We are residents of 394 Brayton Road Marulan situated approx 1.5kms **SOUTH-EAST** of the proposed Pit Extension site, approx 2kms **SOUTH-EAST** of Gunlake Quarry Approved Pit, approx 2kms **NORTH-EAST** of the Holcim Australia Lynwood Quarry Approved Pit, approx 1.9kms **EAST** of the Lynwood Quarry Modification 4 Granite Pit site and approx 700 metres **SOUTH** of Holcim Australia Johnniefelds Quarry. We are identified as Receptor Location 8 of the Air Quality assessment locations (Figure 12.1) in the Environmental Impact Statement (EIS) Main Report. We are in close proximity to, and surrounded by, a large section of the quarrying industry in Marulan and, in addition to this, are approx 2.7kms **WEST** of the Hume Highway. Our location makes us vulnerable to the cumulative impacts of noise, dust, traffic and transportation generated by the operations of this industry and respectfully request that the Department of Planning & Environment adopts a wholistic approach and takes into consideration other Marulan quarry applications currently before the Department when assessing Gunlake Quarry Mod 4 - Pit Extension (Mod 4).

In submitting our objection to the Gunlake Quarry Mod 4, we would like to draw attention to several matters contained within the EIS which are of concern for us (in italics) and our response against each concern.

1. Transport options assessment

"The feasibility of quarry products transport alternatives was reviewed in response to Council and community concerns regarding the increased truck movements on the primary haul route. A range of seven potential road and rail transport options for the transport of quarry products to customers in the Sydney region were considered in detail."

Fact: Option 2 - Road only - Construct an alternative dedicated haulage route (4 km) on the east side of Brayton Road, cites amenity and traffic noise impacts as the key environmental considerations for not pursuing as a viable option. Our property is located on the east side of Brayton Road and makes up approx 1.3kms of the optional 4 km route yet we have not been taken into consideration as a sensitive noise receptor for traffic in the EIS.

"Option 1 is proposed, ie to continue to transport quarry products by road using the primary haulage route (where truck volumes will increase) and the secondary haulage route (where truck volumes will be unchanged)."

Fact: Section 5.5.2 - Project Fact Sheets - Table 5.3 - Air Quality Impacts - Dust impacts - wrongly identifies our property as **275 Brayton Road** thereby locating us outside the primary haulage route and has the potential to be misleading in relation to the adverse impacts of noise, air quality, amenity and sleep disturbance on our residence and property. (See Photo #1 below).

Photo #1 - Gunlake Quarry truck passing our property entrance

"There are extensive unresolved technical and design issues relating to the road and rail/road options considered (except for Option 1 — the ongoing use of the primary haul route)".

Fact: Option 2 - Road only - would need to traverse Joarimin Creek and its tributaries, two (2) gas pipelines (Moomba to Sydney natural gas and ethane gas), a water pipeline servicing Goulburn city and a fibre optic cable servicing Sydney to Melbourne. In addition to this, parallel to Brayton Road is a Goulburn Mulwaree Shire water pipeline and riser servicing Marulan town water, a high pressure natural gas pipeline servicing Marulan township, a relay station which is a major piece of infrastructure servicing both gas pipelines, our residence, including two (2) large outbuildings and two (2) x 22,500 litre water tanks (See Photos #2a and #2b below). To construct a dedicated haulage route parallel with Brayton Road would present extensive technical and design issues and is unlikely to have ever been seriously considered as an option. As potentially affected landowners **at no time** did any consultation take place with us during the EIS process.

Photo #2a - Gas pipeline relay station

Photo #2b - Showing close proximity of our residence and outbuildings to Brayton Road

2. Transport assessment

"The recent visual pavement condition assessment undertaken by EMM observed the road pavements of the product haulage route to be generally in good condition."

Fact: The By-pass road pavement has never been without surface issues and appears to be incapable of coping with the current number of heavy vehicle movements yet alone the increase proposed in Mod 4. There are many sections of the pavement that are in constant need of maintenance yet it can take several months for them to be repaired. Most of these sections are located on bends in the road, some on blind corners, thereby presenting dangerous hazards for drivers particularly when it becomes necessary to veer towards the centre of the road to avoid large potholes and obstacles. (See Photos #3a and #3b below).

Bypass Road looking north-Sep15

Photos #3a and #3b - Bypass Road damage - 11May16

3. Traffic Safety

"A traffic management plan, incorporating a driver code of conduct, has been prepared for the existing Gunlake Quarry transport operations and would also be applicable to the proposed quarry extension."

