

Attachment 1 – Copy of additional submissions

Attachment 2 – Copy of response from applicant responding to additional submissions.

17 October 2013

WM Project Number: 08191-MP
Our Ref: GB 171013 BC Response

Garret Barry
Garret Barry Planning Pty Ltd
PO Box 7155
NSW 2550

Dear Garret

**Re: Boydton Sand
 Response to issues raised by Objectors
 Noise and Air**

Three objector letters have been provided to Wilkinson Murray of which one titled "DA 2011.0500 – Boydton Sand Extraction – Review of Additional Material" dated 5 July 2013 raised specific technical issues with respect to the project noise and air assessments. The following response is provided to noise and air issues raised in objector's letters.

The air aspects are detailed in the letter attached at the end of this report;

Item 1.0 Inadequacy of the Noise Impact Assessment

The "Reviewed Noise Impact Assessment" should state reference to Wilkinson Murray's Report No. 08191-S Version B dated May 2012. The Version A report has the same content as Version B however dates and spelling errors have been corrected. Reference to the earlier report was a referencing error that does not effect the technical components of the Reviewed Noise Impact Assessment.

Item 1.1 Failure to properly assess frequency of adverse wind conditions

The report states "Wind data was analysed to determine the seasons, time periods and directions for which wind speeds in the above range occurred for more than 30% of the time. (Wind directions within 45 degrees of a selected direction were considered.)"

Wind in all directions was assessed for day, evening and night periods taking into account the contribution of components of wind vectors around the each wind direction this is consistent with the INP. It is noted that the wind roses in the report are to provided to illustrate overall wind patterns on the site.

Item 1.2 Exceedances of Applicable Criteria

The author of the submission has incorrectly read the noise level scale on the noise contours presented in the report. No exceedance of established daytime noise criteria at the caravan park was predicted in the assessment or is indicated in the plots.

It is acknowledged that the proposed hours of operation extend partially into the evening period for a shoulder period of between 6 pm to 7 pm. Therefore we have processed the noise logging conducted at the caravan park for this period whereby an RBL of 36 dBA has been established.

Based on these results an intrusive noise criterion for this shoulder period of 41 dBA is applicable for receivers at the caravan park. Therefore compliance with site specific daytime and evening shoulder noise criteria is indicated.

Further it is noted that draft conditions of consent require compliance noise monitoring at receivers to ensure that noise criteria is achieved in practice. To this end a draft management plan has been prepared to manage noise emissions from the proposed operations.

1.3 The context in which noise impacts must be assessed.

There caravan park has been assessed with respect to a "residential receivers" classification. This is the classification upon which the most stringent intrusive noise criterion has been applied, being the RBL plus 5 dB. There is no specific INP criterion to be applied for Caravan Park nor is there any evidence that users of a caravan park will be more sensitive to noise than surrounding residential receivers. (See advice from the EPA attached)

It is noted in the INP that:

The intrusiveness of an industrial noise source may generally be considered acceptable if the equivalent continuous (energy-average) A-weighted level of noise from the source (represented by the LAeq descriptor), measured over a 15-minute period, does not exceed the background noise level measured in the absence of the source by more than 5 dB.

Further it is noted that the noise assessment is based on continuous operation of all plant during the proposed hours of operation thereby simulating a "typical worst case" operational scenario.

I trust this information is sufficient. Please contact us if you have any further queries.

Yours faithfully

WILKINSON MURRAY



Brian Clarke
Senior Associate

Attachment from EPA

From: Gordon Downey [mailto:Gordon.Downey@epa.nsw.gov.au]
Sent: Monday, 21 October 2013 10:53 AM
To: John Wassermann
Subject: caravan parks

Hello John

I refer to your enquiry about the NSW Industrial Noise Policy (INP) and caravan parks. Caravan parks / sites are not specifically dealt with under the INP. Treating a caravan park as a residential receiver would be considered to be a conservative approach, which may not be appropriate in all situations.

Best Regards

Gordon Downey
Senior Noise Officer | NSW Environment Protection Authority |
☎ (02) 9995 5783 | 📧 Gordon.Downey@epa.nsw.gov.au

NH2 Dispersion Sciences

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Attention: Brian Clarke

Senior Associate
Wilkinson Murray Pty Limited
Level 4, 272 Pacific Highway
Crows Nest
NSW 2065

18 October 2013

Dear Brian,

Response to submission on air quality assessment for Boydtown sand extraction project

Thank you for your emails dated 26 September and 16 October 2013 and the accompanying information containing comments on the air quality assessment that I undertook for a proposed sand mine near Boydtown in December 2010.

This letter provides responses to the matters raised in the letters.

Five specific criticisms were made of the air quality assessment these were:

1. the fact that there was no accounting for "peak events"
2. the the wind inputs were inadequate
3. claims that the ISCMOD model is not approved by the EPA for use in coastal areas and that particle size information was based on an invalid approach
4. that the assessment of busy and non-busy days is based on an incorrect assumption
5. the impacts of crystalline silica and PM2.5 particles have not been addressed.

These points are addressed below.

"Peak events"

The submission says that the assessment should have taken account of busy-day operations. This matter was discussed on Page 14 of the report. Further analysis is presented below.

A complicating factor in analysing worst-case impacts is that busy day operations are likely to be rare and therefore it is unlikely that they would occur at the same time as worst-case meteorological conditions. However for the purpose of assessment assume that the busiest day occurs on the same day as the most unfavourable meteorological conditions. Table 1 shows the estimated emissions for an average day compared with a busy day. On a busy day off-site haulage movements could increase from 14 movements

per day to up to 80 per day. This would have to be done at the expense of dedicating other equipment normally dedicated to mining to truck loading operations.

Table 1 shows the estimated emissions for normal and busy day operations. The busy-day emission are approximately 35% higher than the normal-day operations. If the busy-day were to correspond to the most unfavourable dispersion conditions then the predicted 24-hour PM10 concentrations could be increased by 35%. The top-ten predicted 24-hour PM10 concentrations at the most affected receptor are shown on Page 14 of the assessment and are as follows:

1. 19.7 $\mu\text{g}/\text{m}^3$
2. 17.2 $\mu\text{g}/\text{m}^3$
3. 17.0 $\mu\text{g}/\text{m}^3$
4. 16.5 $\mu\text{g}/\text{m}^3$
5. 15.5 $\mu\text{g}/\text{m}^3$
6. 14.4 $\mu\text{g}/\text{m}^3$
7. 13.5 $\mu\text{g}/\text{m}^3$
8. 12.7 $\mu\text{g}/\text{m}^3$
9. 12.0 $\mu\text{g}/\text{m}^3$
10. 11.5 $\mu\text{g}/\text{m}^3$.

