

7 April 2022

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Dear Jessie

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RE: Martins Creek Quarry Project (SSD 6612) – Request for additional information – Traffic and Noise

As per correspondence dated 14 March 2022, the Department of Planning and Environment (DPE) has requested that Daracon provide additional information in relation to traffic and noise on the Martins Creek Quarry Project (SSD 6612) (the Revised Project).

The key points from the DPE correspondence are reproduced below with a response provided.

The Department notes that the results of the intersection performance modelling (using the Sidra Network modelling program) presented in the Traffic Impact Assessment (TIA, SECA Solutions, 2021) appear to show that the Amended Project would, with the exception of the Dungog Road / Gresford Road intersection, improve the performance of the intersections along the proposed primary haulage route. When comparing the Sidra results for the 'No Project' vs. 'Amended Project' scenarios along the haulage route for year 2030 (i.e. Table 4-9 vs. Table 4-10), the predicted average delays and queue lengths at the intersections decrease under the Amended Project scenario, excepting at the Dungog Road / Gresford Road intersection. Further, the overall Level of Service improves under the Amended Project scenario for the Melbourne Street / Pitnacree Road / Lawes Street and Melbourne Street / New England Highway intersections.

Whilst the TIA provides some discussion regarding the general predicted network performance during year 2030 and the Amended Project's relative contribution to intersection performance at that time, there is limited explanation as to how the Amended Project would improve intersection performance along the primary haul route.

You are requested to provide an explanation as to how the Amended Project would improve intersection performance along the haulage route or, if necessary, provide a revised intersection performance analysis.

A comprehensive Traffic Impact Assessment (TIA) (Seca, 2021) was prepared by Seca Solution Pty Ltd (Seca) to assess the road traffic impacts of the Revised Project (Appendix C of the Amended Development Application (ADA)). The TIA included traffic modelling and intersection analysis using Sidra modelling software and an assessment of traffic impacts and any required management measures. The Sidra intersection modelling was completed along the network at the key intersections in accordance with Transport for NSW (TfNSW) requirements under the Secretary's Environmental Assessment Requirements (SEARs). In accordance with the SEARs, the operation of the key intersections have been assessed for the future design year of 2030, allowing for background traffic growth to occur over this 10 year timeframe, without and with the Revised Project.

For the roundabout at Flat Road/Paterson Road, the Sidra modelling in the TIA shows slight changes in the queues / delays but overall level of service remains the same. The algorithms within Sidra have determined the results of this and with the increased demands it adjusts the results accordingly. Additional trucks on one arm results in reducing the gaps for traffic exiting the next arm but then improves it for the next arm / approach. These minor changes in the demand / results generally alter more as the traffic flows become imbalanced on the approaches to a roundabout.

For the two sets of traffic signals, being Melbourne Street/Pitnacree Road/Lawes Street and Melbourne Street/New England Highway, Sidra has adjusted the phasing, etc. to obtain the optimised results and balances across the network. This can result in more green traffic light time given to one approach but then creates increased delays for the other approaches. The two scenarios tested, being without and with the Revised Project, would have slightly different cycle times as well as different timing for the phases hence some variability in the results.

It is important to note that the actual timings on the ground could be different to the Sidra modelling, as the signals have detectors in the ground to detect traffic and queues and will adjust the signal phasing accordingly to optimise traffic flow. The Sidra model provides a typical general operation for the traffic signals only.

For completeness, Seca has re-run the Sidra modelling on an updated version of the Sidra model (version 9.0). The results are provided in **Attachment A**. The revised modelling has been undertaken with no adjustments to gap acceptance for the priority-controlled intersections or any phasing from the Sidra output to alter / improve any operation. The same signal timing phasing for the two signal controlled intersections have been used for each scenario, being without and with the Revised Project, for consistency against the original Sidra modelling for the TIA.