The following is an excerpt from the *"Driver Code of Conduct."*

Heavy vehicle speed

The following speed restrictions apply in relation to the Gunlake Quarry:

- speed limit of 40 km/hr on Quarry Access Road from Brayton Road to the weigh bridge;
- speed limit of 20 km/hr on all other internal access and haul roads;
- speed limit of 40 km/hr when proceeding past stationary school buses; and
- all heavy vehicles travelling to or from the Quarry must not travel over 80 km/hr between the Quarry and the Hume Highway.

Fact: According to the *Hourly Speed Summary* for the Gunlake Quarry Access Road **(Attachment A)**, 872 vehicles used the internal quarry access road between 17 and 23 August 2015. Out of the 872 vehicles, approx 70% exceeded the 40km/hr speed limit, 58% of these vehicles exceeded 80km/hr **and 6 vehicles travelled between 100 and 120km/hr.**

Fact: As per the Driver Code of Conduct, the heavy vehicle speed should not exceed 80km/hr between the Quarry and the Hume Highway, a distance of 7kms, i.e. 3.4kms from the Quarry access road/Brayton Road intersection to the Bypass Road intersection plus 3.6kms from the Bypass Road intersection to the Hume Highway. Travelling this distance in a sedan car with cruise control set at 80km/hr, with the exception of the two intersections where the speed was reduced to under 60km/hr, took just over 7 minutes. However, taking into account the steep incline on the Bypass Road, it would be expected that a more realistic time frame for a heavy vehicle to travel the same 7kms would be around 8 minutes minimum. On 4 September 2015, Table 2.6 *Truck travel times from the Hume Highway* **(Attachment B)** documents the travel time for 8 trucks **from** the Hume Highway to the Gunlake Quarry access road and 4 trucks travelling **to** the Hume Highway (Table 2.5) as being 8 minutes or less, with one truck taking only ***5 minutes*** to cover this distance. If a travel time of 7 minutes to cover the 7kms is applied, the truck which took 5 minutes would be travelling at 40% more than the 80km/hr speed limit i.e. in excess of **110km/hr.** Clearly the Gunlake Quarry traffic management plan and Driver Code of Conduct have not been successful. Considering Tables 2.5 and 2.6 only covered the period between 12pm and 2:30pm, the travel times and speeds outlined above for quarry trucks, including possibly larger B-Double type trucks, is alarming. If Mod 4 is approved, then on any given day, at maximum output from Gunlake Quarry, there is potential for 690 truck movements travelling more than 80km/hr on the primary haulage route. In the interest of road safety, an enforced restriction of 80km/hr along this section of road to the Hume Highway would assist in reducing the high incidence of excess speeds by all road users documented in the EIS.

4. Noise and vibration

"Sleep disturbance criteria are predicted to be met by maximum noise level events at all assessment locations."

Fact: We experience sleep disturbance from approx 4:30am each day of operations commencing with workers' vehicles passing by our residence along the haulage route, followed by the steady stream of unladen quarry trucks and then again when the trucks are loaded. At the community meeting held in Marulan on 30 July 2015, we expressed our concerns in relation to traffic noise and how it was necessary to keep our windows closed at night. Julian O'Neil, one of the Directors of Gunlake Quarry, approached us to discuss noise mitigation measures such as double glazing and insulation however this offer was rejected due to the fact that our windows have always been double-glazed and our house is already fully insulated in both the roof and walls. Air conditioning would be an unwanted mitigating measure due to the noise which would emit from the motor, the maintenance associated with keeping the filtration system clean and the electricity running costs. Air conditioning has never been a necessary addition to our home due to it having a verandah on all four sides as well as the

inclusions previously mentioned which keep the interior at an ambient level throughout the summer months. Despite these inclusions, sleep disturbance has become a frequent aspect of living in our home due to it being located at such close proximity to the haulage route, i.e. approx 60 metres from the Brayton Road.

"Cumulative noise from the extension project and other developments is likely to satisfy the relevant amenity criteria. "
Fact: In addition to Gunlake Quarry transportation, Holcim Johnniefelds quarry commences at 6am where operational noises such as the crusher and front end loaders, including the high pitched reversing beeper, are all clearly audible, disturb our sleep and impact on our amenity. Operations at Lynwood Quarry and Gunlake Quarry can already be heard to varying degrees, depending on weather conditions. As heavy equipment such as a front end loader, excavator, dozer and drill will be used in the furthermost south-east corner of the proposed Gunlake expansion in Year 1, it is expected the extent of the impact on our amenity will increase considerably during construction and future operations, if approved. Additionally, the cumulative impact of the Lynwood Quarry Granite Pit, some 500 metres distant from the Gunlake expansion, together with the ongoing operations at Johnniefelds, will see a significant noise impact increase throughout the day and in the future during nighttime operations.

