7:30	DAYL OCA	2WY	WET STRT	100	CAR	CAR	1	201	1	3	1
974320416	SU 12/10/19		RD 0AT TOOLIJOA	RD BERRY	14:15	DAYL FINE	TJN	DRY STRT	80	CAR	CAR	2	303	0	0	5
GERROA																
991440402	SA 27/02/19		RD 700 N BEACH	RD GERROA	8:50	DAYL FINE	2WY	DRY STRT	100	LTK		1	502	0	0	5
PRINCES																
HWY																
984406922	TU 06/10/19		RD 0AT AUSTRAL PARK	RD BERRY	15:20	DAYL FINE	TJN	DRY STRT	90	MC	UTE	2	303	0	1	3
982378351	W 10/06/19		RD 300 N AUSTRAL PARK	RD BERRY	20:00	DAR RAIN	2WY	WET CRV	80	CAR	CAR	1	803	0	0	5
991431012	TH 21/01/19		RD 300 S AUSTRAL PARK	RD BERRY	17:25	DUS RAIN	2WY	WET CRV	90	CAR	CAR	1	801	0	0	5
991F00059	TU 09/02/19		RD 500 S AUSTRAL PARK	RD BERRY	16:15	DAYL OCA	2WY	DRY CRV	90	WAG	TRK	2	201	1	1	1
992454402	TH 29/04/19		RD 500 S AUSTRAL PARK	RD BERRY	13:30	DAYL RAIN	2WY	WET CRV	100	CAR	CAR	1	803	0	0	5
974330349	SA 29/11/19		RD 600 N AUSTRAL PARK	RD BERRY	3:15	DAR OCA	2WY	WET CRV	90	CAR	CAR	1	804	0	0	5
994494212	SU 03/10/19		RD 600 S AUSTRAL PARK	RD BERRY	15:55	DAYL RAIN	2WY	WET CRV	90	CAR	CAR	2	201	0	3	3
994505412	SU 14/11/19		RD 800 N AUSTRAL PARK	RD BROUGHTO	13:10	DAYL FINE	2WY	DRY STRT	90	MC	CAR	1	705	0	2	3
973301165	MO 14/07/19		RD 850 W AUSTRAL PARK	RD BERRY	10:20	DAYL RAIN	2WY	WET CRV	80	CAR	4WD	2	201	0	1	3
974333356	TU 09/12/19		RD 1000 N BEACH	RD BERRY	5:30	DAW RAIN	DVD	WET CRV	90	CAR	CAR	1	803	0	0	5
981342597	SA 24/01/19		RD 1000 N BERRY	TWN BERRY	17:30	DAYL RAIN	2WY	WET CRV	100	CAR	CAR	1	803	0	0	5
994497512	TU 19/10/19		RD 2000 N BERRY	TWN BERRY	1:25	DAR RAIN	2WY	WET CRV	90	CAR	CAR	1	803	0	0	5
994503031	FR 12/11/19		RD 4000 N BERRY	TWN BERRY	3:19	DAR FINE	2WY	DRY CRV	90	CAR	TRK	2	201	0	0	5