If the 19.7 $\mu\text{g}/\text{m}^3$ were increased by 35%, the new concentration would be 27 $\mu\text{g}/\text{m}^3$, which would still leave 23 $\mu\text{g}/\text{m}^3$ before the EPA's 50 $\mu\text{g}/\text{m}^3$ 24-hour PM10 assessment criterion was reached. While there is no database of monitoring data to quantify the probability of the background 24-hour PM10 concentrations reaching or exceeding 23 $\mu\text{g}/\text{m}^3$ is unlikely that this concentration would be reached without some abnormal event (e.g. bushfire, dust storm etc) contributing.

Activity	Annual emissions - kg/year	Normal day emissions - kg/day	Busy day emissions - kg/day
Excavating sand and loading to stockpile	60.00	0.20	-
Transporting sand from excavation area to stockpile/screen	7,000.00	23.18	-
Screening	1,260.00	4.17	-
Loading from screen to stockpile	60.00	0.20	-
Loading highway trucks	60.00	0.20	1.14
Hauling product off-site	3,840.00	12.72	72.66
Wind erosion from floor and stockpiles	16,679.00	55.23	55.23
Total	28,959.00	95.89	129.02

Adequacy of wind inputs

In the absence of on-site data, the CSIRO's TAPM model was used to generate meteorological data for the site. TAPM is widely used in NSW for this purpose and the models performance has been evaluated on many occasions.

The meteorological data generated by the TAPM run was analysed at length in the air quality assessment report. The results are very plausible data for the site, which is located about 600 m inland from the coast. The expected northeast winds associated with sea-breezes show up strongly in summer and to a lesser extent in spring and autumn. As expected the sea-breeze is largely absent in winter.

There would be some scientific interest/value in comparing on-site observations with the TAPM data if such data existed, but the variations in meteorological conditions from one site would make this exercise pointless unless the data were available from a very close location.

Dispersion model

The submission states that "the dispersion model used by the applicant (ISCMOD) is not the approved dispersion model for use in simple, near field applications". At time the assessment was undertaken ISCMOD was by far the most widely used dispersion model for assessing air pollution impacts for mines, quarries and the like in NSW. It is the only model to have been calibrated for short-term (24-hour) impacts for mining operation. It is clearly is approved by the EPA for this use.

The submission also claims that a second generation model such as CALMET/CALPUFF should have been used because of the location of the project, near the coast where sea-breeze effects would be important. This comment should have included some further contextual information regarding why the NSW EPA recommend using models like CALMET/CALPUFF in coastal environments. The submission does not point out (and it should have) is that the sources modelled in the assessment are all ground-based and are thus not subject to sea-breeze fumigation effects, which is the reason for the EPA's requirement to use CALMET/CALPUFF in coastal locations.

Finally the submission might also have noted that the most affected receptor is located to the east of the sand mine and consequently is not affected at all under sea-breeze conditions.

The submission also criticises the particle size distributions used in the study. The precise emission factors or particles distributions that apply to a particular mine cannot be known until the mine is operating. When a mine is operating then field studies can be done to make site-specific measurements. Until that time data from other sites must be used.

Section 2 of the submission (Paragraph 6) contains the following :

"The Air Quality assessment in Section 7 of the AQ assessment states 'The distribution of particles has been derived from measurements in the (SPCC, 1986) study.' This approach is not valid, given that the study mentioned references empirical results from monitoring of dust from open cut mines in the Hunter Valley, which are unlikely to be relevant to the current application. Either site-specific particle size distribution data should be used applied or emission factors should be adopted that correspond to an individual size fraction."

No doubt the reviewer who provided the information for this submission would be aware that there are no particle size distribution data that specifically relate to sand mines of the type proposed and both the emission factors and particle size distributions have been derived from studies undertaken on other locations where similar operations can be identified. For example haulage of materials on unpaved roads, loading and unloading of materials and wind erosion.

The facts are that research funded by the coal mining industry has made the major contribution to the development of fugitive dust emission factors and these data are widely used outside this industry. (This has almost certainly arisen for historical reasons in part because the coal mining industries in Australia and the US have had to deal with the fact that they are a major source of fugitive emissions and also they have had the financial resources to undertake the basic research required to develop the emissions factors. This is in evidence through out the US AP42 database and the Australian National Pollution Inventory (NPI) manuals/workbooks dealing with fugitive emissions including the Emissions Estimations Techniques (EET) Manual which has been prepared for sand mining (see *Emission Estimation Technique Manual for Mining and Processing of Non-Metallic Minerals*, which contains the Australian NPI guidelines for estimating emissions for sand mining.¹)

Some thought as to what are the important activities that generate dust in mining operations will show that the main activities are haulage of materials, wind erosion, loading materials etc. These operations are common to both sand mining and coal of mining and since most of the materials handling on a surface coal mine is not coal, they do not have any special connection to coal. The criticisms in the submission are unjustified. They may arise from a lack of understanding on the part of the reviewer on the processes that generate fugitive dust in mining operations.

To further consider this matter it is interesting to review what assumptions were actually made in the air quality assessment as far as particle size distributions are concerned. The particle size distributions used are described in the air quality assessment report on Page 12 and are shown below:

PM2.5 (FP) is 5% of the TSP
PM2.5-10 (CM) is 34% of TSP, and
PM10-30 (Rest) is 61% of TSP.

In practice therefore PM10:TSP ratio close to the point at which the emission occurs of 39:100 is completely consistent with other reputable databases on particle size distributions for similar operations. For example all the important fugitive dust generating activities in the NPI EET Manual for mining² report PM10:TSP ratios in the range 25% to 50%. The mid point of this range is 38% which can be compared with the 39% used in the modelling for the proposed sand mine. The unweighted average of over all activities is 40%. Thus it is unlikely that large uncertainties are introduced by the assumptions used in the air quality assessment. Unfortunately the only way to get better information on this aspect of the assessment would be to undertake field measurements on the actual operating mine.

Health impacts of crystalline silica and fine particles (PM2.5)

The submission criticises that fact that the assessment did not provide predictions on PM2.5 concentrations. These were calculated but not reported on because the PM2.5 interim standards have not been adopted as assessment criteria in NSW. However the model results show that the maximum predicted 24-hour average PM2.5 concentration at the most-affected off-site receptors was less than 3 $\mu\text{g}/\text{m}^3$ and annual average concentration was less than 0.4 $\mu\text{g}/\text{m}^3$. These are well below the 24-hour and annual NEPM interim reporting standards of 15 and 8 $\mu\text{g}/\text{m}^3$ respectively.

It is interesting to note that the Victorian EPA's Protocol for Environmental Management for Mining and Extractive Industries³ has developed an assessment criterion for crystalline silica. The value is 3 $\mu\text{g}/\text{m}^3$ (annual average for crystalline silica as PM2.5). Clearly the contribution from the proposed sand mine at 0.4 $\mu\text{g}/\text{m}^3$ is substantially less than this and so no adverse health effects would be expected even if 100% of the particles were crystalline silica, which is very unlikely.