"Operational road traffic noise levels are predicted to satisfy the relevant RNP noise criteria and guidelines at all nearest assessment locations for all road sections of the transport route."
Fact: Two (2) noise loggers monitored for operational road traffic noise were placed at locations where the traffic count was reduced, particularly for heavy vehicles, i.e. before Johnniefelds Quarry entrance and after the Bypass Road intersection with Brayton Road (Figure 11.2 - Transport routes and noise monitoring locations - EIS Main Report). It is noted in Table 11.3 - Road Traffic Noise Levels (EIS Main Report) that the driving speed logged at each location along Brayton Road was 100km/h which would indicate the vehicles were travelling in top gear. However, there is a substantial difference in the amount of noise emanating from a heavy vehicle going through multiple gear changes when accelerating and decelerating and when using compression braking. The 1.7km section of the primary haulage route between Johnniefelds Quarry and the Bypass Road, of which approx 1.3kms is our property frontage, has the greatest impact of noise due to approximately 45% - 71% of the traffic being heavy vehicles. This is a strikingly high proportion of heavy vehicles for a rural road considering the Hume Highway typically carries between 15% and 18% of heavy vehicles. If Gunlake Mod 4 is approved, the ratio of heavy vehicles to normal traffic is expected to increase considerably.

"Blast overpressure and ground vibration levels are predicted to satisfy relevant EPA guidelines. "
Fact: We hear the blasts, feel the blasts and have noticed movements of windows and items within our house from all three quarries at times of blasting. We have damage to the brickwork of our garden fence, garage and hairline cracks have recently appeared in the gyprock which, after more than 25 years since construction, would not be attributable to settlement. The impact of having three operational pits, Lynwood, Gunlake and Johnniefelds, plus the expansion pits, if approved, would mean that blasting will occur more frequently and the potential for further damage more likely.

"Since commencement of operations in 2009, Gunlake has a record of responsible environmental management. The company has complied with the licence conditions of Environment Protection License 13012 and the conditions of project approval 07 0074, with the exception of two penalty infringement notices (PINs), issued 10 December 2013 and 1 July 2014. The PIN received on 10 December 2013 was for failure to comply with operating hours stipulated for the project. The PIN received 1 July 2014 was for failure to comply with the daily number of truck movements and the operating hours approved for the project. Gunlake has since implemented management measures to prevent the recurrence of these infringements." (2.13.3 Environmental record).

Between October 2015 and mid February 2016, trucks were running out of Gunlake Quarry during the night and although Gunlake is licensed for 24 hour transportation of product, these trucks were

hauling asphalt required for roadworks in the region. It is believed the asphalt plant was being operated from within the Gunlake Quarry site and has since been dismantled, requiring between 20 and 30 low loaders and other such vehicles to remove the infrastructure. If this was indeed the case, then it was an **unlicensed** activity which caused unnecessary sleep disturbance to residents along the haulage route and yet another example of Gunlake Quarry disregard for the community and failure to comply with license conditions.

5. Air Quality

"The closest residences (receptors) are to the south east along Brayton Road. Twelve receptor locations (Figure 12.1) were assessed for air quality impacts. Ten of these residences are privately owned and two (1 and 3) are owned by Gunlake."

Fact: We are identified as R8 in Figure 12.1 and are affected by particulate concentrations from all three quarries, i.e. Gunlake, Lynwood and Johnniefelds quarries. For some considerable time we have been noticing very fine and unusually coloured dust both outside and inside our home. Although we cannot be certain exactly how long this fine dust has been impacting on us, it has become so noticeable on our outdoor furniture, flyscreens, bedroom furniture and furnishings that we have found it necessary to implement mitigating measures of our own, such as only opening windows for short periods of time during the day or keeping them completely closed, particularly in times of adverse weather conditions. Apart from the potentially hazardous impact such fine dust can have on our health, there is also the nuisance factor due to an increase in our domestic cleaning regime such as the necessity of having to replace dusting mops after each use and washing the vacuum cleaner filter on a weekly basis due to it being so clogged as to be less effective if left longer. See Photos 4a and #4b below.

Photo #4a - Dust residue from washing vacuum cleaner fillter.

