Coastal **Design Link**

PROVIDING LINKS BETWEEN BUSINESS AND GOVERNMENT

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Z\L\2020cf\Knn\Letter
Submission 24th Sep 2020

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Attn:
Industry Assessments
NSW Dept. Planning & Environment
320 Pitt Street
Sydney NSW 2000

24th September 2020

Re: State Significant Development – Kariong Sand & Soil Facility (SSD-8660)

To Whom It May Concern,

This letter has been prepared as a submission addressing the proposed State Significant Development at number 90 Gindurra Road, Somersby (SSD-8660).

The aforementioned SSD Application has already been exhibited to the public at an earlier time and received over 1300 submissions relating to the development, the vast majority of which were not in support of the proposal. A wide variety of issues were raised, both by local stakeholders (including Design Link on behalf of nearby land owners) and by various Government and regulatory bodies with an interest in the proposal.

Issues and concerns raised by the various parties in objection to the application during the initial exhibition included (but were not limited to):

- Air quality
- Noise
- Odour
- Traffic
- Compatibility of Land Use
- Ground & Surface Water Impacts
- Appropriateness of Scale & Character
- Neighbourhood Amenity

The unofficial consensus amongst the majority of objections seemed to be that the application represented a significant overdevelopment of the site, and that being situated on the extreme edge of an industrial zone, the application had given inadequate attention to the wide variety of issues that would impact nearby sensitive receptors.

Senior Practitioner Co-Ordinator
Regional Development & Local Government Advocate
RODNEY D. WALL

Subsequent to the large number of submissions that were received, the organisation preparing the proposed development (Jackson Environment & Planning) prepared a revised submission which included alterations and amendments along with a response to the various submissions that were penned as part of the original exhibition period.

The amended application has been put on exhibition for a second time, and in reviewing this amended material and the response to submissions document, it is clear to us that the application appears to have once again inadequately, and in some cases erroneously, assessed the potential impacts that the proposal will have on the site and its surrounding areas.

Coastal Design Link wishes to once again, on behalf of nearby landowners, raise a number of significant concerns that are present with regard to the amended application and lodge an objection to the proposal.

Historical Involvement

Design Link's first involvement was to be commissioned in October 2016 by Mr Ray Davis, who to our understanding was the father of the current proponent of the property at 90 Gindurra Road. The meeting was in relation to a development at 168 Somersby Falls Road in the western area of the Somersby industrial precinct. The application in question was prepared by Ludvik & Associates Pty Ltd and detailed an Integrated Resource Recovery Facility for the site at 168 Somersby Falls Road. The proposal was submitted to the then Gosford city Council on or around the 26th of July 2011. It is our understanding that this submission was not the first time an application was made for the development on the property.

Our instructions in 2016 came after numerous attempts to have the development at 168 Somersby Falls Road approved by Council. Council recommended refusal for the application and Mr Davis subsequently contested the matter in NSW Land and Environment Court proceedings. These LEC proceedings were dismissed by the Court.

Mr Davis invested significant sums of money on the aforementioned applications and court proceedings, and engaged Design Link to review the subject site at 168 Somersby Falls Road with a view to preparing further submissions through the then Gosford City Council. He provided Design Link with an array of documentation pertaining to the previous applications and court proceedings such that we could review the property in detail.

We attended the site so as to determine the potential for preparing additional submissions to Council with regard to developments on the land. During the process of reviewing the property at 168 Somersby Falls Road it was established that Mr Davis was divesting himself of real estate in Sydney and had a need to acquire a property to relocate plant and equipment from his other holdings. As a result, he had negotiated for and purchased the property at 90 Gindurra Road. This newly acquired property was to be set up for the purposes of equipment storage, and supporting works upon the land as an interim land use until such time as developments on 168 Somersby Falls Road could once again be put before Council. Mr Davis viewed 168 Somersby Falls Road as the optimal site for the desired resource recovery activities.

We note that the current application for Kariong Sand & Soil has bypassed Council with substantially increased potential volumes over and beyond the previous development proposed by Mr Davis. This significant increase in volume enabled the proposed to be assessed by the NSW Department of Planning as State Significant Development, and bypassed assessment by the local consent authority, being Central Coast Council.

I believe it is unfortunate that the concentration of the current application appears to have shifted towards what Mr Davis considered to be his less appropriate industrial property at 90 Gindurra Road. The site at 168 Somersby Falls Road was situated more remotely from residential receptors and was thus positioned more appropriately for heavier industrial usages than 90 Gindurra Road.

Air Quality Impacts

One of the primary areas of concern with the current proposed development at 90 Gindurra Road, which was also highlighted by numerous parties during the original exhibition period, is that of Air Quality and the potential detrimental impacts the proposed development will have on nearby properties.

Given that the proposed activities include the delivery, storage, processing and dispatch of materials that have the potential to generate a significant amount of dust and particulate matter, and the concerns that are present with regard to the perceived inadequate level of assessment for air quality impacts, a peer review of the Northstar Air Quality Impact Assessment (AQIA) has been commissioned.

The peer review has been commissioned from Todoroski Air Sciences and has discovered a number of concerning issues present in the AQIA supplied as part of the amended application.

The issues and concerns identified in the AQIA as part of the peer review are summarised as follows:

Poor Modelling Methodologies – The peer review outlines that the dispersion modelling used by the application does not produce very reliable results for area sources such as wind erosion, nor is it recommended for modelling ground-based sources of dust emissions such as those resulting from the proposed development.

Modelling Data Not Representative of Locality – The peer review identifies that the modelling data used in the AQIA includes information obtained from the Gosford AWS. This data is for a different geographical location situated multiple kilometres away which also exhibits significantly different topographical and wind profiles than the subject site at 90 Gindurra Road. These discrepancies, as outlined in the peer review, mean that wind conditions would be substantially different at the project site than at the site the modelling data was gathered from and thus subsequently demonstrate potential problems with emissions at the subject site that have not been raised as part of the AQIA.

Emissions Underestimated – The peer review clearly states that values used to assess the rates of emission from the proposed development do not appear to reasonably reflect likely activities during peak operational times. This would likely result in higher emissions from the activities on site than are outlined in the AQIA.

Furthermore, the review cites that there are a range of other assumptions pertaining to emissions from material hauling, silt loading, spillage and control measures that are not appropriate to the type of development outlined in the proposal and will likely serve to result in further underestimation of the volume of emissions from various aspects and elements of the proposed development.

The review goes on to state that:

> *"The entire design of this facility represents relatively poor practice and falls well short of best practice in terms of current design and emissions performance practices applied for new facilities."*

The above issues identified as part of the peer review raise significant concerns with regard to the adequacy of air quality management on the site and raise questions as to the capacity of the proposed development to effectively manage emissions in a way that does not adversely impact nearby sensitive receptors.

Not All Existing and Future Receptors Have Been Modelled – The peer review outlines that not all current or future receptors in the area have been modelled as part of the application lodgement. Both the approved dwelling at 239 Debenham Road and the Juvenile Correction Facility have been excluded from modelling provided by the application.

The development, not having addressed these receptors, has the potential for significant and otherwise unknown levels of impact from emissions generated as part of daily operations on these sensitive locations.

No Background Dust Monitoring Data – The review also suggests that there is no air quality monitoring data for background dust that has been collected near to the site. The nearest location for this data would be the OEH Wyong station.

Such background monitoring stations are typically positioned to avoid areas of high emissions concentration and the review points out that given the differing wind conditions at the station, as compared to the subject site, coupled with this positioning for low levels of concentration, it is likely that the data from such sources would result in additional underestimations of background dust at the subject site.