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												<u>S</u>	<u>D</u>			<u>REE</u>
973316839	SU 31/08/19	5000	N BERRY	TWN BERRY	8:00	DAYL FINE	2WY	DRY	CRV	90	CAR	1	801	0	0	5
984421779	FR 20/11/19	5000	N BERRY	TWN BERRY	13:30	DAYL OCA	2WY	WET	CRV	100	CAR BUS	2	201	0	0	5
992472717	W 23/06/19	5000	N BERRY	TWN BERRY	7:30	DAYL RAIN	2WY	WET	CRV	100	LTK	1	803	0	0	5
994500767	SU 31/10/19	5000	N BERRY	TWN BERRY	7:00	DAYL OCA	2WY	WET	CRV	90	CAR	2	803	0	0	5
971836298	MO 10/02/19	120	S GEMBROOK	GTE BERRY	6:50	DAYL RAIN	2WY	WET	CRV	90	CAR	1	803	0	0	5
994510798	TH 09/12/19		0 AT PAULAS HILL	OTH BROUGHTO	14:00	DAYL RAIN	2WY	WET	CRV	90	CAR	1	803	0	0	5
981348189	TH 22/01/19	300	N SAND STONE WAL	OTH BERRY	16:10	DAYL FINE	2WY	DRY	STRT	90	CAR	1	701	0	1	3
981346084	MO 09/02/19	60	S SHIRE BOUNDARY	OTH BERRY	4:40	DAR RAIN	2WY	WET	CRV	100	CAR	1	803	0	0	5
994503007	TH 11/11/19	1600	N TANNERY	RD BERRY	14:00	DAYL FINE	2WY	DRY	STRT	100	MC	1	705	0	1	3
971833158	SU 26/01/19	2000	N TANNERY	RD BERRY	23:15	DAR RAIN	2WY	WET	STRT	60	CAR	1	704	0	0	5
971839245	SU 16/02/19	2000	N TANNERY	RD BERRY	16:10	DAYL OCA	2WY	DRY	CRV	100	CAR CAR	2	201	0	0	5
983392384	TH 13/08/19	3000	N TANNERY	RD BERRY	21:15	DAR OCA	2WY	WET	CRV	90	CAR	1	804	0	0	5
992470244	SU 27/06/19	999999	? THE PINES	GTE BERRY	18:30	DAR OCA	2WY	WET	CRV	90	CAR	1	805	0	0	5
971831134	MO 06/01/19	350	S THOMPSON	RD BERRY	12:30	DAYL FINE	2WY	DRY	CRV	90	STR	1	804	0	1	3
984414191	SU 08/11/19	100	S TINDALLS	LA BERRY	14:00	DAYL RAIN	2WY	WET	STRT	90	CAR CAR	2	303	0	1	3
971837985	SU 26/01/19	200	N TINDALLS	LA BERRY	10:17	DAYL RAIN	2WY	WET	CRV	90	WAG CAR	2	201	0	1	3
971844560	TU 11/02/19	200	N TINDALLS	LA BERRY	11:55	DAYL RAIN	2WY	WET	CRV	90	CAR STR	3	201	0	4	2
984415551	TH 12/11/19	200	N TINDALLS	LA BERRY	7:20	DAYL RAIN	2WY	WET	CRV	90	CAR	1	802	0	0	5
991448385	MO 22/03/19	200	S TINDALLS	LA BERRY	14:30	DAYL OCA	2WY	WET	CRV	100	CAR	1	803	0	0	5
994498992	SA 23/10/19	200	S TINDALLS	LA BERRY	3:00	DAR OCA	2WY	WET	CRV	90	CAR	1	804	0	0	5
993490504	SA 18/09/19	400	S TINDALLS	LA BERRY	23:25	DAR FINE	2WY	DRY	STRT	100	WAG	1	703	0	0	5
983399874	SA 04/07/19	500	N TINDALLS	LA BERRY	12:15	DAYL FINE	2WY	DRY	STRT	90	CAR CAR	2	301	0	1	3
984415304	SU 08/11/19	1000	N TINDALLS	LA BERRY	15:55	DAYL RAIN	2WY	WET	CRV	100	CAR	1	803	0	3	3
984416309	FR 20/11/19	1400	N TINDALLS	LA BERRY	5:00	DAR RAIN	2WY	WET	CRV	100	CAR	1	801	0	0	5
991429017	SA 09/01/19	1500	N TINDALLS	LA BERRY	6:50	DAYL OCA	2WY	WET	CRV	100	CAR OTH	2	201	0	0	5
991429082	SA 09/01/19	1500	N TINDALLS	LA BERRY	6:30	DAYL OCA	2WY	WET	CRV	100	WAG	1	801	0	0	5
993478105	FR 16/07/19	2000	N TINDALLS	LA BERRY	9:40	DAYL OCA	2WY	WET	CRV	100	CAR	1	803	0	0	5
992461378	SU 23/05/19	50	S TOMLINS	RD BERRY	21:45	DAR OCA	2WY	WET	STRT	100	CAR	1	703	0	0	5
991429175	SU 10/01/19	100	S TOMLINS	RD BERRY	1:00	DAR RAIN	2WY	WET	CRV	100	CAR	1	803	0	0	5
991431934	TH 21/01/19	100	N TOMLINS	RD BERRY	14:30	DAYL RAIN	2WY	WET	CRV	80	WAG UTE	2	201	0	2	2
993473778	MO 12/07/19	100	S TOMLINS	RD BERRY	20:00	DAR RAIN	2WY	WET	CRV	90	CAR	1	802	0	0	5
982370542	MO 18/05/19	150	S TOMLINS	RD BERRY	19:50	DAR RAIN	2WY	WET	CRV	90	CAR	1	803	0	1	4

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982374404	FR 05/06/19	150	S TOMLINS	RD BROUGHTO	8:00	DAYL OCA	2WY	WET CRV	90	CAR		1	803	0	0	5
994F00531	W 29/12/19	200	S TOMLINS	RD BROUGHTO	7:50	DAYL RAIN	2WY	WET CRV	100	CAR	STR	2	201	2	0	1
981369106	SU 15/03/19	300	S TOMLINS	RD BROUGHTO	18:50	DUS RAIN	2WY	WET CRV	90	CAR		1	804	0	1	3
994514644	TU 28/12/19	300	S TOMLINS	RD BERRY	14:20	DAYL RAIN	2WY	WET CRV	90	CAR		2	805	0	4	2
974325419	SA 08/11/19	500	N TOMLINS	LA BROUGHTO	14:00	DAYL OCA	2WY	WET CRV	100	CAR		1	804	0	0	5
982359446	SA 04/04/19	100	S TURFCO	OTH BERRY	12:45	DAYL FINE	2WY	DRY STRT	90	CAR		1	703	0	0	5
971833146	FR 17/01/19	450	N WOODHILL MOUNT RD	RD BERRY	18:00	DAYL FINE	2WY	DRY CRV	90	MC		1	805	0	1	3
993476826	TH 22/07/19	300	E PRINCES	HWY BERRY	7:55	DAYL FINE	2WY	DRY CRV	50	CAR		1	803	0	0	5