Photo #4b - Dusting mop heads 19Feb16 - 13May16.

As well as more regular maintenance required to the exterior such as cleaning dust from flyscreens every 2 weeks during summer months (see Photo #5a), many garden plants and shrubs have been damaged or destroyed from contaminants in the rainwater run-off from our roof or contaminated residue in the water emptied into the garden bed from the canisters of the domestic water filtration system. Dark staining on the edge of our verandah decking is also evident in sections where downpipes are located possibly due to overflow from episodes of heavy rainfall. (see Photos #5b and #5c).

Photo #5a - Dust on flyscreen - Destroyed/damaged - main bedroom

Photo #5b - Plant from destroyed by water from filtration canister

Photo #5c - shrubs from rainwater run-off

"The annual recorded wind pattern is dominated by west-southwest to westerly airflow, with lower wind speeds from the east and northeast also experienced. The highest wind speeds are most frequently experienced from the west-southwest to west. The average recorded wind speed for 2014 was 3.5 m/s, with a frequency of calm conditions (wind speeds less than 0.5 m/s) occurring in the order of 8% of the time."

Fact: Figure 4.1 of the Air Quality EA below shows wind speed and direction data recorded by the onsite meteorolgical monitoring station at Gunlake Quarry. In contrast to the windrose data from Gunlake Quarry is that of the Lynwood Quarry meteorological station for the same period 2014-2015 **(See Attachment C).** In October 2015, Pacific Environment Limited interpreted the Lynwood data as showing the **predominant** wind directions as being from the **west**, particularly in winter, with smaller contributions from the west-south-west and west-north-west. The **strongest** winds were from the **west** with the annual average wind speed being 3.7m/s and calm days amounting to 2.9%. With such differing data from the two quarry weather stations in such close proximity to each other, further investigation is required to establish the accuracy of each.

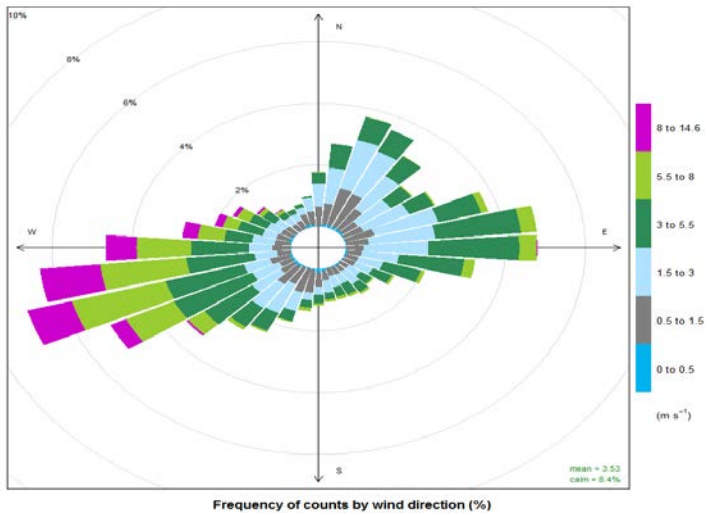


Figure 4-1: Annual Average Wind Rose – Quarry Station – 2014

"The predicted cumulative particulate concentrations and deposition rates from Gunlake Quarry and neighbouring quarries are also below the applicable impact assessment criteria for all receptor locations for all emission scenarios."

"Cumulative annual average particulate concentrations and deposition levels are also below the applicable impact assessment criteria at all receptor locations and for all emission scenarios."

Fact: It is not uncommon for the valley to the east of all three quarries, i.e. Gunlake, Lynwood and Johnniefelds to be filled with dust, particularly after blasting. The following photos were taken from the eastern end of our residence on a day of moderate 35km/hr WNW winds.

Photo #6a - Dust in valley looking east - 11 May 2016

Photo #6b - Dust in valley looking east towards Bypass Road - 11 May 2016

"Sources of fugitive dust at the Gunlake Quarry include:

- *Removal, handling, hauling and dumping of topsoil and waste rock/overburden;*
- *Removal, handling, hauling and dumping of hard rock product, including drilling and blasting in the quarry pit;*
- *Product processing (crushing, screening and conveying);*
- *Wind erosion from stockpiles and exposed surfaces; and*
- *Transportation (hauling) of product along unpaved internal roads, the paved site access road and paved public roads."*

Fact: Despite assurances that dust suppression practices are in place, dust emissions from Gunlake Quarry can regularly be seen for several kilometres. (See Photo #7)

Photo #7 - Dust emissions from Gunlake Quarry as seen from the Bypass Road.