Inadequate Consideration of Cumulative Impacts – The peer review has also identified that whilst there are several similarly scaled developments nearby that have the potential to add cumulative impacts, not all of these have been considered as part of the AQIA. The cumulative impacts of nearby developments, in conjunction with the proposed development have the potential to generate emissions problems for nearby receptors.

A copy of the peer review can be found in Annexure A for reference purposes.

Acoustics & Noise Impacts

Due to the nature of the proposed development and its propensity for significant impacts related to acoustics and noise production on a range of nearby sensitive residential receptors, a Technical Acoustic Review (TAR) has been commissioned from Muller Acoustic Consulting. The TAR includes summary information and assessment of both the development in general, and specifically the historical noise and vibration impact assessment carried out for the proposed development.

The TAR has undertaken assessment in accordance with the NSW EPA Noise Policy for Industry and has identified a number of issues and concerns with regard to the proposed development. These issues pertain to the following:

Adopted Sound Power Levels – The TAR has identified that the adopted sound power levels of equipment to be used as part of the proposed development are considered to be lower than typical industry standards with regard to the level of noise produced. This would likely result in actual noise levels from the development that exceed those projected as part of the application.

Background Noise Assessment – The TAR has identified that the location used to establish background noise levels was on the subject site itself. This is considered to be less than entirely accurate when considering the distance between the project site and receptors, and does not properly take into account the impact of reduced proximity to other cumulative noise impacts as compared to noise emissions from the proposed development. The result of this may be that the proposed development will have a larger relative impact on nearby residential receptors as it will be a more prominent noise source for those residential locations than other cumulative impacts within the area.

The TAR makes several key summary points in addition to the above, which focus primarily on the apparent underestimation of potential noise emissions and impacts from the proposal and the suggestion that it would be likely that the noise impacts would be higher than reported and that this would potentially result in some noise thresholds being exceeded at nearby receptor locations.

A copy of the TAR can be found in Annexure B for reference purposes.

Traffic Impacts

The nature of the proposed development in conjunction with its proximity to residential receptors raises a number of concerns with regard to traffic volumes, vehicle types and resultant noise profiles along Gindurra Road. Advice has been sought from Mr Jeff Garry from Intersect Traffic to provide insight into traffic considerations for the proposed development and surrounding developments within the immediate vicinity.

A copy of the summary advice from Intersect Traffic can be found within Annexure C for reference purposes.

The proposed development on 90 Gindurra Road places a significantly sized access point onto the roadway which is situated within close proximity to the approved residence at 239 Debenham Road and the residential receptor at 242 Debenham Road. Given the significantly increased volume of heavy vehicle traffic that is proposed for the development, to the tune of 164 vehicle movements per day, this represents what is considered to be a substantial imposition in terms of noise, vibration and reduction in amenity for these residences on Debenham Road, with the additional noise and vibration from this number of heavy vehicles being a serious concern for residential activities.

Further to concerns regarding the individual increase in volume for the proposed development, there are serious concerns with regard to the cumulative impacts of traffic generation of the proposed development in conjunction with other nearby developments. Of particular concern is the proposed development at 83 Gindurra Road. We note that there are currently (and confusingly) two separate applications for this property. One for a Resource Recovery Facility previously submitted to the NSW Major Projects department and a separate application before Central Coast Council for a Warehousing and Distribution facility.

The proposed development at 83 Gindurra Road cites a traffic generation of up to over 500 vehicles per day. These vehicles would primarily be using Gindurra Road as their carriageway when moving to and from the site through the broader area, and at least one entry point for the aforementioned development is also proposed to be on Gindurra Road in direct proximity to the entry point for the proposed development at 90 Gindurra Road. The two developments combined will result in additional traffic generation which is orders of magnitude larger than that which currently exists on Gindurra Road and throughout the adjoining rural residential locality.

In a broader context, we also highlight potential issues with the movement of such a large quantity of heavy vehicles through intersections servicing the nearby M1 – Pacific Motorway. Traffic exiting the Somersby industrial precinct via Wisemans Ferry Road (as proposed by the application) can only access the M1 – Pacific Motorway heading southbound via a set of traffic lights at the intersection of Wisemans Ferry Road and the Central Coast Highway. Phasing of the traffic lights at this intersection generally favours vehicles moving along the Central Coast Highway and provides only limited timing for heavy vehicle egress and contains the potential for delays and queuing of numerous heavy vehicles moving away from the site of the proposed development. This preferential treatment of vehicles on the Central Coast Highway is further exacerbated during peak traffic times and would make the aforementioned problem of heavy vehicle queuing at this intersection even worse.

Overall, we have significant concerns that the proposed development, in the context of the site and its surrounds, and when factoring in the cumulative impacts of other developments in the immediate area, is serving to create a sizeable traffic junction between Gindurra Road and Debenham road right at the boundary of the business park. Such a junction would be utilised by vehicles of an articulated nature all the way up to B-Double in size. Gindurra Road, Debenham Road and the intersection thereof are considered totally inappropriate for this kind of vehicular junction and lack the necessary infrastructure to support the level of heavy traffic proposed. The approval of the types of development outlined in the proposal for 90 Gindurra Road has the very real potential for unmanageable traffic situations to be created, which would result in significant issues for both the immediate and broader surrounding areas.

Proximity to Sensitive Receptors & Impacts on Amenity

Of additional concern is the fact that the proposed development is a very significantly sized operation which is in very close proximity to a number of sensitive receptors within the immediate area. The location of the proposal in such direct proximity contains a substantial potential for disruption and detrimental impacts on these receptors.

Design Link has been engaged to prepare this document by our client, who owns the property at 239 Debenham Road and has a Council approved residential development close by to 90 Gindurra Road. This residence was approved in 2017 with a construction certificate currently in preparation. The proposed development at 90 Gindurra Road is a very large scaled industrial development that will be positioned within very close proximity to the location of our client's approved residential development. This proximity has the potential to inflict some considerable detrimental impacts on the amenity of our client's property and the amenity of the rural residential precinct more broadly.

Whilst we acknowledge that the proposed development at 90 Gindurra Road is situated within an industrial zoning applied to the Somersby industrial precinct, it is also fundamentally important to point out that the site is positioned on the extreme eastern edge of the aforementioned industrial precinct. The proposed development is not an industrial development situated in the centre of the precinct, surrounded by other industrial development. Rather, the site borders rural zonings that contain numerous residential receptors located immediately to the northeast, east and southeast.

It is vitally important for the preservation of amenity in the nearby receptors that such developments be assessed not in a vacuum, but rather in the context of its surrounds and with a special consideration for the non-industrial usages that are present in direct proximity to the proposed development site. The excessive size and scale of the proposed activities is considered to be a complete departure from the non-industrial uses to the east, northeast and southeast, and the proposal does not appear to have adequately considered the character and potential impacts of a development of this size and scope on non-industrial uses contained within the immediate neighbouring properties.

Based on the submission in its current state, we are not convinced that a broader approach to addressing the development in the context of its surrounds has been adhered to in general terms.

In summary, due to the significant number of concerns pertaining to the potential impacts of a substantially increased volume of traffic in the area, the potential for consequential reduction in the amenity and visual elements of neighbouring rural residential land uses and some very serious concerns regarding air quality and noise emissions, highlighted by specialist consultants that have been engaged, the proposed development is seen as inappropriate for the location in size, nature and scale. The proposal is not considered to have adequately assessed the potential impacts of its operations on nearby sensitive residential receptors. As a result, on behalf of our clients we reiterate our strenuous objections to the proposed development at 90 Gindurra Road and respectfully suggest it is inappropriate for its proposed location.

