Cardno HRP
Shaping the Future

CLARIFICATION OF ECONOMIC MATTERS

ATTACHMENT

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ADDITIONAL INFORMATION:
ENVIRONMENTAL IMPACT STATEMENT

Norling Consulting Pty Ltd
Business & Property Economics

Our Ref: 08093/270913.LD

22 October 2013

Matthew Schneider
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Email: Matthew.Schneider@cardno.com.au

Dear Matthew,

RE: BORAL GOLD COAST QUARRY – ADDITIONAL INFORMATION TO EIS

Norling Consulting completed an Economic Impact Assessment as contained within Appendix PP of the Environmental Impact Statement (EIS) prepared for the proposed Gold Coast Quarry. In response to the analysis of the submissions lodged during the public advertising period, please find attached the responses to the identified key matters,

Chapter 6 Economics and Management of Impacts

Key Matter 1 – Economic Need

Further demonstration that sufficient need for the quarry in terms of ensuring continuity in supply and reducing the monopoly effect of a single quarry operating in Nerang servicing the southern and central Gold Coast markets.

The need for the proposed Gold Coast Quarry has been addressed in sections 4, 6.1, 7 and 9 of the Economic Impact Assessment (refer to Appendix PP of the EIS).

The Economic Impact Assessment notes that should the proposed Gold Coast Quarry not proceed, it would result in the creation of a monopoly scenario as a result of:

(i) The exhaustion of the West Burleigh Quarry reserves;
(ii) The proposed Gold Coast Quarry not proceeding to replace the existing West Burleigh Quarry upon closure;
(iii) The existing Nerang Quarry being the next closest and effectively operating as the southernmost quarry within the central and southern Gold Coast in the absence of both the existing West Burleigh Quarry and proposed Gold Coast Quarry;
(iv) The scarcity of alternative sites to establish quarry operations with the proposed Gold Coast Quarry being the only strategic hard rock resource on the central and southern parts of the Gold Coast with no alternative hard rock resources in this region capable of being extracted; and

(v) Reduced competition and choice for customers within the central and southern Gold Coast corridor seeking to minimise transport costs.

Key Matter 2 – Benefit Cost Analysis Assumptions

Further clarification of the following assumptions included in the Benefit Cost Analysis (BCA):

1. **freight savings of 15 cents per kilometre;**
2. **escalation of aggregate prices by 2 per cent due to a monopoly scenario;**
3. **a negative impact of $2 million on property prices.**

Item #1: Freight savings of 15 cents per kilometre.

As highlighted in Section 7.9 of the Economic Impact Assessment *"For the purposes of this CBA, Norling Consulting has estimated a freight savings of 15 cents per kilometre, per tonne could be achieved"*[1], which was derived through an analysis of average transport costs of quarry aggregate. Refer to Appendix PP of the EIS.

Based on Norling Consulting's previous experience including discussions with various quarry operators/experts, it is understood that transport costs vary by distance. An examination of transport costs of various quarries in Queensland suggests that this can range between 12 cents and 50 cents per kilometre per tonne at a distance of 40 kilometres.

For the purposes of the Cost Benefit Analysis, the Economic Impact Assessment adopted a conservative 15 cents per kilometre per tonne.

Item #2: Escalation of prices by 2% due to a monopoly situation.

Section 7.9 of the Economic Impact Assessment highlights that *"The creation of a monopoly scenario would result in the escalation of aggregate prices to reflect the increased demand placed on a single quarry at a real rate of 2% per annum compared to a duopoly situation of 1.5% per annum*[2]*"* which was derived through an analysis of average annual price increase per tonne of hardrock in comparison to the Consumer Price Index (CPI) and Norling Consulting's previous experiences. Refer to Appendix PP of the EIS.

The following TABLE 1 provides a summary of the aggregate prices recorded within South East Queensland and the Gold Coast including average price increase/decrease per annum compared with the Consumer Price Index (CPI) between 1998 and 2012.

[1] p.59, Economic Impact Assessment, Proposed Gold Coast Quarry, April 2013
[2] p.59 Economic Impact Assessment, Proposed Gold Coast Quarry, April 2013.