Fact: The (internal) haul roads are not public roads however on the approaches to the public roads, they should be sealed for a minimum distance of 100 m with a 7 m wide seal. This would be beneficial for dust control purposes
and also to minimise the potential tracking of dirt and gravel onto public roads via the tyre tracks of the quarry haulage trucks. (2.4.3 Transport Assessment). Despite Gunlake Quarry haul road being bitumen as far as can be seen from Brayton Road, dirt can be tracked for several kilometres along Brayton Road (see below) and is clearly visible on reflectors on the eastern side of Brayton Road heading south along the primary haulage route.

Gunlake Quarry internal haul road and Brayton Road intersection

Brayton Road east of Gunlake Quarry internal haul road

6. Greenhouse Gas Emissions

"In addition to air quality impacts, a greenhouse gas (GHG) quantification assessment was undertaken for the proposed Gunlake Quarry extension project. Relative to existing operations, the proposed modification will result in an increase in annual GHG emissions, due primarily to the related increase in diesel fuel consumption (on-site and product transportation) and electricity demand for processing."

Fact: Diesel engines have long been regarded as 'green' by car manufacturers, governments and environmental groups because they are more fuel efficient and emit less CO2 than petrol engines. Diesel vehicle sales have increased significantly over the past decade or so, however 'clean diesels' are more of a health hazard, i.e. the more finely tuned diesel engine the greater the risk. Diesel emissions have a particulate matter of PM2.5 and the fumes contain nitrous oxides.
Together with Gunlake Quarry's proposed 220 trucks (max 690 movements daily) and Johnniefelds quarry average of 60-80 trucks (120-160 movements), it is estimated the average combined movements generated by the two quarries would be around 850 per day. Taking into account that off-road plant and equipment and light vehicles such as company utes also run on diesel fuel, then there is the potential for over 900 vehicles from the quarries alone to be emitting nitrous oxides along the primary haulage route daily.

Recent studies have found that car company figures for diesel pollution are unreliable and that actual emissions are far greater. This has certainly been the case with European car manufacturers such as Volkswagen, Audi and Porsche, and more recently Japan's Mitsubishi, who have admitted to having falsified the diesel pollution management controls in their vehicles. Not only were these companies found guilty of deceiving customers, but governments and interested parties alike. This is a classic example of multi-nationals (big business) putting profits before people, proving that modelling can be manipulated to give the desired results as the situation demands**.**

7. Water Quality

"Beattie.... complained of silica dust in water supply".

Fact: At the Gunlake Quarry community information night of 30 July 2015 we raised our concerns surrounding dust, silica, noise, traffic and water quality. Not only is the above statement a misquote but points towards us as being ill-informed on the subject of silica and its impact on human health. We do have concerns about our domestic water supply yet despite several requests to both Gunlake

Quarry and Holcim, neither will agree to have our water tested for the presence of harmful contaminants.

8. Fauna
Dead and injured kangaroos and wombats are commonplace along the primary haulage route, particularly on the Bypass Road, where a recent casualty was a wedgetailed eagle possibly hit whilst feeding on roadkill.

9. Community Engagement
"Gunlake will continue to consult and liaise with relevant stakeholders on these issues in an open and transparent manner in order to maintain social amenity in the local community".
Fact: Over the past ten years or so since the quarrying industry has expanded in Marulan, we have attended several community meetings and forums made available to us to air the concerns we have in relation to these developments. This has not always been met with understanding yet alone empathy, particularly from Ed O'Neil, Managing Director of Gunlake Quarry, who is consistently reluctant to acknowledge any adverse impacts on nearby residents and dismissive of the environmental, health and social issues raised with him either in person or via objections to the Department of Planning and Environment. On 30 July 2015, Gunlake Quarry held an information session surrounding their application for Mod 4. It became apparent that Ed O'Neil and Co-Directors, Simon and Julian O'Neil, were not intending to have an open forum on that night however, at the insistence of the 40 or so residents attending, the Directors agreed to answer any questions raised. A lively discussion took place covering many topics of concern however at one point, when asked if the Directors had read the SEARs issued for the proposed expansion, **each answered that they had not**, which only reinforces our opinion that the Directors have little regard for the community and for the Department's requirements as well.

In addition to the above statement, Ed O'Neil, Managing Director, stated that Gunlake Quarry did not contain silica. This was vigorously rejected by the 40 or so members of the community in attendance. The **fact is Gunlake stone contains 5-7% silica** and is yet another example of the how the quarrying industry is in denial of the health implications crystalline silica holds for the future.