1 <http://www2.unitar.org/cwm/publications/cbl/prtr/pdf/cat5/fnonmeta.pdf>

2 <http://www.npi.gov.au/sites/www.npi.gov.au/files/resources/7e04163a-12ba-6864-d19a-f57d960aae58/files/mining.pdf>

3 <http://www.epa.vic.gov.au/~media/Publications/1048.pdf>

Conclusions

The submission made a number of criticism of the air quality assessment for the proposed sand mine near Boydtown. An examination of each of these criticisms shows that none of them relates to a significant issue and there is no change to the conclusions of the report as to the acceptability of the project or its ability to comply with the EPA assessment criteria.

Yours faithfully
NH2 Dispersion Sciences

A handwritten signature in black ink that reads "N.E. Holmes." The signature is written in a cursive, slightly slanted style.

Nigel Holmes PhD
Atmospheric Physicist

Attachment 3 – Copy of NSW EPA further comments



Our reference:

Contact: Robbert Mels, (02) 6229 7002

The General Manager
Bega Valley Shire Council
PO BOX 492
BEGA NSW 2550

Attention: Mr Mark Fowler

Scan MP-14970

CRM _____

BVSC 15 OCT 2013

TRIM 013/40766

ACTION _____

10 October 2013

Dear Mr Fowler

RE: Modified Development Application 2011.0500 – Proposed Extractive Industry (Sand & Topsoil)

I refer to Bega Valley Shire Council's (Council) correspondence to the Environment Protection Authority (EPA) dated 29 August 2013 in relation to the modified development application for the Boydtown Sand Extraction (Modified Development Application No. 2011.0500). The correspondence was accompanied by additional information to support the proposed modifications to the staging of Pit 1 including the associated noise attenuation measures. I also refer to Councils correspondence dated 27 May 2013 in relation to the review of the sand extraction proposal and staging of the excavation of the proposed Sand Quarry.

The EPA issued its general terms of approval (GTA) for the original development application on 10 February 2012 in Notice No. 1131526.

The EPA has reviewed the modified application and accompanying information, having regard to its GTA. In order to ensure that the noise prediction modelling is accurate, the EPA has added condition L3.7 to its GTA. The condition requires the proponent to undertake additional noise monitoring to validate the noise predictions in the environmental assessment and submit a Noise Validation Report to the EPA following each consecutive expansion of the proposal. The additional condition is provided in Attachment A to this letter.

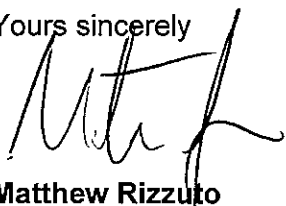
The EPA has also considered the public submission by Aspen Parks Property Management, dated 5 July 2013, raising concerns about dust emissions and health implications from the proposed extractive activities. EPA considers condition O1.1 in the GTA sufficient to minimise the air emissions from the premises. Please note that the applicant will need to make a separate application to the EPA to obtain an Environment Protection Licence should consent be granted.

Bega Valley Shire Council should ensure that should development consent be issued, conditions of consent are consistent with the EPA's original GTA and the additional condition in Attachment A. In the event that the proposal is further modified, either by the applicant prior to the granting of

consent or as a result of the conditions proposed to be attached to the consent, the EPA requests that Council consult with the EPA about any further changes before granting consent. This will enable EPA to determine whether the proposed licence conditions need to be modified in light of any changes.

If you have any queries regarding this matter or wish to discuss this matter further, please contact Robbert Mels of the EPA's Queanbeyan Office on 6229 7002.

Yours sincerely

 10-10-13

Matthew Rizzuto
A/ Head of Queanbeyan Operations Unit
Environment Protection Authority

ATTACHMENT A – Added General Terms of Approval – DA No. 2011.0500

Noise conditions

L3.7 The proponent must undertake noise monitoring for the purposes of validating the noise impact predictions made in the noise assessment and prepare Noise Validation Reports, to the satisfaction of the EPA.

- (a) Noise validation monitoring must be undertaken for each consecutive expansion of the sand pit, starting with Pit 1 stage 1, Pit 1 stage 2 and Pit 1 stage 3 (as described in the report "Boydton Sand Extraction – Review of Sand Extraction Proposal –Addendum, No 8A0175", dated 14 May 2013) over a period of 3 months.
- (b) The Noise validation monitoring must be carried out at the locations identified in "Figure 2-2 Noise Monitoring Locations" in Appendix 8 of the EIS;
- (c) Noise validation monitoring must be carried out following receipt of a complaint, if requested by the EPA.
- (d) A Noise Validation Report must be submitted to the EPA within 1 month of completion of each 'noise validation monitoring' periods identified in (a) above. The Noise Validation Report must address the following matters:
 - a. validate the predictions made in the EA under representative operating conditions.
 - b. demonstrate compliance with the noise limits described in the EPA's GTA condition L.3.1.
 - c. demonstrate that the noise controls are working effectively; and
 - d. if any non-compliances are detected, propose the measures that are to be implemented and the timing for implementation of these measures, to ensure compliance.

Attachment 4 – Revised draft conditions of consent

Approved Development and Plans

1. Development shall take place in accordance with the attached endorsed plans and reports;
 - a. *Proposed Sand Extraction, Boydtown Group Ownership, Boydtown, NSW Environmental Impact Statement including Appendices 1 to 17, prepared by Garret Barry Planning Services Pty Ltd, dated August 2011.*
 - b. *Additional information prepared by Garret Barry Planning Services Pty Ltd dated 12 and 21 March 2012.*
 - c. *Noise Impact Assessment prepared by Wilkinson Murray, dated May 2012.*
 - d. *Hydrogeological Addendum prepared by Worley Parsons, dated 2012.*
 - e. *Review Noise Impact Assessment prepared by Wilkinson Murray dated 10 May 2013.*
 - f. *Review of Sand Extraction Proposal – Addendum prepared by Royal Haskoning DHV dated 14 May 2013.*
 - g. As may be amended in red by the consent authority. Any specified amendments are to be incorporated in the Construction Certificate plans.
2. If there is any inconsistency between the plans and documentation referred to above the most recent plan/and or document shall prevail to the extent of the inconsistency. However, conditions of this consent prevail to the extent of any inconsistency.

Reason: Development is undertaken in accordance with this consent & is used for the approved purpose only.

General Terms of Approval

3. The development shall be undertaken in accordance with the General Terms of Approval (GTAs) issued on 10 February 2012 and additional comments on the 10 October 2013 by the NSW EPA as attached to this consent.
4. The intersection onto the Princes Highway shall be upgraded in accordance with the requirements of the Roads and Traffic Authority letter dated 1 May 2012 as attached to this consent.

Reason: Development is undertaken in accordance with this consent & is to comply with the Protection of the Environmental Operations Act 1997 and Roads Act.

Limits on Approval

5. This consent will lapse after 1,100,000 cubic metres of sand material and 105,000m³ of topsoil have been extracted from the site, or 28 years after the date it commences, whichever comes first.