TABLE 1: South East Queensland and Gold Coast City Quarry Material, $AU Per Tonne, 1998 to 2012

Year	$AU Per Tonne Hardrock ($) SEQ	Annual % change	$AU Per Tonne Hardrock ($) GCC	Annual % change	Weighted Capital Cities CPI (No.)	Annual % change
1998	8.55	n/a	9.33	n/a	67.4	n/a
1999	8.96	4.8%	11.02	18.1%	68.1	1.0%
2000	7.55	-15.8%	9.81	-11.0%	70.2	3.1%
2001	8.55	13.3%	10.58	7.8%	74.5	6.1%
2002	8.93	4.4%	11.70	10.6%	76.6	2.8%
2003	9.74	9.1%	15.22	30.1%	78.6	2.6%
2004	11.22	15.2%	15.03	-1.2%	80.6	2.5%
2005	12.39	10.4%	17.77	18.2%	82.6	2.5%
2006	11.89	-4.0%	16.21	-8.8%	85.9	4.0%
2007	12.13	2.0%	17.46	7.7%	87.7	2.1%
2008	14.95	23.3%	19.69	12.8%	91.6	4.4%
2009	16.07	7.5%	21.96	11.5%	92.9	1.4%
2010	17.09	6.3%	23.57	7.3%	95.8	3.1%
2011	17.67	3.4%	21.54	-8.6%	99.2	3.5%
2012	16.63	-5.9%	24.06	11.7%	100.4	1.2%
1998-2012		4.9%		6.5%		2.9%

Source: Department of Natural Resources and Mines unpublished data, Australian Bureau of Statistics
Please Note: Excludes Moreton Bay Sands, Sand includes sand and gravel operations
Value is based on actual data (not rounded) and calculated where both the tonnage and value has been provided

As illustrated above, the price for quarry hardrock has fluctuated in some years albeit prices have generally exhibited strong growth over this period. The average annual growth over the period on the Gold Coast was 6.5%, which has outperformed the general rate of inflation (2.9%) over this period, clearly indicating sustained and significant price increase in real terms, equivalent to 3.5% per annum. It is Norling Consulting's opinion that the quarry sector is likely to continue to experience significant real price increases as a result of:

(a) The difficulty in obtaining licenses and approvals to extract quarry materials;
(b) The difficulty of developing and maintaining haulage routes;
(c) Increasing scarcity of quarry materials as proven resources become exhausted; and
(d) Increasing demand as a result of population growth and infrastructure development.

Whilst the above table indicates that the average price increase for the Gold Coast has averaged 6.5% per annum between 1998 and 2012, it is considered that this is influenced by demand pressure placed on Gold Coast quarries from external markets beyond the Gold Coast (e.g. Brisbane, Ipswich, Logan etc), which have limited quarry reserves. As such, it is considered that these demand pressures are likely to have a greater influence on prices particularly on quarries located within the northern Gold Coast corridor (such as Stapylton and Oxenford etc) given the proximity of these quarries to service adjoining local government areas. It is Norling Consulting's opinion that quarries located within the central and southern Gold Coast corridor (i.e. Nerang and West Burleigh) are less likely to be influenced by these external demand pressures on price given the separation between the northern and central/southern Gold Coast

quarries. A real price increase of 1.5% per annum in the future is considered more applicable to the central/southern Gold Coast quarries to encourage price competitiveness and maintain economic viability of both the Nerang and West Burleigh Quarry (which would be replaced by the proposed Gold Coast Quarry should it proceed). This is well below the 3.5% real increase measure on the Gold Coast in the 1998 to 2012 period.

Notwithstanding, it is Norling Consulting's opinion that demand pressures are likely to eventuate within the central and southern Gold Coast corridors (albeit not as pronounced) as a result of:

(i) Reserves at the existing West Burleigh Quarry becoming exhausted;
(ii) The proposed Gold Coast Quarry not proceeding;
(iii) Existing West Burleigh Quarry customers needing to source quarry material from elsewhere (such as Nerang being the only other and closest significant quarry operator within the central and southern Gold Coast corridor); and
(iv) The creation of a monopolistic scenario as a result of the previous points (i), (ii) and (iii).

Consequently, the Economic Impact Assessment confirms that such a situation is likely to lead to an increase in demand placed upon the Nerang Quarry to satisfy the central and southern Gold Coast corridor in the absence of both the West Burleigh Quarry and proposed Gold Coast Quarry (assuming it does not proceed). It is considered that the creation of a monopoly situation would exacerbate the real price increases in the future.

The Economic Impact Assessment has adopted a real price increase of 2.0% (a difference of only 0.5% per annum from the base case scenario identified) should only the Nerang Quarry be operational (i.e. reserves at the West Burleigh Quarry are exhausted and the proposed Gold Coast Quarry does not proceed) based on the following:

(a) Customers currently sourcing quarry aggregate from the existing West Burleigh Quarry would need to source their material from elsewhere (such as Nerang, which is the next closest quarry within the central/southern Gold Coast corridor) assuming the proposed Gold Coast Quarry did not proceed and the West Burleigh Quarry ceased operations. It is considered that this would essentially place increased demand pressure on the Nerang Quarry;
(b) The Nerang Quarry would operate in a monopolistic scenario as a result of being the next closest quarry operator of similar size and scale within the central and southern Gold Coast corridor; and
(c) The scarcity of alternative hardrock resources within the central and southern Gold Coast corridor with the proposed Gold Coast Quarry being the only strategic hardrock resource on the central and southern Gold Coast, with no alternative hardrock resources in this region capable of being extracted.