The results in **Attachment A** show the intersections of Dungog Road/Gresford Road, Paterson Road/Tocal Road and Paterson Road/Flat Road would continue to provide a very high standard of operation during the operation of the Revised Project, with the results yielding an overall level of service A on each approach with minimal delays and congestion. The revised results indicate that the performance of the Melbourne Street/Pitnacree Road/Lawes Street and Melbourne Street/New England Highway intersections would have no change to overall level of service resulting from Revised Project. The Melbourne Street/New England Highway would have a slight decrease in level of service from D to E at the New England Highway from Maitland. Whilst these intersections are predicted to suffer delays, Seca advise this is generally due to the continual traffic growth along the New England Highway in this location rather than a direct impact of the Revised Project.

The overall conclusion of the TIA that the additional traffic movements associated with the Revised Project would have an acceptable impact upon the operation of the key intersections along the primary haul route is maintained.

The Department notes that the proposed daytime Project Noise Trigger Levels (PNTLs) for each of the receivers in Noise Assessment Groups (NAG) 1, 2, 3, and 4 have been set based on modelling results considered representative of the existing approved operations.

Appendix A2 of the Noise Impact Assessment (NIA, Umwelt, 2021) presents noise contours for the existing operations with and without the rail loading facility operating (Figures A2.2 and A2.3 respectively). The modelling results that include the operation of the rail loading facility as a noise source have then been used to derive the PNTLs for the receivers in NAGs 1-4 (as shown in Table A2.1).

The Department requires further information to clarify the extent to which the operating rail loading facility influences typical daytime noise levels under existing approved operations and therefore the appropriateness of including the operating rail loading facility as a noise source when deriving the abovementioned PNTLs.

Accordingly, you are requested to provide (in table format) the modelled noise level results at all receiver locations within NAGs 1-4 for existing operations without the train loading facility operating. You are also requested to providing information indicating the typical frequency and duration of train loading operations under existing approved operations.

A detailed Noise Impact Assessment (NIA) was completed for the Revised Project (Appendix D of the ADA) in accordance with the NSW *Noise Policy for Industry*, 2017 (NPfI) (EPA, 2017), the Interim Construction Noise Guideline (ICNG) (EPA 2009), the NSW Road Noise Policy (RNP) (DECCW 2011) and the Rail Infrastructure Noise Guideline (RING) (EPA 2013).

As noted in Appendix 2 of the NIA for the Revised Project, under Section 6 of the NPfI where the noise level from an existing industrial noise source is greater than the project amenity noise level (PANL), the project amenity noise level can be used to set the project noise trigger level (PNTL). The noise model of the existing Martins Creek Quarry operations includes all noise sources related to the existing approved development, as deemed approved by the Court of Appeal orders (refer to Section 1.4 of the ADA for further details). This includes mobile equipment, the processing plant and activities in the area surrounding and related to the processing plant including road vehicles and train loading.

The predicted noise levels from the existing operations with the train rail loading operation running are presented in the Table 2.1 of the NIA and reproduced in Table 1 of **Attachment B**. The PNTLs derived from the comparison of the existing noise levels with the PANL were presented in the Table 2.1 of the NIA and is also reproduced in Table 1 of **Attachment B**.

The predicted noise levels from the existing operations without the train rail loading operation running are also presented Table 1 of **Attachment B**. PNTLs that could be derived from the predicted noise levels of the existing operations without the train rail loading operation running is also presented in Table 1 of **Attachment B**.

The existing operation is approved for extraction of up to 500,000 tonnes per annum (tpa) and tertiary processing of up to 449,000 tpa of rock on the Eastern Lands (refer to Section 1.4.1 of the ADA). The approved operations can dispatch up to 500,000 tpa by rail. It is noted that the existing operation is also approved for the dispatch of up to 30% of product by road (i.e. 134,700 tpa by truck), within the overall 500,000 tpa limit.

Over a 5-day working week for 48 weeks per year this equated to the dispatch of an average of 5.5 trains per week (based on current access to the rail network and North Coast Line this is constrained to one train during the day time period). For the existing configuration of the rail spur and rail loading facility it typically takes to 2 to 3 hours to load a train.

Rail loading and the transportation of product by rail is an approved component of the existing operations and as such it is appropriate that these components are considered in the noise model of the existing approved operations.

We trust this information meets with your current requirements. Please do not hesitate to contact myself, or Kirsty Davies at Umwelt (0409 372 344 / kdavies@umwelt.com.au) should you require clarification or further information.