Note: Under this approval, the proponent is required to rehabilitate the site to the satisfaction of Bega Valley Shire Council. Consequently, this approval will continue to apply in all other respects other than the right to conduct quarrying operations until the site has been rehabilitated to a satisfactory standard.

Bega Valley Shire Council acknowledges that additional sand resources may exist on the site at the end of this period. Any extension of quarrying operations after this time will be subject to further approval.

6. No more than 40,000 tonnes of sand and 10,000 tonnes of topsoil a year shall be extracted and transported from the site.

Reason: Development is undertaken in accordance with this consent & is used for the approved purpose only

Hours of operation

7. The quarry is to be operated between the following hours: 9:00am to 5:00pm, Monday to Friday and 8:00am to 1.00pm on Saturdays. No work is to be carried out on Sundays or public holidays.
8. The haulage of materials from the site is to be operated between the following hours: 9:00am to 5:00pm, Monday to Friday and 8:00am to 1.00pm on Saturdays. No haulage shall take place on Sundays or public holidays. Council may consider an extension to the haulage of materials from the site for one off major development during daylight hours from 9:00am to 7.00pm Monday to Friday subject to a written request by the proponent detailing the need for the variation.

Note: Maintenance activities may occur at any time provided they are inaudible at privately-owned residences or tourist accommodation premises.

Reason: To avoid potential conflict with adjoining residential and tourist land uses.

Protection of Public Infrastructure

9. The Proponent shall:
 - a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by the project; and
 - b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the project.

Note: This condition does not apply to any road maintenance works which are covered by the Section 94 contributions described below in condition 13.

Operation of Plant and Equipment

10. The Proponent shall ensure that all plant and equipment used at the site is:
 - a) maintained in a proper and efficient condition; and
 - b) operated in a proper and efficient condition.

Annual Environmental Management and Rehabilitation Plan

11. The proponent shall prepare an Annual Environmental Management and Rehabilitation Plan (EMRP). The Annual EMRP reporting period shall be from 1 July through to the 30 June. A copy of the Annual EMRP shall be submitted to Council and the EPA within 1 month from the end of the reporting period.

The EMRP shall include as a minimum;

- a) describe the development (including rehabilitation) that was carried out in the previous calendar year, and the development that is proposed to be carried out over the current calendar year;
- b) include a comprehensive review of the monitoring results and complaints records of the project over the previous calendar year, which includes a comparison of these results against:

- the relevant statutory requirements, limits or performance measures/criteria;
 - the monitoring results of previous years; and
 - the relevant predictions in the EIS and subsequent reports
- c) identify any non-compliance over the last year, and describe what actions were (or are being taken to ensure compliance;
 - d) identify trends in the monitoring data over the life of the project;
 - e) identify any discrepancies between the predicted and actual impacts of the project, and analyse the potential cause of any significant discrepancies; and
 - f) describe what measure will be implemented over the current calendar year to improve the environmental performance of the project.

Reason: To ensure the proposal complies with all conditions of consent.

Vegetation Management

12. The proponent shall ensure that all recommendations and commitments within the Vegetation Management Plan (VMP) are complied with. The proponent shall include the replacement of the 78 mature paddock trees required to be removed for the development. The replacement trees shall be Manna Gums.

Compliance and performance of the VMP is to be detailed in the Annual EMRP required by Condition 11 of this consent.

Reason: To ensure the site is stabilised and screened prior to extraction commencing on-site.

13. The location of the noise bund located adjacent to the eastern boundary shall be setback a minimum distance of 20 metres to ensure a 20 metre wide vegetation strip be located around the entire development site.

Reason: To ensure the site is stabilised and screened prior to extraction commencing on-site.

14. Machinery to be used on the site shall be thoroughly washed before its use to avoid introducing any weed seeds or soil pathogens onto the site.

Reason: To stop the introduction of weeds to the site for the duration of the development.

15. Removal of any trees shall only occur between February to July to avoid the breeding season of bats, birds or arboreal fauna. Fauna habitat attributes such as fallen timber, logs and rocks/boulders are to be relocated adjacent to the sites to provide potential habitat for fauna species.

Reason: To mitigate the impact on fauna habitat during the construction and operation of the development.

16. Installation of nest boxes in adjacent retained vegetation to offset habitat hollows shall be erected prior to any vegetation being removed from site. The location of nest boxes shall be undertaken in consultation with Bega Valley Shire Council.

Reason: To mitigate the impact on fauna during the construction and operation of the development.

17. Old sand extraction area adjoining Pit 3 shall be shaped to final landform and topsoil placed, fenced to exclude stock and plant and primary rehabilitation planting placed and under management within 5 years of commencement of Proposed Pit 3.

Reason: To mitigate the impact on fauna during the construction and operation of the development.

18. Tree and vegetation removal shall only be undertaken one month before a new stage is to commence or in consultation with Bega Valley Shire Council. All hollow bearing trees are to be suitably marked prior to their removal. Upon removal, all hollows are to be inspected by a suitably qualified fauna officer with any animals being rescued.

Reason: To mitigate the impact on fauna during the construction and operation of the development.

Wetland Rehabilitation Plan

19. The recommendations detailed in the Wetland Rehabilitation Plan prepared by EcoBiological and WorleyParsons shall be complied with.

Reason: To ensure the development is progressively rehabilitated and stabilised upon completion of extraction activities.

Aboriginal Heritage

20. A final Aboriginal Heritage Management Plan (AHMP) shall be developed by a qualified archaeologist, in conjunction with Aboriginal stakeholders and the NSW Office of Environment and Heritage as required, and approved by Bega Valley Shire Council prior to commencement of any development activities on the site.

The AHMP must include, but not be limited to:

- a. Detail of the process to be followed for monitoring and assessing topsoil removal prior to the establishment of each stage of pit construction;
- b. Consideration of monitoring and assessment for all ground disturbing activities related to any ancillary work such as; the establishment or upgrade of haul roads, temporary stockpile placement, site facilities, noise barriers, any proposed erosion and sedimentation controls, and any future landscaping/rehabilitation activities;
- c. Detail on the procedures to be followed if Aboriginal objects are found at any stage during the life of the development works and allow for the formulation of appropriate measures to manage any unforeseen impacts to Aboriginal heritage values;
- d. Specifically detailing the procedures to be followed if any Aboriginal skeletal material is uncovered during the development works and allow for the development of appropriate measures to manage this material;
- e. Outlining the process that will be followed for continuing consultation with the Aboriginal stakeholders and the NSW Office of Environment and Heritage, where required; and
- f. Outlining the process for how the AHMP procedures will be managed and adhered to during the operational life of the project.

Reason: To protect Aboriginal heritage.

21. No aboriginal objects may be harmed unless an Aboriginal Heritage Impact Permit (AHIP) has been issued by the NSW Office of Environment and Heritage.

Reason: To protect Aboriginal heritage.

22. If any Aboriginal objects (such as stone artefacts or shell material) are unearthed during the development activity all work must cease immediately and the NSW Office of Environment and Heritage must be contacted for advice before any work re-commences.