TOTALS FOR THIS QUERY: 121 CRASHES 6 PERSON/S 93 PERSON/S

Our Ref: 236.5115 and 404.5115

Enquiries: Karen Dixon - (02) 4221 2453

Your Reference:

Mr Alan Kerr
Environmental Engineer
Cleary Bros (Bombo) Pty Ltd
39 Five Islands Road
PORT KEMBLA NSW 2505

KIAMA AND SHOALHAVEN LGA GERRINGONG / GERROA / BERRY – CRASH ANALYSIS

Dear Mr Kerr

This letter is provided in response to your initial phone call and consequent email sent on 19 June 2006, requesting crash data related to Gerringong / Gerroa / Berry; in particular the road circuit defined by Belinda St, Fern St, Crooked River Rd, Gerroa Rd, Beach Rd and Princes Highway.

A crash analysis was undertaken using validated data for the 3-year period 1 October 2002 to 30 September 2005. The tables below provide an overview of crash severity by location and vehicle type, as requested in your email. The Primary Vehicle column lists the 'at fault' vehicle type involved in the crash; the Vehicle 2 column refers to the secondary vehicle type involved in the crash.

Princes Highway / Belinda Street Intersection

	Number of Crashes	Primary Vehicle	Vehicle 2
Fatal Crashes	0	N/A	N/A
Injury Crashes	4	4 x Car	2 x Truck, 1 x 4WD, 1 x Bus
Non-injury Crashes	4	4 x Car	4 x Car

Belinda Street

Crash Severity	Number of Crashes	Primary Vehicle	Vehicle 2
Fatal Crashes	0	N/A	N/A
Injury Crashes	1	Car	Ute
Non-injury Crashes	2	1 x Car 1 x Car	Car Trees or bushes

Fern Street

	Number of Crashes	Primary Vehicle	Vehicle 2
Fatal Crashes	0	N/A	N/A
Injury Crashes	0	N/A	N/A
Non-injury Crashes	5	2 x Car 1 x Car 2 x Car	2 x Car 4WD Drain / culvert / guardrail

Crooked River Road

	Number of Crashes	Primary Vehicle	Vehicle 2
Fatal Crashes	0	N/A	N/A
Injury Crashes	4	2 x 4WD 1 X OMV 1 x Car	1 x Pedestrian, 1 x Guardrail Pedestrian Car
Non-injury Crashes	2	2 x Car	2 x Car

Gerroa Road

	Number of Crashes	Primary Vehicle	Vehicle 2
Fatal Crashes	0	N/A	N/A
Injury Crashes	0	N/A	N/A
Non-injury Crashes	4	1 x Car 3 x Car	Car Trees or bushes

Gerroa Road / Beach Road Intersection

	Number of Crashes	Primary Vehicle	Vehicle 2
Fatal Crashes	0	N/A	N/A
Injury Crashes	1	1 x Car	Car
Non-injury Crashes	1	1 x Car	4WD

Beach Road

	Number of Crashes	Primary Vehicle	Vehicle 2
Fatal Crashes	0	N/A	N/A
Injury Crashes	0	N/A	N/A
Non-injury Crashes	2	2 x Car	Trees / embankment

Princes Highway (including intersection but excluding Belinda St – refer below)

	Number of Crashes	Primary Vehicle	Vehicle 2
Fatal Crashes	3	2 x Car 1 x Articulated Truck	2 x Car Guardrail
Injury Crashes	34	2 x Car 6 x Car 13 x Car 3 x Car 2 x Semi 3 x Truck 1 x Articulated Truck 4 x Motorcycle	1 x Lorry, 1 x Truck, Car or 4WD Trees / drain / fence No object hit 1 x Guardrail, 1 x Bridge 2 x Car, 1 x Truck Guardrail No object hit
Non-injury Crashes	25	12 x Car 4 x Car 1 x Car 1 x Car 1 x Semi 3 x Truck 2 x Truck 1 x OMV	Trees / drain / guardrail No object hit Car Semi Car Drain / Trees / Guardrail 1 x Truck, 1 x Car Car

This analysis relates to reported crashes only. The RTA bases its analysis and investigation on crashes reported to the Police and not minor traffic crashes or near misses.

Should you require clarification of any of this information, please contact Karen Dixon on 4221 2453.

Yours faithfully

Joanne Parrott
Manager, Planning and Analysis Unit