Yours sincerely



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Technical Design Note

Project: Daracon Martins Creek quarry

Subject: Intersection Assessment – Sidra modelling

Date: 24 March 2022

In response to the RFI issued by Planning, Industry and Environment the Sidra modelling for the Martins Creek quarry has been reviewed and the results are provided below.

2018 base flows surveyed with quarry traffic removed (previous Table 4-7 from TIA)

Approach	Level of service	Delay (seconds)	Queue (metres)
Dungog Road / Gresford Road			
Gresford Road (from Bolwarra Heights)	A / A	4.6 / 3.0	1.9 / 3.6
Dungog Road	A / A	7.5 / 7.5	1.5 / 1.4
Gresford Road (from Vacy)	A / A	0.3 / 0.3	0 / 0
<i>Overall</i>	A / A	3.5 / 3.4	1.9 / 3.6
Paterson Road / Tocal Road			
Paterson Road (from Bolwarra)	A / A	3.7 / 4.0	4.7 / 10.5
Paterson Road (from Largs)	A / A	6.6 / 6.5	0.5 / 0.7
Tocal Road (from Paterson)	A / A	0.3 / 0.6	0 / 0
<i>Overall</i>	A / A	3.7 / 3.8	4.7 / 10.5
Paterson Road / Flat Road			
Flat Road (from East Maitland)	A / A	11.5 / 9.7	9.6 / 11.3
Paterson Road (from Bolwarra)	A / A	7.1 / 6.8	42.4 / 19.7
Paterson Road (from Maitland)	A / A	5.4 / 5.8	11.5 / 28.7
<i>Overall</i>	A / A	7.3 / 7.0	42.4 / 28.7
Melbourne Street / Pitnacree Road / Lawes Street			
Lawes Street	E / F	63.4 / 72.2	93 / 117
Melbourne Street (from New England Hwy)	C / C	36.1 / 30.4	213 / 126
Pitnacree Road	E / E	70.2 / 68.2	149 / 99
Melbourne Street (from Morpeth)	B / C	25.9 / 35.0	104 / 288
<i>Overall</i>	D / D	45.0 / 42.9	213 / 288
Melbourne Street / New England Highway			
New England Highway (from Newcastle)	F / D	73.8 / 47.0	450 / 253
Melbourne Street (from Morpeth)	F / E	73.6 / 59.9	205 / 136
New England Highway (from Maitland)	C / D	30.6 / 53.5	224 / 415
Melbourne Street (South)	D / D	54.5 / 54.7	87 / 99
<i>Overall</i>	E / D	56.5 / 52.5	450 / 415

Base 2018 flows with quarry traffic movements (Previously Table 4-8)

Approach	Level of service	Delay (seconds)	Queue (metres)
Dungog Road / Gresford Road			
Gresford Road (from Bolwarra Heights)	A / A	6.0 / 3.8	3.5 / 5.5
Dungog Road	A / A	7.9 / 7.9	2.6 / 2.4
Gresford Road (from Vacy)	A / A	0.3 / 0.3	0 / 0
<i>Overall</i>	A / A	4.4 / 4.2	3.5 / 5.5
Paterson Road / Tocal Road			
Paterson Road (from Bolwarra)	A / A	3.5 / 4.0	4.8 / 10.7
Paterson Road (from Largs)	A / A	6.7 / 6.7	0.5 / 0.8
Tocal Road (from Paterson)	A / A	0.3 / 0.6	0 / 0
<i>Overall</i>	A / A	3.6 / 3.7	4.8 / 10.7
Paterson Road / Flat Road			
Flat Road (from East Maitland)	A / A	12.2 / 10.1	12.7 / 13.7
Paterson Road (from Bolwarra)	A / A	7.1 / 6.8	47.0 / 22.3
Paterson Road (from Maitland)	A / A	5.6 / 6.1	12.1 / 30.0
<i>Overall</i>	A / A	7.5 / 7.2	47.0 / 30.0
Melbourne Street / Pitnacree Road / Lawes Street			
Lawes Street	E / F	63.4 / 72.2	93 / 117
Melbourne Street (from New England Hwy)	C / C	36.1 / 30.4	213 / 126
Pitnacree Road	F / F	76.1 / 71.8	157 / 99
Melbourne Street (from Morpeth)	B / C	25.6 / 34.8	101 / 289
<i>Overall</i>	D / D	46.4 / 43.4	213 / 289
Melbourne Street / New England Highway			
New England Highway (from Newcastle)	F / D	76.9 / 48.8	463 / 257
Melbourne Street (from Morpeth)	F / E	73.8 / 64.8	207 / 145
New England Highway (from Maitland)	C / D	30.6 / 53.5	224 / 415
Melbourne Street (South)	D / D	54.5 / 54.5	87 / 99
<i>Overall</i>	E / D	57.8 / 53.9	463 / 415