Reason: To protect Aboriginal heritage.

23. If any Aboriginal skeletal remains, or potential burials, are unearthed during the development activity all work must cease immediately and the NSW Police and NSW Office of Environment and Heritage must be contacted for advice before any work re-commences.
24. All site workers and contractors must be provided with induction training on the identification of Aboriginal objects, Aboriginal cultural awareness and the AHMP procedures that must be followed during the operational life of the project and in the event of discovery of unknown Aboriginal objects.

Reason: To protect Aboriginal heritage.

25. The Annual EMRP shall include the requirement for auditing compliance of the AHMP procedures during the operational life of the project.

Reason: To protect Aboriginal heritage.

Plans to be kept on site

26. Copies of all stamped approved plans, Annual Environmental Management and Rehabilitation Plan (EMRP), specifications and documents are to be kept on site during construction works and quarry operations.

Reason: Relevant documentation is available for perusal on site by a council officer, for compliance check.

Site identification

27. Prior to undertaking any site establishment construction works:

- A registered land surveyor is to be engaged to mark out the boundaries of the approved limits of extraction;
- These boundaries are to be clearly marked at all times in a permanent manner that allows operating staff and inspecting officers to clearly identify those limits.

Reason: The site is managed in a safe manner.

28. The site where works are proposed to be carried out shall be identified by a sign sited in a visually prominent position containing the following information;
- name of the principal contractor (if any) and 24 hour contact telephone number, and
 - a statement that "unauthorised entry to the quarry site is prohibited".

Reason: The site is managed in a safe manner.

Soil and Water Management

29. A Soil and Water Management Plan shall be developed prior to works commencing on-site and approved by Bega Valley Shire council to ensure that present water bodies and groundwater systems are not negatively impacted by the sand mining operations such as sediment runoff, stormwater discharge and management of stockpiles.

Reason: To ensure soil and water is managed on-site and does not impact the surrounding environment.

30. Drilling and Installation of Shallow groundwater management bores at various locations around Pit 1 and 2 shall be undertaken in consultation with Bega Valley Shire Council and the EPA. Monthly monitoring of groundwater levels and field water quality parameters (pH, electrical conductivity, dissolved oxygen, and redox potential) in all nearby groundwater wells, including the production well at Twofold Bay Beach Resort shall be undertaken and detailed in the Annual EMRP.

Monitoring should begin as far in advance of the start of sand extraction operations as possible to acquire baseline data and assess any naturally occurring long term changes to either groundwater levels and quality.

Reason: To ensure soil and water is managed on-site and does not impact the surrounding environment.

31. Surface water drainage is not to be re-directed onto adjoining private or public land. Alterations to the surface contours must not impede or divert natural surface water run-off, so as to cause a nuisance to adjoining property owners or create an erosion or sediment problem.

Reason: Stormwater disposal does not impact on the building or neighbouring properties.

32. Rainwater tanks shall be connected to the roofs of the proposed transportable amenities/lunch building to collect rainwater.

Reason: To ensure water is managed on-site.

33. A Refuelling Hazard Plan shall be implemented for on-site refuelling and a copy be provided to Bega Valley shire Council before works commence on-site.

Reason: To ensure soil and water is not impacted upon by quarry operations.

Noise Control

34. All noise mitigation measures detailed in the Noise Impact Assessment and subsequent reports and Addendums prepared by Wilkinson Murray shall be implemented and complied with.

Reason: To ensure appropriate noise control practices are in place.

35. Noise monitoring measures and a complaints handling system shall be included in the annual EMRP required by these conditions of consent.

Reason: To ensure appropriate noise control practices are in place.

36. Prior to the commencement of the development the reversing sound equipment on all vehicles associated with the extraction and haulage of material shall be modified to digital broadband alarms, self adjusting or smart alarms or a suitable alternative, as

endorsed by the appropriate regulatory authorities. Details are to be submitted to Council prior to work commencing.

Reason: To ensure appropriate noise control practices are in place.

Waste Management

37. All waste materials generated on-site during construction and during operation of the quarry are to be stored in enclosed containers and deposited in an approved landfill at regular periods.

Reason: To ensure adequate waste management practices are in place during the construction phase.

38. No construction or trade waste is to be deposited at a Bega Valley Shire Council operated waste facility without a trade waste agreement with Bega Valley Shire Council.

Reason: To ensure adequate waste management practices are in place to satisfy Council requirements.

Traffic Management Plan/Code of conduct

39. The applicant shall prepare a Traffic Management Plan/Code of Conduct for the operation of plant and equipment and the transport of materials on public roads to the satisfaction of Bega Valley Shire Council and is to ensure that all truck drivers associated with haulage to and from the quarry comply with the code of conduct.

The Code of Conduct shall as a minimum incorporate;

- Driver awareness of the nearest morning and afternoon school bus drop off and pick-up points near the intersections of Nullica Short Cut Road/Boydton Park Road with the Princes Highway.
- Sensitive operation with respect to generation of noise or dust;
- Safe operational procedures off site and on-site
- Induction procedures for new staff and site visitors; and
- Site security and public safety.

Reason: Safety for road users and amenity of nearby residents.

Section 94 Contributions

40. Section 94 payments shall be made in accordance with *Rural Roads Contribution Plan* and arrangements as follows:-

a) The contribution rates shall be \$0.18 per tonne per km travelled on Nullica short Cut Road for all materials extracted from Pit 3. These amounts apply in 2011/2012 and will be indexed annually on 1 July in keeping with movements in the CPI.

b) The operator of the quarry is to keep a record of tonnes hauled and the destination of each load and shall submit the calculated payment, the calculations made and a copy of all truck despatch/delivery dockets for all the loads hauled for the year up to 30 June each year shall be included in the Annual EMRP.

Reason: Appropriate upgrade of the roads affected by the increase in traffic resulting from this development.

Dust Suppression

41. The applicant shall respond to Councils direction to provide dust suppression on roads leading to, adjacent to and within the Development in the event that weather conditions and construction traffic are giving rise to abnormal generation of dust.

Reason: To ensure that local residents are not disadvantaged by dust during the life of the development.

42. Extraction from any Pit shall be conducted in stages in accordance with the approved plan. No more than 50 percent of any Pit shall be exposed at any given time.

Reason: To ensure that the development is managed to mitigate the potential for dust generation and soil erosion and sedimentation.

43. Rehabilitation of extracted areas shall be undertaken progressively as soon as extraction in the exposed portion is completed.

Reason: To ensure that the development is managed to mitigate the potential for dust generation and soil erosion and sedimentation.

44. Diversion banks and other stockpiles of topsoil or non-commercial material which are not proposed for short term use shall be stabilised with grass cover as soon as completed by sowing rehabilitation grass mix.

Reason: To ensure that the development is managed to mitigate the potential for dust generation and soil erosion and sedimentation.

45. Extraction and stockpiling operations which may give rise to dust shall not be undertaken on days of high wind when there is a significant risk of dust nuisance.