Kind Regards,

Rod Wall
Coastal Design Link

ANNEXURE A – Air Quality Impact Assessment Peer Review
(Todoroski Air Sciences)

TODOROSKI AIR SCIENCES
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21 September 2020

Roger Kennard
Accent Superannuation Pty Ltd
Via email: roger.kennard@burgtec.com

RE: DRAFT Peer Review of Kariong Sand and Soil Supplies Air Quality Impact Assessment

Dear Roger,
Todoroski Air Sciences has been engaged by five nearby landowners of Acacia Road and Debenham Road, Somersby (Lot 3 239 Debenham Rd East, Somersby, 252 Debenham Rd East, Somersby, 242 Debenham Rd East, Somersby, 10 Acacia Rd, Somersby, 12 Acacia Rd, Somersby), to conduct a peer review of the Kariong Sand and Soil Supplies – Proposed *Development Air Quality Impact Assessment* (**Northstar Air Quality, 2020**) (hereafter referred to as the AQIA) and relevant documentation associated with the Environmental Impact Statement for the proposed development of the Kariong Sand and Soils Supplies site (hereafter referred to as the Project).

Project overview
The site is currently operated as a soil and sand recycling business with recycled product sold for landscaping at a rate of up to 10,000 tonnes per annuum (tpa). The Project involves the construction and operation of a recycling and landscape supplies facility that will enable the receipt of up to 200,000tpa of sand, soil, timber, concrete, tiles, masonry, metal, asphalt and mixed building waste each year. The total quantum of activity would be receipt and dispatch of 210,000 tpa.

The AQIA states that all waste materials will be received and processed indoors to minimise environmental impacts. However, received material is tipped and spread in a three sided and covered shed equipped with water misting sprays.

Material will be inspected and moved by FEL to appropriate storage bays. Processing of materials, using a crusher, shredder or trommel are located within separate designated covered buildings. Processed materials are then stored within a designated outdoor storage bay (three-sided bins). All roads on-site would be paved and constructed of recycled crushed concrete and asphalt. The AQIA states that these surfaces will be swept regularly and cleaned to ensure no dust is generated from these surfaces on dry, hot and/or windy days.

Delivery of waste material is between 7:00am to 6:00pm Monday to Saturday with processing of waste limited to weekdays between 8:00am and 5:00pm.

A general concept layout for the Project is presented in **Figure 1**. It is stated that the total *"developed operational area on the site will be approximately 39,000 m^2"* (i.e. 3.9ha).

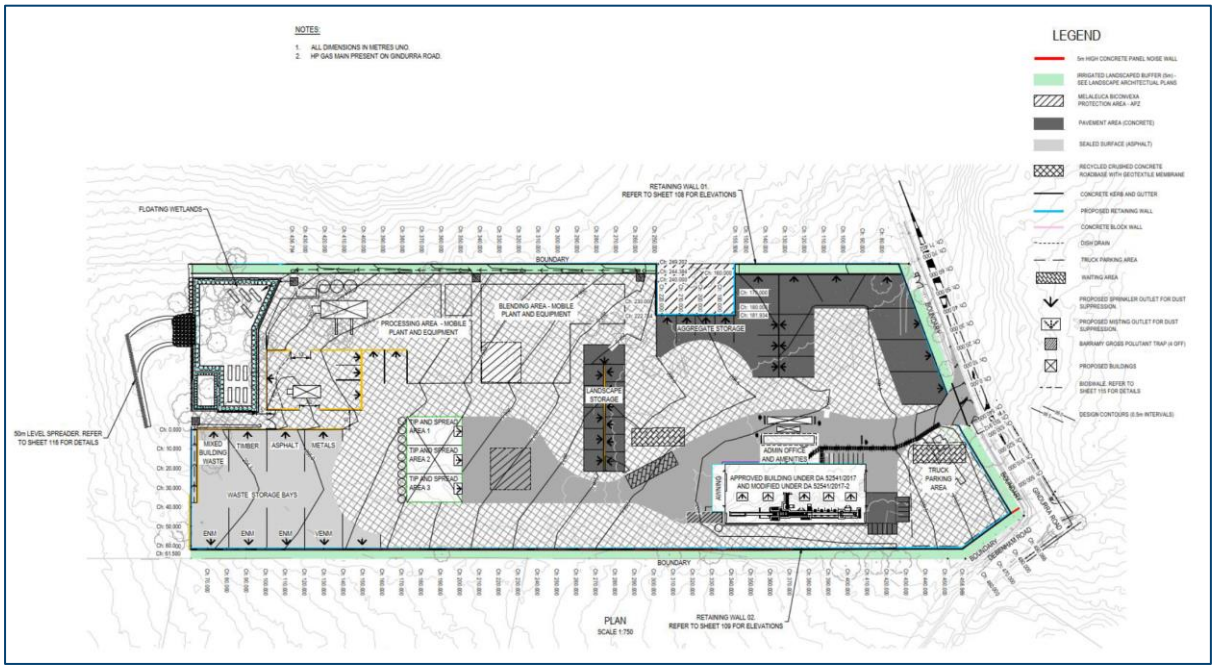

Figure 1: General concept layout

Review of the air quality impact assessment

The key components of the AQIA have been examined and possible issues that may adversely affect the results, or which may warrant a clarification response are discussed below.

Modelling approach is not ideal

The AQIA has assessed potential air quality impacts associated with the Project using the AERMOD air dispersion model.

Whilst it is a US Regulatory model and is used widely, AERMOD does not produce especially reliable results when modelling area sources such as wind erosion, and it is not a model recommended by the reviewer for modelling ground based sources of dust emissions, as occur in this case. It is noted that AERMOD was not the first choice of the AQIA modeller, rather this model was a last choice option selected to deal with meteorological issues identified during the government review process (see further below).

Construction

For the construction phase, the *IAQM Guidance on Assessment of Dust from Demolition and Construction* has been used. In general, the construction period should be relatively short given the minimal site infrastructure proposed, and any construction impacts would be governed by the practices of the builders, rather than anything discussed in an air quality assessment.

However this is not the case for the operation, where the impacts can be greatly affected by the design of the plant, it's position relative to receptors and the mitigation measures to be employed in the design.

Meteorological modelling data used in the modelling is not representative of the locality

The Meteorological (and air dispersion) modelling approach was revised from the previous AQIA approach following evaluation of the meteorological modelling outputs.

The assessed meteorological modelling approaches included: TAPM with no data assimilation, TAPM with data assimilation and WRF modelling used as input to CALMET with no data assimilation. The AQIA deemed none of these approaches to adequately represent the observation data recorded at the Gosford AWS station. The AQIA does not detail why it would be expected and necessary for the weather conditions at the project site to closely match those at Gosford AWS. In any case it was then decided to use observational weather data as input into the AERMET meteorological model as it was possible to make these data closely match the conditions at Gosford AWS. (This also meant the AERMOD model was used for the air dispersion modelling).

The observation data were input in AERMET and include data from Gosford automatic weather station (AWS) (approximately 6km away), Williamtown RAAF (87km away) and Sydney Airport (53km away).

The AERMET generated windrose is presented in **Figure 2** and for comparison, **Figure 3** presents the Gosford AWS windroses. The AERMET windrose shows similar wind patterns to the Gosford data.