2028 base flows surveyed with quarry traffic removed, background growth only (Previously Table 4-9)

Approach	Level of service	Delay (seconds)	Queue (metres)
Dungog Road / Gresford Road			
Gresford Road (from Bolwarra Heights)	A / A	4.7 / 3.1	2.4 / 4.5
Dungog Road	A / A	7.6 / 7.6	1.9 / 1.7
Gresford Road (from Vacy)	A / A	0.3 / 0.3	0.0 / 0.0
<i>Overall</i>	A / A	3.5 / 3.5	2.4 / 4.5
Paterson Road / Tocal Road			
Paterson Road (from Bolwarra)	A / A	3.9 / 4.2	6.1 / 13.7
Paterson Road (from Largs)	A / A	6.9 / 6.8	0.7 / 1.1
Tocal Road (from Paterson)	A / A	0.3 / 0.6	0 / 0
<i>Overall</i>	A / A	3.9 / 4.0	6.1 / 13.7
Paterson Road / Flat Road			
Flat Road (from East Maitland)	A / A	13.0 / 10.3	15.0 / 15.5
Paterson Road (from Bolwarra)	A / A	7.4 / 6.9	66.7 / 27.3
Paterson Road (from Maitland)	A / A	5.6 / 7.0	15.3 / 44.8
<i>Overall</i>	A / A	7.8 / 7.6	66.7 / 44.8
Melbourne Street / Pitnacree Road / Lawes Street			
Lawes Street	F / F	92.4 / 145.4	93 / 225
Melbourne Street (from New England Hwy)	F / E	114.7 / 68.8	213 / 257
Pitnacree Road	F / F	107.5 / 92.0	149 / 140
Melbourne Street (from Morpeth)	F / F	90.8 / 112.2	104 / 733
<i>Overall</i>	F / F	103.2 / 102.0	213 / 733
Melbourne Street / New England Highway			
New England Highway (from Newcastle)	F / F	203.6 / 104.7	902 / 472
Melbourne Street (from Morpeth)	F / F	175.4 / 110.8	414 / 243
New England Highway (from Maitland)	D / F	53.9 / 142.4	370 / 837
Melbourne Street (South)	F / F	107.7 / 106.7	167 / 187
<i>Overall</i>	F / F	135.7 / 122.9	901 / 837

2028 base flows with quarry traffic allowing for background growth (Previously table 4-10)