Reason: To ensure that the development is managed to mitigate the potential for dust generation and soil erosion and sedimentation.

46. All loaded vehicles entering or leaving the site are to be covered to prevent the escape of dust and debris.

Reason: To ensure that the development is managed to mitigate the potential for dust generation and soil erosion and sedimentation.

Fencing

47. The extraction Pits are to be fenced with 1.8m high cyclone wire fencing for the duration of extraction and until the rehabilitation of the sites is achieved. The use of barbed wire is not permitted.

Reason: To ensure the site is protected.

Dangerous Goods

48. The applicant shall ensure that the storage, and transport of any dangerous goods is to be carried out in accordance with relevant Australian Standards, particularly AS19402004: The storage and handling of flammable and combustible liquids and AS/NZS 1596:2002: The storage and handling of LP Gas, and the Dangerous Goods Code

Reason: To ensure materials are handled correctly and safely on site.

Mines Inspection Act 1901

49. Under Section 44 of the Mines Inspection Act 1901, the owner/general manager of the quarry must give notice to a Mines Inspector of the commencement of quarrying operations. The owner/general manager should contact the Department of Primary Industries Mine Safety Operations Branch in the local area in regard to compliance with the Mines Inspection Act 1901.

Reason: To ensure materials are handled correctly and safely on site.

Construction certificate & principal certifying authority

50. The applicant shall obtain a construction certificate from Bega Valley Shire Council or an appropriately accredited private certifier before undertaking any work. Forward a copy of any construction certificate issued by a private certifier to Bega Valley Shire Council at least 2 days before undertaking any work in accordance with that construction certificate.

Reason: Work is undertaken in accordance this consent & relevant construction standards.

51. The applicant shall appoint a principal certifying authority before any work is undertaken. Provide details of the appointed principal certifying authority (if not Bega Valley Shire Council) to Bega Valley Shire Council at least 2 days prior to any work being undertaken.

Reason: Work is undertaken in accordance this consent & relevant construction standards.

Engineering conditions

52. **Conditions to be satisfied prior to Engineering Construction Certificate**
The following matters shall be completed prior to the endorsement of a Construction Certificate for each stage of this development:

- a) dedication as Public Road of such land for **road widening** as is necessary to contain the constructed road in use, and known as Nullica Short Cut over the frontages of the land. A copy of the plan registered by the NSW Land Titles Office dedicating this land as road shall be provided to the Council to demonstrate compliance with this requirement.

(Reason: To rectify encroachments as part of the development).

- b) approval of **detailed construction plans and specifications** for access and road works by Council's Director of Engineering Services or his delegate.

These works shall be designed and specified in conformity to the standards set out in Council's Technical Specifications (or other documents formally adopted by Council for the purpose of specifying standards for construction works, DCP No.2) as current at the date of approval, and sound engineering practice.

These detailed construction plans must include all **erosion and sediment control works** necessary to ensure that the quality of stormwater discharged from these works, both during and after the construction period, will not result in erosion, sedimentation or pollution of any land or water. These plans shall be in accordance with Council's Development Design Specification D7, Erosion Control and

Stormwater Management.

(Reason: to ensure that the development is compatible with the design of the specified works and to specify technical standards.)

- c) No work shall be carried out within three metres of or adjacent to the carriageway of a public road subject to motor vehicle traffic until Council has approved a satisfactory Traffic Control Plan relating to that work, and the Roads and Traffic Authority has approved any associated Road works Speed Limit.

The Traffic Control Plan shall be prepared by a person who is authorised by the Roads and Traffic Authority to prepare these plans. The Traffic Control Plan must bear the name, signature and Traffic Control at Worksites Certificate Number of the person who prepared it.

All measures described in the Traffic Control Plan shall be implemented and maintained for the duration of any work within or adjacent to the road carriageway.

(Reason: so that work on public roads is performed safely.)

- d) **Lodgement of security with Council** in an amount of \$20,000.00 (Allocation No.19755.9755.9800) as security for remedying any defects in any public work required in connection with this consent (such as road work stormwater drainage and environmental controls) that arise within six months after the works are completed, and for making good any damage caused to Council property as a consequence of the doing of anything to which the consent relates.

The security lodged with Council shall be either in money or unconditional bank guarantee in a form acceptable to Council.

The funds realised from this security may be paid out by Council to meet any costs referred to in this condition. A Bond Administration Fee may be payable to Council.

This condition is authorised by Section 80A(6)-(10) of the Environmental Planning and Assessment Act 1979.

(Reason: to ensure that public works are in satisfactory condition when transferred to Council and that any damage to Council property is remedied.)

- e) **Qualifications and insurance of engineering designers (Public Works)**
All public works (such as road work and environmental controls) shall be designed by persons holding suitable qualifications for the design of works of this type and current professional indemnity insurance.

(Reason: to ensure appropriate professional standards.)

- f) **Contractor's insurance (Public Works)**
Each contractor engaged in the construction of public works (such as road work and environmental controls) must hold current public liability insurance for an amount of not less than \$20,000,000.00 suitably endorsed to note the contractor and Council for their respective rights and interests.

Prior to the commencement of the construction of these public works Council must be provided with evidence of the currency of this insurance.

(Reason: to ensure that contractors hold suitable public liability insurance.)

53. Conditions to be satisfied prior to commencement of use subject to Council acceptance for Pit 1.

The following matters shall be completed prior to the commencement of use of Pit 1 of this development:

These works shall be designed and constructed in conformity with Council's Technical Specifications (or other documents formally adopted by Council for the purpose of specifying standards for construction works) as current at the date of the approval of construction plans, and sound engineering practice:

One or more Compliance Certificates must evidence the satisfactory completion of these works. See below.

Road works

- a) construction of the following in Nullica Short Cut from its intersection with the Princes Highway to 20.0 metres west of the proposed entry to Pit 1:

- **6.4 metre wide bitumen sealed road** pavement,
- 1.5 metre wide table drains as necessary,
- all associated stormwater and subsoil drainage works,
- installation of guideposts, protection fencing, pavement markings and signposting to the standards specified in the *Road Design Guide* published by the NSW Roads and Traffic Authority,
- all other works necessary to achieve the above,

The design speed for this road shall be not less than 60 km/h.

(Reason: To provide an appropriate standard of access to the land and to accommodate the traffic likely to be generated by this development).

- b) construction of a **BAL intersection treatment** at the junction of the proposed entry to Pit 1 with Nullica Short Cut in conformity with the standards specified in the *Road Design Guide* published by the NSW Roads and Traffic Authority.

The left turn treatment is to be in accordance with a BAL treatment, figure 4.8.34. The BAL is to be sealed to a minimum of 20 metres from the edge of the traffic lane. The gate or grid at the entrance to the property shall be indented a minimum of 20 metres from the edge of the through carriageway of Nullica Short Cut.