It is to be noted that the Gosford AWS station is located in flat terrain near sports fields, north of a large body of water, and south of a steep wooded ridge which runs approximately east-west. On the other hand, the project site is positioned on the western ridgeline or plateau at a significantly greater elevation to the Gosford meteorological station, and does not have elevated terrain to the north, or flat level terrain nearby or to the south.

Due to these significantly different geographical features, the winds at the project site will be significantly different to those as Gosford AWS. These different features will necessarily cause the project site and monitoring station to experience significant meteorological conditions, that is, wind speed and wind direction will be affected by different anabatic and katabatic processes, differing nearby land surfaces and will be subject to different southerly and northerly flow and wind speeds.

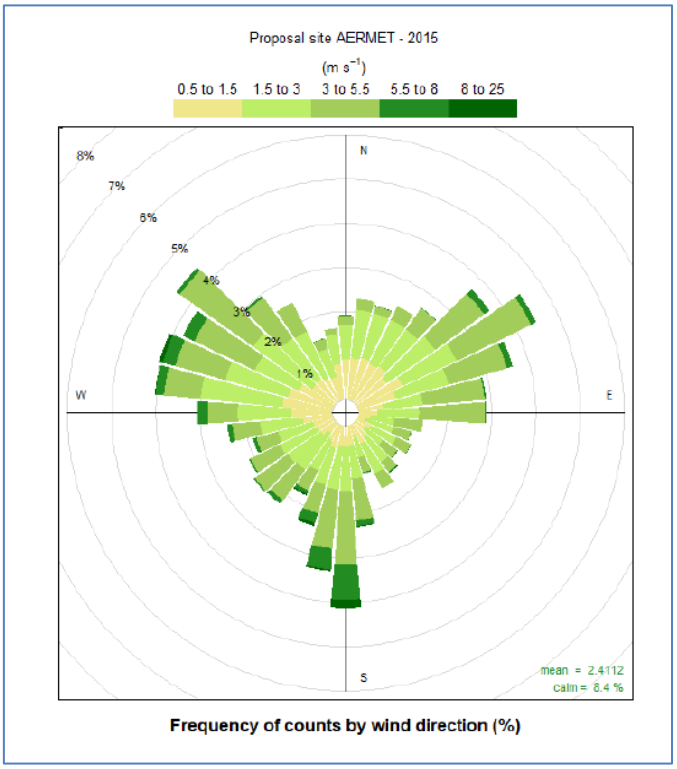

Figure 2: AERMET generated windrose

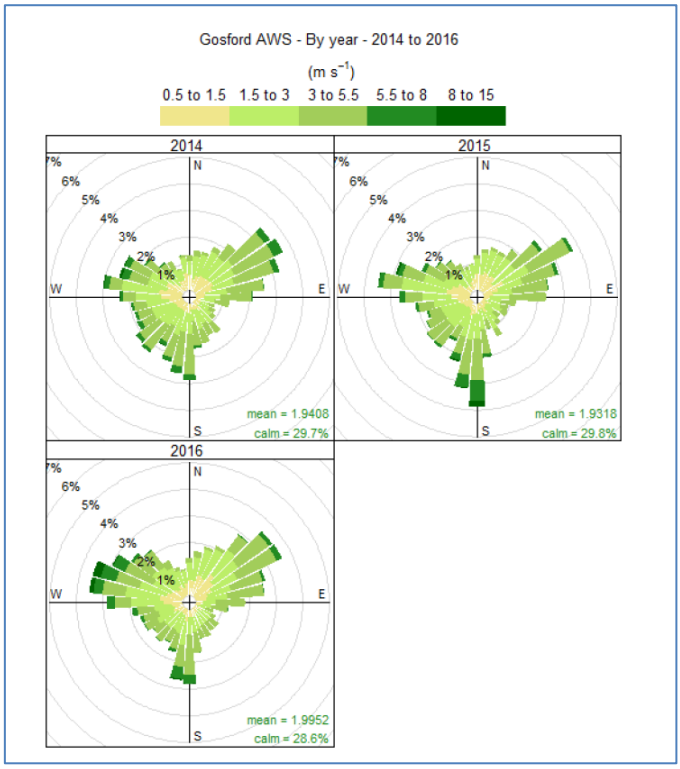

Figure 3: Gosford AWS windrose

The features in the observed Gosford AWS windrose can be directly related to the geographical features near the weather station; the large flat body of water to the south means that strong southerly winds are more

likely (as we see in the windrose), the steep wooded ridge to the north will block northerly winds, and enhance NW and NE winds (as is the case)[1] (see **Figure 4)**. It is important to note that there are no such features at the project site (see **Figure 4)**, hence there will be different wind conditions, and there is no reason to expect similar wind conditions at the project site to those at Gosford AWS. However, the AERMET modelling shows no significant differences between the site windrose and the Gosford AWS windrose.

This means the AERMET data used in the air dispersion modelling is not representative of the project location. This is acknowledged in the AQIA which says *"Although the data do not represent site specific conditions (i.e. at the project site), no data is available to allow an assessment of that meteorological environment"*. It is important to note that unrepresentative meteorological data may cause invalid or incorrect dust modelling results.
Meteorological modelling by the reviewer has been made for a location near to the project site, shown as "CALMET Extract" in **Figure 4**. These data can be used for a relative comparative assessment of the meteorological environment near the project site. A windrose showing the reviewer's results is presented in **Figure 5**, and is provided to indicate the weather conditions which are more likely to be experienced near the project site as may be expected due to the geographical features near the project site. It is also noted that due to differing geographical features in the area, there will also be some difference between different locations along the plateau or ridgeline also, however these local geographical differences would be smaller than those between the project site and the location of the Gosford AWS.

[1] A similar analysis can also be made of the closer Narara AWS data (not shown here) but this station is located at the foot of an approximately north-south aligned ridge and valley and features a significant wind bias along the ridge/valley axis.

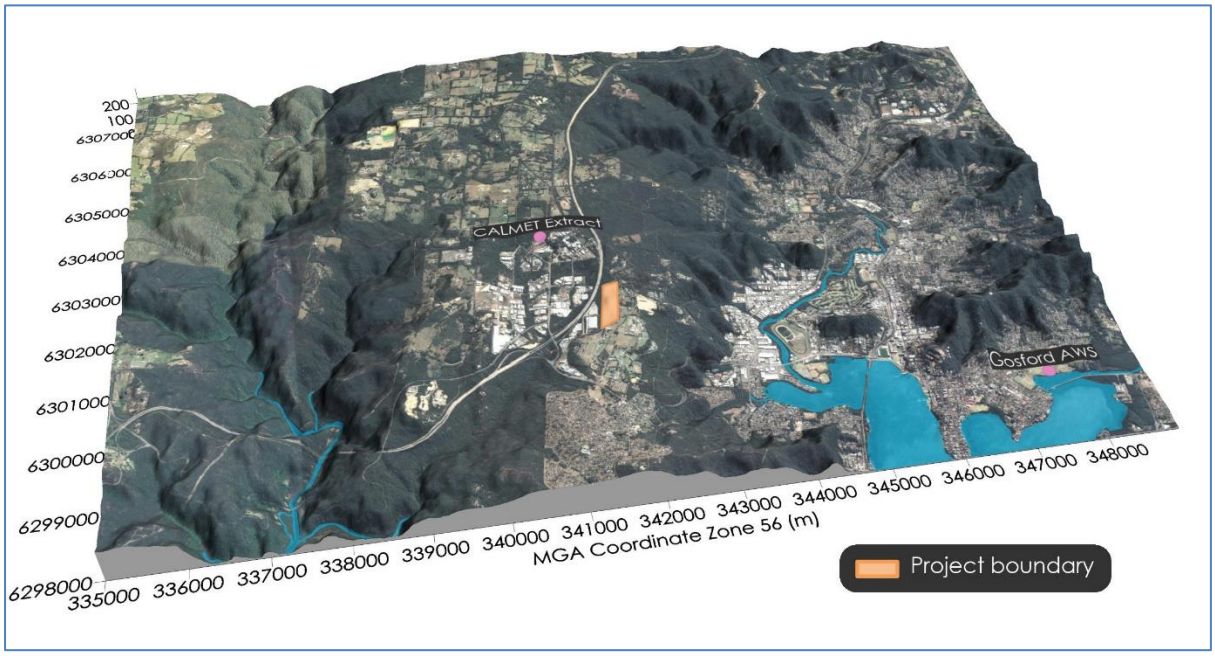

Figure 4: Geographical features of the area, location of Gosford AWS, Project site and "CALMET Extract"