The proposed Gold Coast Quarry would ensure continued competition within the market place within the central and southern Gold Coast corridor through the provision of competitive volume, range, service and price points.

Item #3: A negative impact of $2 million on property prices.

The impact on property values is considered an indirect project cost as a result of the proposed Gold Coast Quarry. In order to quantify the impact of the proposed Gold Coast Quarry on property values of the adjoining residential communities, Norling Consulting undertook the following analysis:

(a) Examined the median house prices for the surrounding residential areas within the Kingsmore Estate, The Observatory (including Stage 20 of the Observatory), Old Burleigh Town, Skyline Terrace, Tallebudgera Creek Road, Tuesday Drive and Chesterfield Drive (i.e. those areas identified in Section 6.4 and illustrated in Figure 6.2 of the Economic Impact Assessment);
(b) Examined the estimated percentage impacts on property values derived from the base case scenario (i.e. Nerang Quarry) as discussed in Section 6.4 and outlined in Table 6.1 of the Economic Impact Assessment;
(c) Examined the number of properties located within each of the identified residential areas within approximately 500 metres of the disturbance footprint boundary of the proposed Gold Coast Quarry;
(d) Examined the median house price for each of the identified residential areas; and
(e) Multiplied the estimated percentage impact by median house price by the number of houses to quantify the total estimated impact on property values.

As a result, about 130 residential properties were identified within residential areas located within approximately 500 metres of the disturbance footprint boundary of the proposed Gold Coast Quarry. A range of estimated percentage impacts were applied to each residential area depending on proximity to the disturbance footprint boundary of the proposed Gold Coast Quarry, with an average impact of about -3.0%. Median house prices also varied amongst those identified residential areas equating to an average median house price of $531,000. In order to quantify the impact of property values, Norling Consulting multiplied the number of houses (i.e. 130) by the average median house price ($531,000)) by the average estimated percentage impact (-3.0%), which equates to $2.07 million (or $2 million rounded) i.e. ([(130 houses*$531,000 median house price)*-3.0% median house price] =$2.07 million).

For the purpose of the Cost Benefit Analysis undertaken as part of the Economic Impact Assessment, a negative impact of $2 million on property values was adopted noting that *"...many subjective factors have a bearing on what people are prepared to pay for a residential property. Such subjective factors go beyond the satisfaction of regulatory parameters. That is, some people may not wish to live in proximity to a quarry even if it is clearly demonstrated that all impacts on that property fall within established regulatory requirements."*[3] This impact value was adopted despite there being inconclusive evidence to suggest decreasing median house prices within the local area has occurred as a result of the proposed Gold Coast Quarry announcement.

[3] p.50, Economic Impact Assessment, Proposed Gold Coast Quarry, April 2013

Key Matter 3 – Incorporation of Environmental Impacts

The quantification and inclusion of environmental impacts due to the offsetting effect of rehabilitation and management contribution has not been included in the Benefit Coast Analysis.

That is correct. The Cost Benefit Analysis has not separately quantified each environmental impact/benefit in regards to the proposed Gold Coast Quarry albeit section 7.10 of the Economic Impact Assessment outlines the indirect project costs attributed to the proposed Gold Coast Quarry. As stated *"a review of the environmental reports comprising the EIS indicates that any environmental detriments of the project are more than offset by rehabilitation and management of on-site buffer areas. For this reason, Norling Consulting's opinion that there is no need for environmental impacts to be quantified in dollar values, with estimated property values able to appropriately reflect other potential impacts on the community such as noise and visual amenity."*[4]

Furthermore, *"it is Norling Consulting's opinion that whilst it is possible to assign dollar values to the economic components of the proposed Gold Coast Quarry, it is difficult to fully quantify more intangible environmental impacts/benefits."*[5] The Economic Impact Assessment considers that the diminution in property values would provide some quantification of the environmental impacts/benefits as stated: *"Given the close relationship between impacts such as noise, dust, visual amenity etc. and a diminution of property values, it is considered that this diminution provides an appropriate quantifiable assessment of environmental impacts in this instance."*[6]

Based on the Cost Benefit Analysis undertaken as part of the Economic Impact Assessment it is considered that the proposed Gold Coast Quarry would result in significant net benefits to both the Proponent and the external community.

Concluding Comments

We trust this letter is sufficient for your purposes at this stage, should you have any further queries or concerns, please do not hesitate to contact us directly to discuss.

Yours faithfully
Norling Consulting Pty Ltd

Louisa Davies
Research Consultant

Jon Norling
Director

[4] p.60, Economic Impact Assessment, Proposed Gold Coast Quarry, April 2013
[5] Ibid
[6] Ibid