Approach	Level of service	Delay (seconds)	Queue (metres)
Dungog Road / Gresford Road			
Gresford Road (from Bolwarra Heights)	A / A	6.2 / 3.8	4.4 / 6.9
Dungog Road	A / A	8.1 / 8.0	3.2 / 3.0
Gresford Road (from Vacy)	A / A	0.3 / 0.3	0.0 / 0.0
<i>Overall</i>	<i>A / A</i>	<i>4.5 / 4.2</i>	<i>4.4 / 6.9</i>
Paterson Road / Tocal Road			
Paterson Road (from Bolwarra)	A / A	3.8 / 4.2	6.3 / 14.2
Paterson Road (from Largs)	A / A	7.1 / 7.0	0.8 / 1.2
Tocal Road (from Paterson)	A / A	0.3 / 0.6	0 / 0
<i>Overall</i>	<i>A / A</i>	<i>3.8 / 4.0</i>	<i>6.3 / 14.2</i>
Paterson Road / Flat Road			
Flat Road (from East Maitland)	A / A	13.8 / 10.7	19.9 / 19.0
Paterson Road (from Bolwarra)	A / A	7.4 / 6.9	75.9 / 31.2
Paterson Road (from Maitland)	A / A	5.9 / 7.9	16.1 / 50.9
<i>Overall</i>	<i>A / A</i>	<i>8.0 / 8.1</i>	<i>75.9 / 50.9</i>
Melbourne Street / Pitnacree Road / Lawes Street			
Lawes Street	F / F	92.4 / 145.4	122 / 225
Melbourne Street (from New England Hwy)	F / E	114.7 / 68.8	574 / 257
Pitnacree Road	F / F	143.1 / 114.3	289 / 160
Melbourne Street (from Morpeth)	F / F	88.7 / 110.8	313 / 733
<i>Overall</i>	<i>F / F</i>	<i>111.0 / 104.5</i>	<i>574 / 733</i>
Melbourne Street / New England Highway			
New England Highway (from Newcastle)	F / F	221.7 / 104.7	942 / 472
Melbourne Street (from Morpeth)	F / F	200.1 / 110.8	444 / 243
New England Highway (from Maitland)	E / F	67.8 / 150.5	415 / 873
Melbourne Street (South)	F / F	117.8 / 102.9	167 / 187
<i>Overall</i>	<i>F / F</i>	<i>152.4 / 126.2</i>	<i>942 / 873</i>

Please note the following with regards to the results tables above:

- ALL models now been re-run with latest Sidra version 9.0
- NO adjustments to gap acceptance for the priority-controlled intersections
- NO adjustments to any phasing from the Sidra output to alter / improve any operation
- The same signal timing phasing for the two signal controlled intersections have been used for each scenario for consistency.

Attachment B

Table 1 Day-time Project Noise Trigger Levels derived from Noise Levels from the Existing Operations with and without the Existing Rail Loading Facility Operating, dB(A)

Rec ID	Location	Ass. Group	NPfl Project Assessment Noise Levels ¹			NIA Table 2.1 Existing Operations Modelled with Rail Loader Operating ¹		Existing Operations Modelled without Rail Loader Operating	
			Project Amenity Noise Level		Project Intrusiveness Noise Level, LAeq,15min	Existing Noise Levels, LAeq,15min	Project Noise Trigger Level, LAeq,15min	Existing Noise Levels, LAeq,15min	Project Noise Trigger Level, LAeq,15min
			LAeq,Day	As LAeq,15min					
R001	23 Station St	NAG01	55	58	41	65	58	59	58
R002	21 Station St	NAG01	55	58	41	66	58	59	58
R003	19 Station St	NAG01	55	58	41	67	58	58	58
R004	17 Station St	NAG01	55	58	41	67	58	57	57
R005	15 Station St	NAG01	55	58	41	64	58	57	57
R006	13 Station St	NAG01	55	58	41	62	58	55	55
R007	11 Station St	NAG01	55	58	41	61	58	54	54
R008	9 Station St	NAG01	55	58	41	60	58	54	54
R009	7 Station St	NAG01	55	58	41	59	58	54	54

Rec ID	Location	Ass. Group	NPfl Project Assessment Noise Levels ¹			NIA Table 2.1 Existing Operations Modelled with Rail Loader Operating ¹		Existing Operations Modelled without Rail Loader Operating	
			Project Amenity Noise Level		Project Intrusiveness Noise Level, LAeq,15min	Existing Noise Levels, LAeq,15min	Project Noise Trigger Level, LAeq,15min	Existing Noise Levels, LAeq,15min	Project Noise Trigger Level, LAeq,15min
			LAeq,Day	As LAeq,15min					
R010	5 Station St	NAG01	55	58	41	59	58	54	54
R011	3 Station St	NAG01	55	58	41	58	58	53	53
R012	5 Douglas St	NAG02	55	58	41	54	54	51	51
R013	1 Cory St	NAG02	55	58	41	57	57	54	54
R014	5 Cory St	NAG02	55	58	41	54	54	50	50
R015	3 Cory St	NAG02	50	58	41	55	55	51	51
R017	2 Cory St	NAG02	55	58	41	53	53	50	50
R018	9 Cory St Martins Creek Fire Shed	NAG02	55 2	58	41	49	58	47	58
R022	8 Cory St	NAG02	55	58	41	49	49	48	48
R020	54 Grace Ave	NAG03	55	58	40	55	55	52	52
R021	56 Grace Ave	NAG03	55	58	40	57	57	54	54