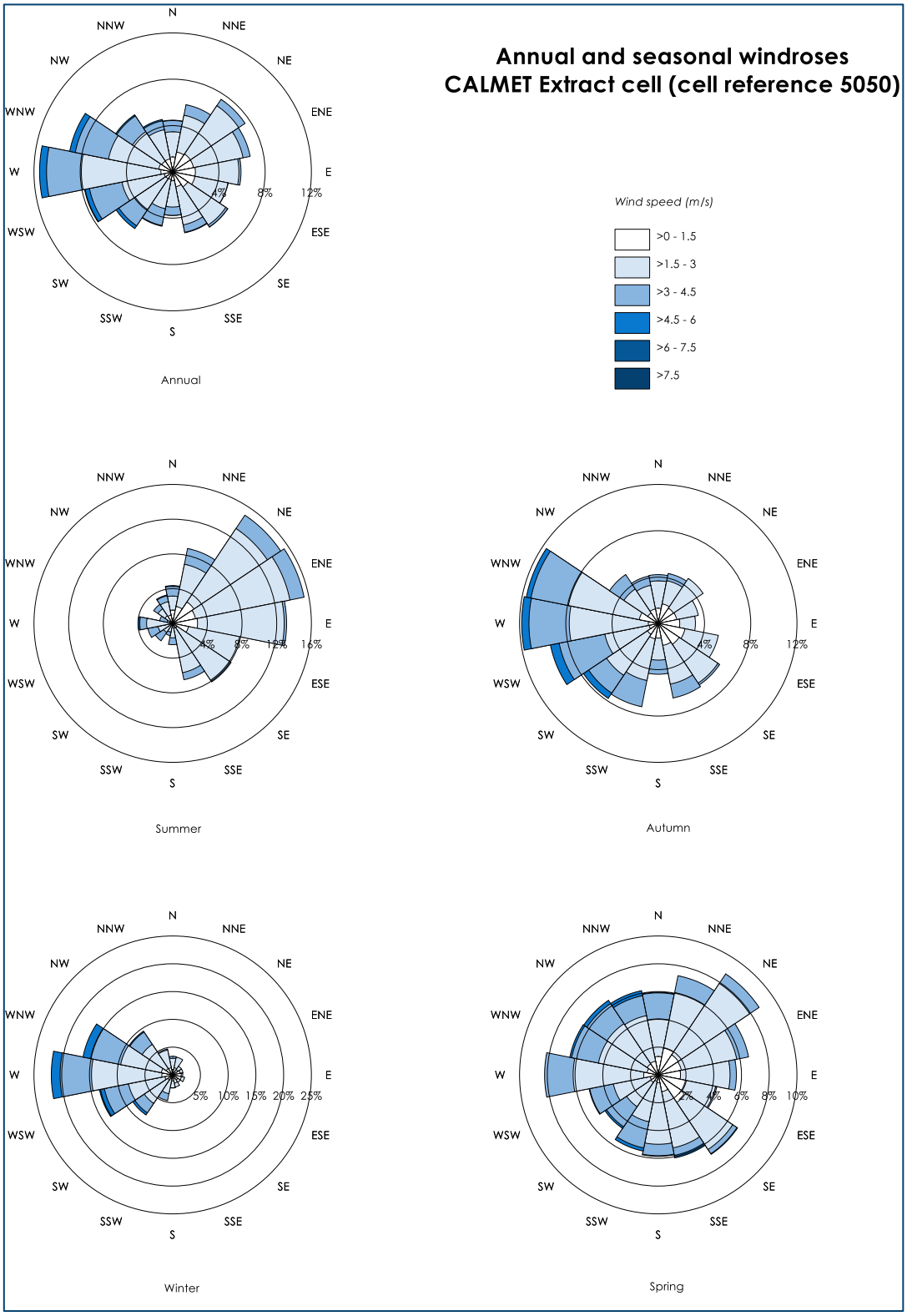

Figure 5: Indicative windrose at "CALMET Extract" location, likely more representative of the project site.

The indication from the above is that relative to the modelled winds, there are likely to be less southerly winds and more westerly winds present near the project site, i.e. more winds towards the nearest receptors. This is especially the case in the winter time, which generally tends to coincide with the poorest air dispersion.

Thus, the weather inputs and model used have potential to lead to invalid or incorrect results.

In addition, the selected meteorological data are not compared to long term climate data of at least five years (EPA Approved Methods Section 4.1 Minimum Requirements). The year 2015 was selected based on a comparison of 2014 to 2016 data (three years). Monitoring at Gosford AWS began in 2013 however there is no available long-term climate data. According to BOM Gosford AWS Daily Weather Observations, long term averages relevant to the Gosford AWS station can be compared to the Gosford (Narara Research Station) (AWS) (closed May 2013), Sydney Airport AMO (open), and Peats Ridge (Waratah Road) (closed June 2015).

Modelled sources and emissions appear to be significantly underestimated, and are not best practice
Annual average and peak maximum (for 24-hour impacts) have been assessed, which is appropriate. However, the annualised peak values used to develop the emission rates do not appear to reasonably reflect the likely additional activity on a peak day, relative to an average day. In general, it is unlikely that for this type of activity, which is governed by the day to day fluctuations in the construction industry, the peak activity rate would be close to the average rate of activity over the year. This indicates that there may be potential for underestimation of the peak 24-hour average dust impacts.

Other assumptions applied in the emissions calculations also underestimate the likely emissions.

Silt loading for paved roads was 0.6 g/m$^{2.}$ and in addition, a 30% control factor is used. The resultant emissions per vehicle kilometre travelled (VKT) are only approx. 33g/VKT, (whereas approximately 20 to 30 times more emissions are likely, e.g approximately 1,000g/VKT). The adopted emission rate for material hauling is for public roads, not industrial roads, and is especially not appropriate for representing industrial roads made of concrete rubble where heavy trucks and equipment will spill material, track material and grind the surface rubble into a fine silt. A more suitable silt loading representative of this type of road would be between 8 and 20g/m^2, and this will greatly increase the modelled emissions (as outlined above) and the predicted impacts given that this will become a significant site dust source. The impacts are likely to especially increase for the most affected receptors which the site roads are relatively closer to.

The 30% control factor applied to further reduce the emissions for this type of road cannot be achieved as it is not possible to sweep such a road surface or to use water flushing to remove the silt after sweeping to loosen it. In general, watering such a road simply tends to cause the silt to track further out onto public roads and can exacerbate, rather than alleviate the problem.

The claimed best practice design for the project is not consistent with the type of road proposed.