The design shall ensure that no water is directed onto the formation of the through roadway (Nullica Short Cut). The applicant will be required to provide suitable drainage, including structures if necessary, underneath the driveway. Drainage headwalls shall be located outside the Clear Zone of the roadway. The width of the Clear Zone must be in accordance with Section 3.7 of the RTA's Road Design Guide.

The applicant shall submit detailed engineering plans, including drainage, at a scale of 1:200 to Council to be assessed for approval.

(Reason: To provide an appropriate standard of access to the land and to accommodate the traffic likely to be generated by this development).

- c) Compliance Certificate(s) in relation to the **inspection and testing of all public works** associated with this consent (such as road work, kerbing and guttering, footway construction, stormwater drainage, water supply and sewerage works and environmental controls) must be obtained either from Council or from an Accredited Certifier to demonstrate that these works have been completed.

These public works must be inspected and tested either by Council's inspector, or by an Accredited Certifier at each of the following stages of construction to confirm compliance with the standards set out in the approved plans and specifications. Any inspection and testing performed by Accredited Certifiers shall be documented by Compliance Certificate(s) for those parts of the public work.

- after placement of all signs in accordance with the approved Traffic Control Plan.
- after stripping of topsoil from roads and fill areas, all Soil & Water Management Plan controls shall be in place at this stage.
- After completion of road subgrade.
- After placement and compaction of each layer of gravel pavement material.
- Prior to the application of bitumen seal or asphaltic concrete wearing surface.
- After laying and jointing of all stormwater pipelines prior to backfilling.
- After completion of works.
- As otherwise required to confirm that the works are satisfactorily executed and in conformity with environmental controls.

It should be noted that Council charges fees for inspections and Compliance Certificates. These fees must be paid prior to the endorsement of a Final Occupation Certificate.

(Reason: to demonstrate that subdivision works are completed in conformity with development consent conditions and to appropriate technical standards).

d) **Works as executed plans**

Upon completion of all civil construction work, Council shall be provided with one complete copy of the plans to which the Construction Certificate relates, clearly marked up to show all variations of the completed works from the approved design in regard to alignment, levels and other details of the works. These plans must show the location and depth of any filling placed on any lot. Works-as-executed plans must be prepared and certified by a Registered Surveyor or Chartered Professional Engineer as a complete and accurate record of the subdivision work.

A complete record of all cadastral information, roads and stormwater drainage works for this development shall also be provided to Council in an electronic format.

The electronic / digital data must be suitable for inclusion in Council's Geographic Information System with a brief metadata description of the projection, survey control and layers.

The preferred format for this electronic/digital data is as follows:

- File format: AutoCAD DWG or DXF files.
- Map Projection: MGA94 Zone 55

- Map Layers: To delineate map data into subdivision, water, sewer and drainage.
- Survey Control: map point location and name or table format of control points showing name and coordinates used for survey.

Data will need to be resupplied if coordinates are not valid for the surveyed area.

The works as executed plans must be examined and accepted by Council's engineering staff prior to the endorsement of the Subdivision Certificate by the Principal Certifying Authority (Council).

(Reason: To ensure that Council holds complete records of civil engineering works being transferred to Council ownership).

54. Extended maintenance responsibility

The developer shall perform all works necessary to maintain all erosion and sediment control measures for this development to effectively control potential soil erosion, sedimentation and other environmental impacts until all civil construction work has been completed, stabilized and revegetated. Particular attention is required to the regular removal of accumulated material in sediment traps and water quality control ponds.

(Reason: to minimise the environmental impacts of this development.)

55. Conditions to be satisfied prior to commencement of use subject to Council acceptance for Pit 2.

The following matters shall be completed prior to the commencement of use of Pit 2 of this development:

These works shall be designed and constructed in conformity with Council's Technical Specifications (or other documents formally adopted by Council for the purpose of specifying standards for construction works) as current at the date of the approval of construction plans, and sound engineering practice:

One or more Compliance Certificates must evidence the satisfactory completion of these works. See below.

Road works

- a) construction of the following in Nullica Short Cut from its intersection with the Princes Highway to 20.0 metres west of the proposed entry to Pit 2:
 - **6.4 metre wide bitumen sealed road** pavement,
 - 1.5 metre wide table drains as necessary,
 - all associated stormwater and subsoil drainage works,
 - installation of guideposts, protection fencing, pavement markings and signposting to the standards specified in the *Road Design Guide* published by the NSW Roads and Traffic Authority,
 - all other works necessary to achieve the above,

The design speed for this road shall be not less than 60 km/h.

(Reason: To provide an appropriate standard of access to the land and to accommodate the traffic likely to be generated by this development).

- b) construction of a **BAL intersection treatment** at the junction of the proposed entry to Pit 2 with Nullica Short Cut in conformity with the standards specified in the *Road Design Guide* published by the NSW Roads and Traffic Authority.

The left turn treatment is to be in accordance with a BAL treatment, figure 4.8.34. The BAL is to be sealed to a minimum of 20 metres from the edge of the traffic lane. The gate or grid at the entrance to the property shall be indented a minimum of 20 metres from the edge of the through carriageway of Nullica Short Cut.

The design shall ensure that no water is directed onto the formation of the through roadway (Nullica Short Cut). The applicant will be required to provide suitable drainage, including structures if necessary, underneath the driveway. Drainage headwalls shall be located outside the Clear Zone of the roadway. The width of the Clear Zone must be in accordance with Section 3.7 of the RTA's Road Design Guide.

The applicant shall submit detailed engineering plans, including drainage, at a scale of 1:200 to Council to be assessed for approval.

(Reason: To provide an appropriate standard of access to the land and to accommodate the traffic likely to be generated by this development).

- c) design (full engineering design plans) and construction of a replacement structure for the timber bridge over the water course bisecting Nullica Short Cut to be a two lane concrete structure, constructed to recognized engineering standards and providing a design service life of not less than 80 years. All works associated with the construction of the structure and its approaches shall be carried out and completed in accordance with detailed engineering plans and specifications as prepared by a suitably qualified engineer and as approved by Council.

Prior to the endorsement of the Subdivision Certificate for this development, Council shall be provided with certification from a suitably qualified and experienced Chartered Professional Engineer (NPER 3 registered) confirming that the works identified in the condition referred to above satisfies the specified performance and acceptance criteria.

(Reason: To provide an appropriate standard of access to the land and to accommodate the traffic likely to be generated by this development).

- d) Compliance Certificate(s) in relation to the **inspection and testing of all public works** associated with this consent (such as road work, kerbing and guttering, footway construction, stormwater drainage, water supply and sewerage works and environmental controls) must be obtained either from Council or from an Accredited Certifier to demonstrate that these works have been completed.

These public works must be inspected and tested either by Council's inspector, or by an Accredited Certifier at each of the following stages of construction to confirm compliance with the standards set out in the approved plans and specifications. Any inspection and testing performed by Accredited Certifiers

shall be documented by Compliance Certificate(s) for those parts of the public work.