10. Cumulative Impact
We are consistently frustrated by the shifting of blame by one quarry on another to the extent that even Ed O'Neil, Managing Director Gunlake, and Mark Campbell, CEO Holcim, have attempted to exonerate their respective operations from being the source of noise and dust pollution and our loss of amenity. The bottom line is, we have endured and will continue to endure the cumulative impact of all three quarries to the extent as follows:

- Noise, dust, traffic and amenity from Gunlake Quarry for almost 8 years and for a further 30 years, if approved;
- Noise, dust, transportation and amenity from Lynwood Quarry to a lesser extent for 10 years and to a greater extent for a further (approved) 22 years; and
- Noise, dust, traffic and amenity from Johnniefelds Quarry for over 28 years and for a further indefinite period until closure and rehabilitation.

Conclusion

"Not proceeding with the extension project would result in an identified market opportunity not being met, or more likely, being met by another source. The hard rock resource available at the site would not be extracted, which would be contrary to the NSW State Government's objective to maximise rock resource utilisation in the Marulan area. This may also result in supply pressures in the Sydney region if hard rock cannot be sourced locally and economically. The jobs that the project would create would not eventuate, nor would the direct and indirect impacts of increased local spending associated with the job creation. The incremental environmental impacts of the extension project would not occur in the project area. However, there would be impacts at other sources of the hard rock required for the local and greater Sydney markets".

We question the need for Gunlake Quarry to expand to 2mtpa at this present time and wish we had the confidence of Gunlake and Holcim that a proven hard rock resource is available at both sites.

"This EIS demonstrates that benefits of proceeding with the project will outweigh the potential impacts on the environment that may result."

The environmental impacts from the Gunlake and Holcim quarry projects, past, present and future, far outweigh any benefits we may gain. Sadly, as we put together this submission and watch our home, our amenity, our lifestyle, our health and wellbeing deteriorating before our eyes, words from Sir Winston Churchill come to mind:

"Courage is what it takes to stand up and speak. Courage is also what it takes to sit down and listen"

We believe the quarrying industry in Marulan should accept responsibility for the adverse impacts they create, whether it be individually or cumulatively, and acknowledge that compliance does not mean non-existence.

Colin and Catherine Beattie

CfeIT bob.white@cfeit.com (02) 9740 8600

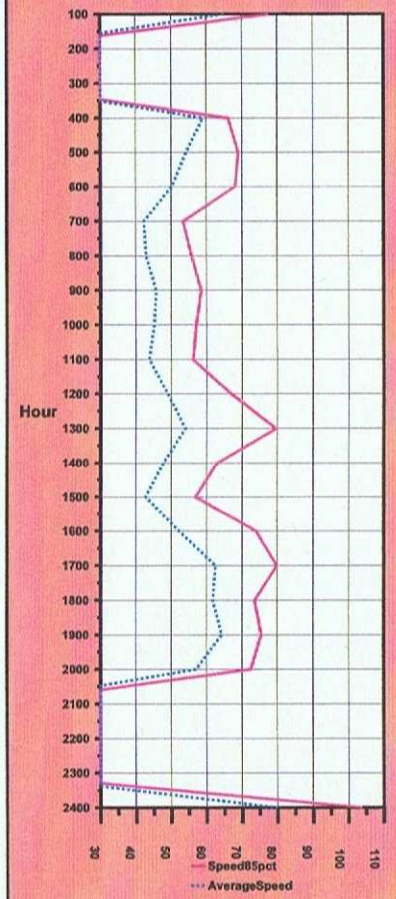
Hourly Speed Summary

Count Number	**2529**	Ref : **EMM**	**Lat/Long : S34 39.937 / E149 58.327** **GOOGLE MAP**
Street	**GUNLAKE QUARRY ACCESS ROAD, MARULAN : Between GUNLAKE QUARRY & BRAYTON ROAD (bidirectional) :**		
Location	South of Brayton Road, On No Overtaking Sign		*Carriageway*

Start Date	17-AUG-15
Start Time	1400
Duration	7 DAYS
Interval	1 HOUR

Weekly Mean Speed	**49**
Weekly 85th Percentile Speed	**66**
Five Day AADT	**238**
Seven Day AADT	**182**