A 30% control factor (30% reduction) in emissions for material moved from the supplies bunker for sale by end loader (FEL) is applied. This is incorrect. Furthermore, the emissions generated by the FEL when transporting this material across the site are omitted. The 30% "controlled" plus the excluded emissions will be significant, especially as the loaders will spill significant material along the way, have intimate and significant wheel contact with the material and track it about, and due to frequent turning they will grind the surface causing significant surface silt.

Whilst more commonly used in Western Australia than in NSW, the wind erosion factor approach is reasonable, however the factor is applied to a much smaller area than proposed. It appears that wind erosion is only modelled to arise from 1.59 ha, whereas the approximate operational area is 3.9ha. This is an approximate 2.5 fold underestimation of the most significant source of emissions at the site. Noting that the weather data used also appears to underestimate the westerly winds which blow towards the most impacted

receptors (and the wind erosion occurs under such conditions), this can mean that there may be a large underestimation of the predicted dust impact at receptors.

There is a doubling up of control factors in many cases, and this makes the emission implausibly low. An example is the tipping of every load in the 3-sided enclosure. Closer examination shows that this level of control (70%) is not realistic for this "enclosure", and that there would be quite limited shielding offered in this case given there are three short walled adjacent tipping bays, and the frontal opening spans all three and is very wide. The mechanism by which a 3-sided enclosure provides benefit is that the stockpile is hemmed in on three sides (i.e. piled up the sides of 3 walls), giving it a much smaller surface area than the same material pile out in the open. Yet, the entire purpose of the receivals bay in this case is to take the entire pile and spread it thinly on the ground, greatly increasing the dust emissions relative to any normal pile. This will result in more emissions overall than a normal uncontrolled pile (not a total 85% reduction as has been assumed).

A further example is the application of a 77.7% watering control factor for water sprays on the crusher, and an additional 70% control factor for an enclosure, resulting in a total of 93.3% control. Closer examination shows that the enclosure is like a tunnel as it is open at each end and has what appear to be material conveyors protruding out of the sides. Thus, the key dust generating parts of the crusher are not in the enclosure, and the proposed enclosure provides limited shielding benefit, or no such benefit when winds along the axis of the crusher. Overall, it appears this source may be underestimated by up to approximately three-fold, relative to normal, controlled crusher emissions.

Similar such issues arise with other modelled processes.

The present industry standard control measure for the material spreading and related activities is to conduct these fully indoors with fixed water spays onto the unloading pad and/or direct hand watering as per currently proposed local industry practice (e.g. similar to the proposed Bingo facility across the road, which is referred to in the AQIA).

The entire design of this facility represents relatively poor practice and falls well short of best practice in terms of current design and emissions performance practices applied for new facilities. The road surfaces, the tipping bay and crusher issues outlined above, are notable examples. Other examples are the site design and layout featuring crossing travel paths of materials and trucks which cause additional silt track out, the many open bays of material, the numerous double handling steps, excessively long transport distance of material with heavy plant due to the poor shape and layout, and a range of other relatively poor practice aspects of the proposal.

The many sources of dust are shown to operate for limited hours per day, and these limited hours result in less total emissions (relative to the same rate of activity occurring in every hour of the day). However, while it is known that the modelling is conducted for every hour of the day, it is unclear if the modelled emissions are released over only the operating hours of the day for each source, or in every hour of the day. There is potential to further underestimate the dust impacts by approximately a factor of two if these limited emissions were spread over all hours. It would be reasonable for this to be clarified or corrected if necessary.

Modelled receptors

It is noted that not all of the existing and likely future receptors have been modelled. Notably, the proposed dwelling at Lot 3 239 Debenham Rd East, Somersby is not considered, nor is the juvenile corrections centre, where there may be many young persons present at any time. The corrections centre may warrant some

additional consideration, given that inmates may be present for long periods and may be unable to leave for any respite.

Background dust monitoring data

There are no air quality monitoring data collected nearby to the project site. This is a relatively common issue affecting many air assessments. The nearest available air quality monitoring data are measured at the OEH Wyong station, approximately 20km north of the site. Whilst the nearest available background data from Wyong are used, it is noted that the project site is quite different to the Wyong monitoring location, and this may cause some potential for bias.

It is generally accepted that OEH monitoring stations, being specifically located to avoid "hot spots" such as main roads or industrial activities will record lower concentrations of air pollutants (dust in this case) than may arise in more urbanised or industrial areas.

The Wyong monitoring station is located north of a horse track, but south and southeast of low-lying wetlands/ well vegetated land and a golf course. Due to this, it is reasonable to expect the station will record some of the lowest dust levels when winds are from the north to north west, i.e. blowing over the golf course and wetland/ vegetated area. These wind directions are towards some of the nearest and most affected receptors to the project site. There is bare land and industrial activity north and north-northwest of the Project site.

Whilst there is uncertainty regarding the exact background dust levels at the site, on balance, using the best available information and considering the above, it is reasonable to assume that the Wyong monitoring data would underestimate the likely background dust levels at this site, and even more so when winds blow towards the nearest, most impacted receptors.

Cumulative impacts

Whilst two similar nearby facilities are identified to have potential to add to cumulative impacts, only one is considered, and not by direct modelling.

The proposed Bingo Facility across the road from the proposed site is noted in the AQIA to be fully enclosed, to represent best practice, and thus have minimal scope for any cumulative impacts. However, this highlights that the proposed development is not fully enclosed and is therefore not consistent with current industry best practice (as claimed throughout the AQIA). If it is the case as stated in the AQIA that an additional best practice facility across the road does not add any significant level of dust, it follows that the proposal must have much higher impacts than a best practice facility.

The emissions from the proposed Bingo Facility are not calculated or factored into the assessment as they are not available in the public domain. This will lead to underestimated cumulative impacts, especially at Receptor 1 and also the unassessed likely future receptor at Lot 3 239 Debenham Rd East.

The emissions from the nearby (not adjacent as claimed) Gosford Quarry are included on the basis of an assumed 26% addition to the site impacts only. However, because the emissions from this quarry are not directly modelled it means that the predicted cumulative impacts at the nearest most impacted receptors which are located between the two sites may not be adequately represented. The most impacted receptors cannot experience impacts from both sites at the same time, but may experience impacts from either site more often, i.e. from the proposal when winds have westerly components, and from the quarry when winds have easterly components.

This can lead to significantly different, and possibly higher impacts than presented, especially when one also considers the likely bias in the background data (previously outlined).

It is considered that the cumulative impacts are likely to be underestimated when considering the background data and the approach taken.

Discussion

It is noted that the meteorological data used are not representative of the site, and in the reviewer's opinion, this, along with the model choice, has potential to lead to a significant underestimate of the likely level of dust at receptors. The degree of any underprediction cannot be estimated reliably.

The emissions inventory appears to be far too low for a large number of key emission sources. Wind erosion emissions presented in the AQIA are the dominant source of dust from the site by a large margin, but appear to be underestimated by a factor of approximately 2.5 times, given that the actual operational area is stated to be 3.9 ha, but only 1.59 ha appear to be modelled. This will directly lead to significantly underestimated impacts at receptors and may be exacerbated further by the likely under-representation of westerly winds in the modelling. Such winds would blow these dominant dust emissions towards the most impacted receptors.

For this type of activity, the material haulage emissions are generally one of the largest sources of dust, or at least are similar to the total wind erosion emissions. However, in this case, the haulage emissions appear to be underestimated by a factor of approximately 20 to 30 times due to applying an emissions factor for low-traffic public road emissions and a further 30% control factor in addition to reduce the levels further (instead to using an emissions factor for industrial roads). This also has potential to exacerbate any underpredictions at the most impacted receptors which are generally near to the haul roads.