- after placement of all signs in accordance with the approved Traffic Control Plan.
- after stripping of topsoil from roads and fill areas, all Soil & Water Management Plan controls shall be in place at this stage.
- After completion of road subgrade.
- After placement and compaction of each layer of gravel pavement material.
- Prior to the application of bitumen seal or asphaltic concrete wearing surface.
- After laying and jointing of all stormwater pipelines prior to backfilling.
- After completion of works.
- As otherwise required to confirm that the works are satisfactorily executed and in conformity with environmental controls.

It should be noted that Council charges fees for inspections and Compliance Certificates. These fees must be paid prior to the endorsement of a Final Occupation Certificate.

(Reason: to demonstrate that subdivision works are completed in conformity with development consent conditions and to appropriate technical standards).

e) **Works as executed plans**

Upon completion of all civil construction work, Council shall be provided with one complete copy of the plans to which the Construction Certificate relates, clearly marked up to show all variations of the completed works from the approved design in regard to alignment, levels and other details of the works. These plans must show the location and depth of any filling placed on any lot. Works-as-executed plans must be prepared and certified by a Registered Surveyor or Chartered Professional Engineer as a complete and accurate record of the subdivision work.

A complete record of all cadastral information, roads and stormwater drainage works for this development shall also be provided to Council in an electronic format.

The electronic / digital data must be suitable for inclusion in Council's Geographic Information System with a brief metadata description of the projection, survey control and layers.

The preferred format for this electronic/digital data is as follows:

- File format: AutoCAD DWG or DXF files.
- Map Projection: MGA94 Zone 55
- Map Layers: To delineate map data into subdivision, water, sewer and drainage.
- Survey Control: map point location and name or table format of control points showing name and coordinates used for survey.

Data will need to be resupplied if coordinates are not valid for the surveyed area.

The works as executed plans must be examined and accepted by Council's engineering staff prior to the endorsement of the Subdivision Certificate by the

Principal Certifying Authority (Council).

(Reason: To ensure that Council holds complete records of civil engineering works being transferred to Council ownership).

56. **Extended maintenance responsibility**

The developer shall perform all works necessary to maintain all erosion and sediment control measures for this development to effectively control potential soil erosion, sedimentation and other environmental impacts until all civil construction work has been completed, stabilized and revegetated. Particular attention is required to the regular removal of accumulated material in sediment traps and water quality control ponds.

(Reason: to minimise the environmental impacts of this development.)

57. Conditions to be satisfied prior to commencement of use subject to Council acceptance for Pit 3.

The following matters shall be completed prior to the commencement of use of Pit 3 of this development:

These works shall be designed and constructed in conformity with Council's Technical Specifications (or other documents formally adopted by Council for the purpose of specifying standards for construction works) as current at the date of the approval of construction plans, and sound engineering practice:

One or more Compliance Certificates must evidence the satisfactory completion of these works. See below.

Road works

- a) construction of a **BAL intersection treatment** at the junction of the proposed entry to Pit 3 with Nullica Short Cut in conformity with the standards specified in the *Road Design Guide* published by the NSW Roads and Traffic Authority.

The left turn treatment is to be in accordance with a BAL treatment, figure 4.8.34. The gate or grid at the entrance to the property shall be indented a minimum of 20 metres from the edge of the through carriageway of Nullica Short Cut.

The design shall ensure that no water is directed onto the formation of the through roadway (Nullica Short Cut). The applicant will be required to provide suitable drainage, including structures if necessary, underneath the driveway. Drainage headwalls shall be located outside the Clear Zone of the roadway. The width of the Clear Zone must be in accordance with Section 3.7 of the RTA's Road Design Guide.

The applicant shall submit detailed engineering plans, including drainage, at a scale of 1:200 to Council to be assessed for approval.

(Reason: To provide an appropriate standard of access to the land and to accommodate the traffic likely to be generated by this development).

- b) Compliance Certificate(s) in relation to the **inspection and testing of all public works** associated with this consent (such as road work, kerbing and guttering, footway construction, stormwater drainage, water supply and sewerage works and

environmental controls) must be obtained either from Council or from an Accredited Certifier to demonstrate that these works have been completed.

These public works must be inspected and tested either by Council's inspector, or by an Accredited Certifier at each of the following stages of construction to confirm compliance with the standards set out in the approved plans and specifications. Any inspection and testing performed by Accredited Certifiers shall be documented by Compliance Certificate(s) for those parts of the public work.

- after placement of all signs in accordance with the approved Traffic Control Plan.
- after stripping of topsoil from roads and fill areas, all Soil & Water Management Plan controls shall be in place at this stage.
- After completion of road subgrade.
- After placement and compaction of each layer of gravel pavement material.
- Prior to the application of bitumen seal or asphaltic concrete wearing surface.
- After laying and jointing of all stormwater pipelines prior to backfilling.
- After completion of works.
- As otherwise required to confirm that the works are satisfactorily executed and in conformity with environmental controls.

It should be noted that Council charges fees for inspections and Compliance Certificates. These fees must be paid prior to the endorsement of a Final Occupation Certificate.

(Reason: to demonstrate that subdivision works are completed in conformity with development consent conditions and to appropriate technical standards).

c) **Works as executed plans**

Upon completion of all civil construction work, Council shall be provided with one complete copy of the plans to which the Construction Certificate relates, clearly marked up to show all variations of the completed works from the approved design in regard to alignment, levels and other details of the works. These plans must show the location and depth of any filling placed on any lot. Works-as-executed plans must be prepared and certified by a Registered Surveyor or Chartered Professional Engineer as a complete and accurate record of the subdivision work.

A complete record of all cadastral information, roads and stormwater drainage works for this development shall also be provided to Council in an electronic format.

The electronic / digital data must be suitable for inclusion in Council's Geographic Information System with a brief metadata description of the projection, survey control and layers.

The preferred format for this electronic/digital data is as follows:

- File format: AutoCAD DWG or DXF files.
- Map Projection: MGA94 Zone 55
- Map Layers: To delineate map data into subdivision, water, sewer and drainage.
- Survey Control: map point location and name or table format of control points showing name and coordinates used for survey.

Data will need to be resupplied if coordinates are not valid for the surveyed area.

The works as executed plans must be examined and accepted by Council's engineering staff prior to the endorsement of the Subdivision Certificate by the Principal Certifying Authority (Council).

(Reason: To ensure that Council holds complete records of civil engineering works being transferred to Council ownership).

58. Extended maintenance responsibility

The developer shall perform all works necessary to maintain all erosion and sediment control measures for this development to effectively control potential soil erosion, sedimentation and other environmental impacts until all civil construction work has been completed, stabilized and revegetated. Particular attention is required to the regular removal of accumulated material in sediment traps and water quality control ponds.

(Reason: to minimise the environmental impacts of this development.)

Section 68 Approvals

59. No approval is given under Section 68 of the Local Government Act 1993. A separate application install and construct a system of on-site sewage management under Section 68 of the Local Government Act 1993 must be submitted to Council for approval. A plumbing and drainage design plan is to be submitted with the application to Council.