Time	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100-110	110-120	Total	Mean	85pct
Midnight - 1am	0	0	0	1	0	6	2	6	0	1	0	0	**16**	65.0	77.7
1am - 2am	0	0	0	0	0	0	0	0	0	0	0	0		.0	.0
2am - 3am	0	0	0	0	0	0	0	0	0	0	0	0		.0	.0
3am - 4am	0	0	0	0	0	3	2	0	0	0	0	0	**5**	59.0	66.3
4am - 5am	0	0	0	3	2	6	1	1	0	1	0	0	**14**	54.3	69.0
5am - 6am	0	1	7	42	54	31	21	16	4	2	1	0	**179**	50.3	68.2
6am - 7am	1	6	10	33	44	11	4	2	1	3	0	0	**115**	42.3	53.4
7am - 8am	0	5	4	17	24	12	3	1	0	1	0	0	**67**	42.9	55.8
8am - 9am	0	2	2	20	32	16	10	0	0	0	0	0	**82**	45.7	58.6
9am - 10am	0	0	7	22	35	8	4	2	4	0	0	0	**82**	45.2	57.1
10am - 11am	1	1	10	42	49	23	8	3	1	0	0	0	**138**	43.8	56.2
11am - Midday	0	1	5	31	31	20	9	8	5	0	0	1	**111**	49.1	67.1
Midday - 1pm	0	0	1	19	26	13	3	8	8	4	0	0	**82**	54.0	79.6
1pm - 2pm	0	1	9	25	29	16	8	2	2	3	1	1	**97**	47.9	63.1
2pm - 3pm	0	4	9	36	28	14	9	0	1	0	0	1	**102**	42.7	56.9
3pm - 4pm	0	3	5	7	16	15	6	6	3	3	0	0	**64**	52.2	74.0
4pm - 5pm	0	0	0	2	11	18	11	10	6	3	0	0	**61**	62.5	79.9
5pm - 6pm	0	0	0	0	4	8	10	5	1	0	0	0	**28**	61.8	73.6
6pm - 7pm	0	0	0	0	1	4	5	5	0	0	0	0	**15**	64.3	75.5
7pm - 8pm	0	0	0	0	2	1	1	1	0	0	0	0	**5**	57.0	72.5
8pm - 9pm	0	0	0	0	0	0	0	0	0	0	0	0		.0	.0
9pm - 10pm	0	0	0	0	0	0	0	0	0	0	0	0		.0	.0
10pm - 11pm	0	0	0	0	0	0	0	0	0	0	0	0		.0	.0
11pm - Midnigh	0	0	0	0	0	0	2	0	1	0	1	0	**4**	80.0	104.0
Total	2	24	69	300	388	225	119	76	37	21	3	3	**1267**		
% of Total		2	5	24	31	18	9	6	3	2					



ATTACHMENT D

Data displayed has been compiled from pneumatic traffic count processes and is subject to the documented limitations

ATTACHMENT "B"

Table 2.5 Truck travel times to the Hume Highway and waiting times

Depart quarry weighbridge	Arrive Hume Highway	Travel time (minutes)	Minus 3 minutes on Quarry Access Road [1]	Wait time (seconds) at the Highway	Hume Highway traffic changed lanes	Hume Highway traffic delayed
11.55	12.07	12	9	0	-	-
11.57	12.10	13	10	20	✓	-
12.13	12.25	12	9	0	✓	-
13.02	13.11	9	6	0	✓	✓
13.29	13.45	16	13	36	-	-
13.45	13.59	14	11	18	-	-
13.58	(2)	-	-	-	-	-
14.00	14.14	14	11	0	✓	✓
14.07	14.18	11	8	10	-	-
14.12	14.25	13	10	0	✓	-
14.20	14.34	14	11	0	✓	-
14.24	14.35	11	8	0	✓	✓
14.26	14.35	9	6	0	✓	✓
14.28	14.40	12	9	0	✓	-
14.30	14.43	13	10	6	-	-
14.37	14.50	13	10	2	-	-
14.39	14.52	13	10	50	-	-

Notes: *1. EMM observations 4 September 20.15 Trucks are assumed to take three minutes to travel internally from the quarry weighbridge before reaching Brayton Road.*

2. This truck was not observed to travel via Red Hills Road and is assumed to have travelled via Brayton Road to Marulan.