Material handling emissions are also underestimated due to incorrect assumptions regarding excess control factors, for example relating to 3-sided enclosures.

Based on previous experience with many such activities, the reviewer considers there may be an approximate three-fold underestimation in the AQIA in this case, relative to the likely emissions from this site. This would lead to an approximately similar scale of underestimation in the maximum level of predicted dust impact at receptors.

If this underestimation, and the other potential issues in the AQIA approach were to be corrected it is very likely that unacceptable dust impacts would be predicted, as might be expected in this case when considering the large scale of the development in relatively close proximity of many residential receptors, and the overall generally poor design of the facility which does not reflect industry standards or best practice.

Overall, the proposal does not provide a realistic assessment of the likely impacts or propose a suitable design consistent with good or best practice. Given the key shortcomings identified in this report, and the relatively close proximity of receptors, it is concluded that unacceptable impacts are likely to occur at the nearby receptors if this proposal is approved.

Please feel free to contact us if you would like to clarify any aspect of this letter.

Yours faithfully,
Todoroski Air Sciences

References

Northstar Air Quality (2020)
"Kariong Sand and Soil Supplies – Proposed Development Air Quality Impact Assessment", prepared for Jackson Environment & Planning Pty Ltd by Northstar Air Quality, June 2020.

ANNEXURE B – Technical Acoustic Review
(Muller Acoustic Consulting)

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23 September 2020

MAC201200-01LR1

Attention: Roger Kennard
Accent Superannuation Pty Ltd
Via email: roger.kennard@burgtec.com

Dear Roger,

Technical Acoustic Review: Noise and Vibration Impact Assessment

Kariong Sand and Soil Supplies Facilities Upgrade

90 Gindurra Road, Somersby, NSW.

1 Introduction

Muller Acoustic Consulting Pty Ltd (MAC) has completed a Technical Acoustic Review (TAR) of the Noise and Vibration Impact Assessment (the 'historic assessment'), Kariong Sand and Soil Supplies Facilities Upgrade, 90 Gindurra Road, Somersby, NSW (the 'project') prepared by Waves Consulting Pty Ltd (15 January 2020).

The TAR has been prepared on behalf of five nearby landowners of Acacia Road and Debenham Road, Somersby (Lot 3 239 Debenham Road East, Somersby, NSW, 252 Debenham Road East, Somersby, NSW, 242 Debenham Road East, Somersby, NSW, 10 Acacia Road, Somersby NSW, and 12 Acacia Road, Somersby, NSW,).

The TAR has been undertaken in general accordance with the following documents:

- NSW Environment Protection Authority (EPA), Noise Policy for Industry (NPI) 2017; and
- Association of Australasian Acoustical Consultants (AAAC) - Consultants Guideline for Report Writing, 2017.

A glossary of terms, definitions and abbreviations used in this report is provided in **Appendix A.**

2 Key Outcomes of the Technical Review of the Historic Noise Assessment

2.1 General Findings

The TAR identified that the historic report used proprietary 3D modelling software to quantify noise emissions from the project to the nearest affected receivers. The method and meteorological parameters adopted in the model are considered representative of industry standards.

The outcomes of the sleep disturbance assessment (L_{Amax}) and road noise intrusion assessment (RNP) have also been reviewed. MAC concur with the historic report in the findings that the relevant criteria for sleep disturbance and road noise would be achieved at surrounding receivers. Hence these items have not been considered further in this TAR.

2.1.1 Adopted Sound Power Levels

The adopted sound power levels of equipment to be used on site (ie the noise emission data) and adopted as part of the historic assessment is considered to be slightly lower than industry standard (see Table F1 of the Roads and Maritime, Construction Noise and Vibration Guideline (2016) (the 'guideline')).

In particular, the sound power levels of the crusher was modelled at 108dBA and screen 110dBA, the guideline identifies a mobile crusher as having sound power levels up to 113dBA. Similarly, the wood shredder was modelled at 110dBA, while the guideline identifies that sound levels of up to 116dB are relevant for this source. Therefore, the modelling results from the historic assessment are conservatively low and under predict noise emissions to receivers by around 4dB to 5dB.

2.1.2 Background Noise Assessment Location

It is noted that the selection of the background noise monitoring location to establish Project Noise Trigger Levels (PNTL) (noise criteria) was situated on the project site. It is understood that selection of background monitoring locations can be at times difficult due to access, community engagement and security, although an additional background monitoring location at residential receivers to the east (ie 10 Acacia Road which is 150m east of the project site) of the project would be considered beneficial. These receivers are the potentially most affected and appear to have a reduced line of site to the M1 motorway due to lowering and intervening topography compared to the monitoring location adopted in the historic report. It is noted that the M1 Motorway is identified as one of the significant ambient noise sources within the project area.

As such, noise levels measured in this area may also be slightly lower than reported, hence would result in lower project criteria (between 1dB to 3dB lower).

2.1.3 Key Findings and Summary

Section 3.3.3 of the NPI identifies that a development is considered to have a noise impact if the predicted levels at a receiver exceeds the corresponding project noise trigger level. Review of operational noise levels from the historic report identifies an exceedance of the PNTL at 24 Debenhams Road South, hence the project will have noise impacts on this receiver.

Furthermore, taking into account the conservatively low sound power levels in conjunction with lower background noise levels east of the project site, project impacts would be up to 8dB higher than reported.

This potentially results in multiple receivers (10 Acacia Road, 12 Acacia Road, 16 Acacia Road 32 Acacia Road, 242 Debenhams Road South and 252 Debenhams Road South) exceeding the PNTL. The maximum potential exceedance is 9dBA above the PNTL (for 242 Debenhams Road South) which would be above both the PNTL and relevant Amenity Noise Level and is also considered a significant exceedance under the NPI.

We trust this information is satisfactory for your requirements at this time, if you have any questions please contact the undersigned.

Yours sincerely

Oliver Muller
Principal Acoustic Scientist
BSc(REM & HGeog)|MAAS
omuller@mulleracoustic.com
Attached: MAC Terms and Conditions and Oliver Muller CV.

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Appendix A – Glossary of Terms