Rec ID	Location	Ass. Group	NPfl Project Assessment Noise Levels ¹			NIA Table 2.1 Existing Operations Modelled with Rail Loader Operating ¹		Existing Operations Modelled without Rail Loader Operating	
			Project Amenity Noise Level		Project Intrusiveness Noise Level, LAeq,15min	Existing Noise Levels, LAeq,15min	Project Noise Trigger Level, LAeq,15min	Existing Noise Levels, LAeq,15min	Project Noise Trigger Level, LAeq,15min
			LAeq,Day	As LAeq,15min					
R023	52 Grace Ave	NAG03	55	58	40	52	52	50	50
R024	58 Grace Ave	NAG03	55	58	40	56	56	53	53
R026	12 Cory St	NAG04	55	58	40	51	51	49	49
R028	14 Cory St	NAG04	55	58	40	51	51	49	49
R030	16 Cory St	NAG04	55	58	40	51	51	49	49
R033	18 Cory St	NAG04	55	58	40	51	51	49	49
R035	20 Cory St	NAG04	55	58	40	51	51	49	49
R036	23 Cory St	NAG04	55	58	40	50	50	48	48
R037	22 Cory St	NAG04	55	58	40	51	51	49	49
R038	24 Cory St	NAG04	55	58	40	51	51	49	49
R039	26 Cory St	NAG04	55	58	40	50	50	49	49
R042	29 Cory St	NAG04	55	58	40	50	50	47	47

Rec ID	Location	Ass. Group	NPfl Project Assessment Noise Levels ¹			NIA Table 2.1 Existing Operations Modelled with Rail Loader Operating ¹		Existing Operations Modelled without Rail Loader Operating	
			Project Amenity Noise Level		Project Intrusiveness Noise Level, LAeq,15min	Existing Noise Levels, LAeq,15min	Project Noise Trigger Level, LAeq,15min	Existing Noise Levels, LAeq,15min	Project Noise Trigger Level, LAeq,15min
			LAeq,Day	As LAeq,15min					
R044	28 Cory St	NAG04	55	58	40	50	50	49	49
R045	31 Cory St	NAG04	55	58	40	50	50	47	47
R049	30 Cory St	NAG04	55	58	40	50	50	48	48
R050	33 Cory St	NAG04	55	58	40	49	49	46	46
R051	32 Cory St	NAG04	55	58	40	50	50	47	47
R052	35 Cory St	NAG04	55	58	40	50	50	47	47
R054	34 Cory St	NAG04	55	58	40	49	49	47	47
R056	37 Cory St	NAG04	55	58	40	49	49	45	45
R057	36 Cory St	NAG04	55	58	40	49	49	46	46
R058	39 Cory St	NAG04	55	58	40	47	47	44	44
R059	38 Cory St	NAG04	55	58	40	48	48	45	45
R061	41 Cory St	NAG04	55	58	40	47	47	43	43

Rec ID	Location	Ass. Group	NPfl Project Assessment Noise Levels ¹			NIA Table 2.1 Existing Operations Modelled with Rail Loader Operating ¹		Existing Operations Modelled without Rail Loader Operating	
			Project Amenity Noise Level		Project Intrusiveness Noise Level, LAeq,15min	Existing Noise Levels, LAeq,15min	Project Noise Trigger Level, LAeq,15min	Existing Noise Levels, LAeq,15min	Project Noise Trigger Level, LAeq,15min
			LAeq,Day	As LAeq,15min					
R062	40 Cory St	NAG04	55	58	40	47	47	45	45
R064	43 Cory St	NAG04	55	58	40	46	46	41	41
R065	44 Cory St	NAG04	55	58	40	46	46	44	44

Notes: ¹ Columns in Table 1 reproduced from Table A2.1 in the NIA

² Project Amenity Noise Level for Active Recreation Area