Table 2.6 Truck travel times from the Hume Highway

Depart Hume Highway	Arrive quarry	Travel time	Minus 3 minutes on Quarry Access Road
12.10	12.18	8	5
12.14	12.23	9	6
13.12	13.25	13	10
13.18	13.27	9	6
13.34	13.45	11	8
13.39	13.50	11	8
13.42	13.52	10	7
13.52	14.04	12	9
14.03	14.12	9	6
14.03	14.14	11	8
14.03	14.15	12	9
14.10	14.24	14*	11*
14.10	14.27	17*	14*
14.10	14.29	19*	16*
14.15	14.36	21*	18*

Notes: ** RMM observations 4 September 2015. These trucks were probably delayed by previous trucks using the weighbridge when multiple trucks arrived in a group.*

ATTACHMENT "C"

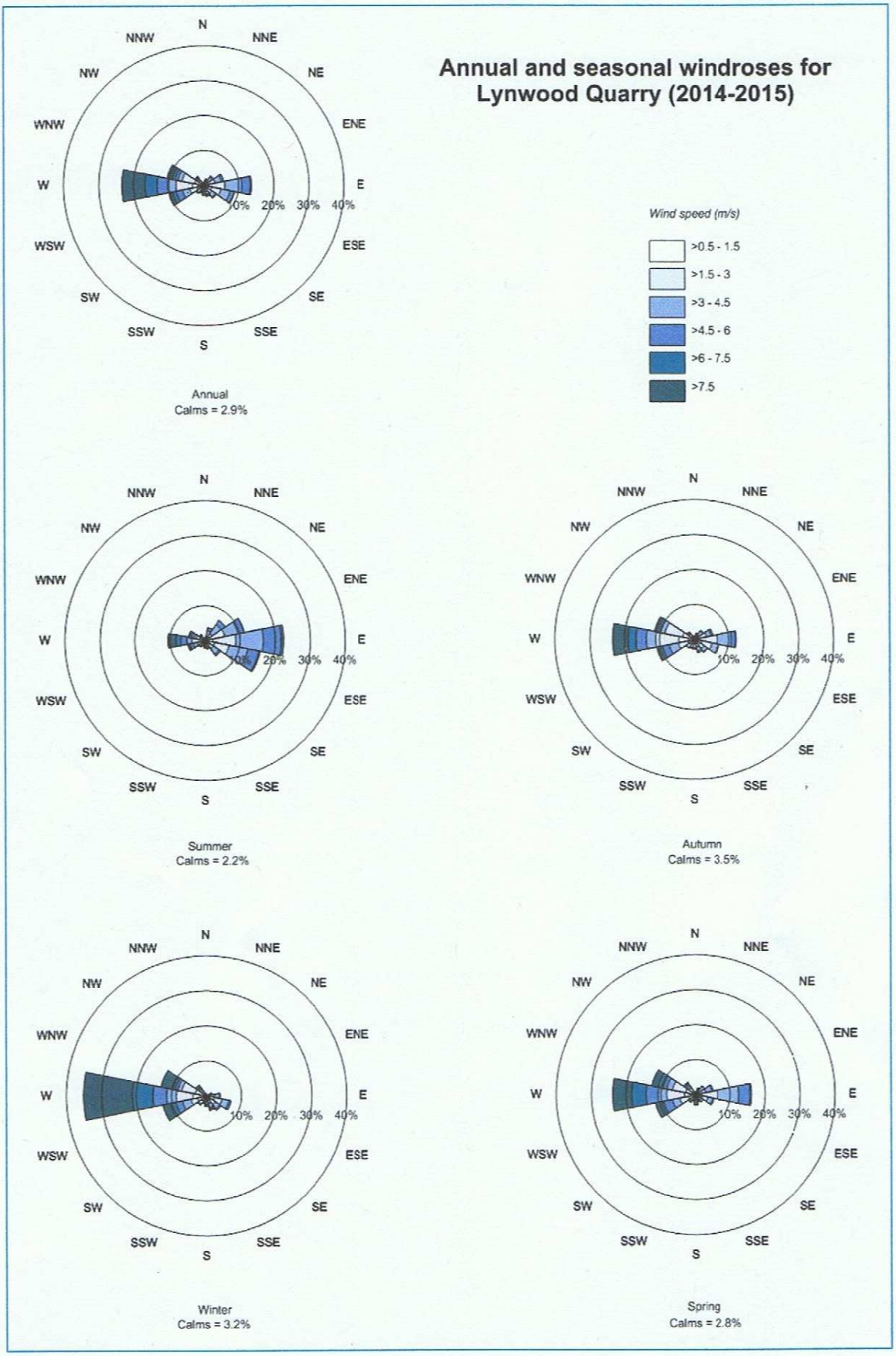


Figure 3: Annual and seasonal wind roses for Lynwood Quarry