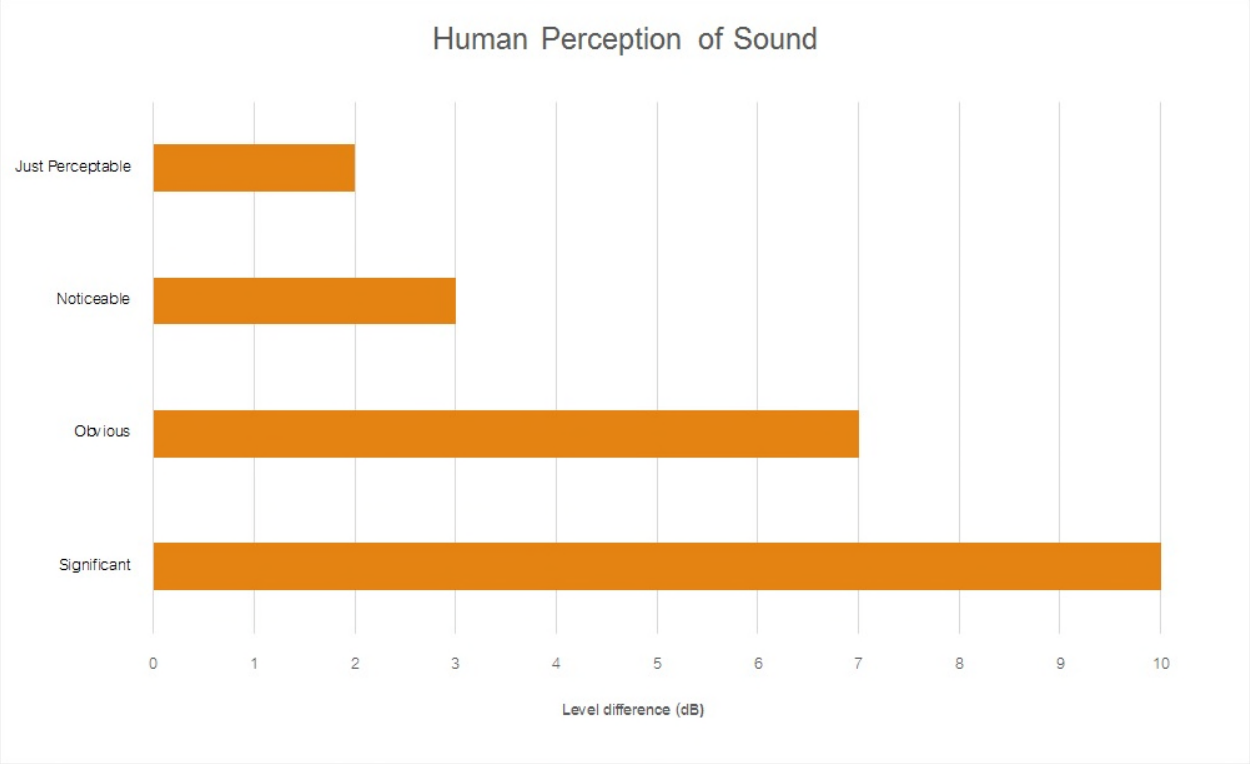
Table A1 provides a number of technical terms have been used in this report.

Table A1 Glossary of Terms	
Term	Description
1/3 Octave	Single octave bands divided into three parts
Octave	A division of the frequency range into bands, the upper frequency limit of each band being twice the lower frequency limit.
ABL	Assessment Background Level (ABL) is defined in the NPI as a single figure background level for each assessment period (day, evening and night). It is the tenth percentile of the measured LA_{90} statistical noise levels.
Adverse Weather	Weather effects that enhance noise (that is, wind and temperature inversions) that occur at a site for a significant period of time (that is, wind occurring more than 30% of the time in any assessment period in any season and/or temperature inversions occurring more than 30% of the nights in winter).
Ambient Noise	The noise associated with a given environment. Typically a composite of sounds from many sources located both near and far where no particular sound is dominant.
A Weighting	A standard weighting of the audible frequencies designed to reflect the response of the human ear to noise.
dB(A)	Noise is measured in units called decibels (dB). There are several scales for describing noise, the most common being the 'A-weighted' scale. This attempts to closely approximate the frequency response of the human ear. In some cases the overall change in noise level is described in dB rather than dB(A), or dB(Z) which relates to the weighted scale.
dB(Z)	Linear Z-weighted decibels.
Hertz (Hz)	The measure of frequency of sound wave oscillations per second - 1 oscillation per second equals 1 hertz.
LA_{10}	A noise level which is exceeded 10 % of the time. It is approximately equivalent to the average of maximum noise levels.
LA_{90}	Commonly referred to as the background noise, this is the level exceeded 90 % of the time.
LA_{eq}	The summation of noise over a selected period of time. It is the energy average noise from a source, and is the equivalent continuous sound pressure level over a given period.
LA_{max}	The maximum root mean squared (rms) sound pressure level received at the microphone during a measuring interval.
RBL	The Rating Background Level (RBL) is an overall single figure background level representing each assessment period over the whole monitoring period. The RBL is used to determine the intrusiveness criteria for noise assessment purposes and is the median of the ABL's.
Sound power level (LW)	This is a measure of the total power radiated by a source. The sound power of a source is a fundamental location of the source and is independent of the surrounding environment. Or a measure of the energy emitted from a source as sound and is given by : = 10.log10 (W/Wo) Where : W is the sound power in watts and Wo is the sound reference power at 10-12 watts.

Table A2 provides a list of common noise sources and their typical sound level.

Table A2 Common Noise Sources and Their Typical Sound Pressure Levels (SPL), dB(A)	
Source	Typical Sound Level
Threshold of pain	140
Jet engine	130
Hydraulic hammer	120
Chainsaw	110
Industrial workshop	100
Lawn-mower (operator position)	90
Heavy traffic (footpath)	80
Elevated speech	70
Typical conversation	60
Ambient suburban environment	40
Ambient rural environment	30
Bedroom (night with windows closed)	20
Threshold of hearing	0

Figure A1 – Human Perception of Sound



ANNEXURE C – Traffic Impact Assessment Review
(Intersect Traffic)

Ref: 20/152

22nd September 2020

Coastal Design Link
203 Terrigal Drive
TERRIGAL NSW 2260

Attention: - Rod Wall

Dear Rod,

RE: Traffic Impact Assessment Review – Kariong Sand and Soil Supplies Development and Light Industrial Subdivision Development – 90 and 83 Gindurra Road, Somersby

As requested by Mr. Roger Kennard I have reviewed the two Seca Solution traffic impact reports for these separate developments and raise the following concerns regarding the reports.

1. Queuing of vehicles on the road network. In the Kariong Sand and Soil report there is a general statement that vehicles will arrive once every 5 minutes therefore two queuing spaces should be enough, but they do not prove it. No detail on service times or length of stays for vehicles or the internal capacity of the site to cater for vehicles has been provided. Also in a peak hour there will actually be a vehicle arriving every 3 minutes (21 vtph) so the report has not addressed peak hour traffic from a queuing perspective and the queue lengths could be predicted using queuing theory to determine if there is enough queuing area on the site such that queuing trucks will not impede traffic on Gindurra Road. Therefore I am of the opinion the report does not prove there is enough queuing space on-site.

2. The traffic data used for the traffic assessment is 5 years old. For an important development like this current traffic data should be used. Whilst it is understood undertaking traffic counts in June and July this year would have resulted in reduced traffic volumes due to the impacts of COVID 19 and the requirement to isolate as much as possible. However traffic volumes are now considered to be close enough to pre COVID volumes for traffic counting to recommence. Given the amount and type of traffic generated by this development I would have thought Council and TfNSW should be requiring that updated traffic counts be used in this assessment.

3. I am not sure that the measures to stop vehicles heading through the rural residential area to the east is sufficient. At the moment they are only suggesting signposting at the access. I think new load limit signs and enforcement should occur to the east of the site and the development should ensure all heavy vehicle drivers using the site are aware of and sign off on a driver code of conduct for the development.

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4. Both traffic impact reports do not appear to have considered the cumulative impacts of other development in the area, not the least being the cumulative impacts of traffic from the other development. Whilst they consider the impacts of their own traffic generation at least one of the reports should consider the impacts of the combined traffic from both developments. This has not been done and given the same consultant was used for each report it would have been easy for this to be done.

5. It is noted that the Sidra modelling was done for 2017 traffic, yet the report was dated July 2020. It is my opinion that the modelling should have been undertaken for 2020 conditions including the cumulative impacts of both developments. While this is unlikely to have a major impact on the operation of the Wiseman's Ferry Road / Gindurra Road roundabout it may not be the case with the Central Coast Highway / Wiseman's Ferry Road traffic signals where an overall LoS C already exists.

6. Further it is usual to undertake traffic impact assessments over a horizon period of 10 years and as such Sidra modelling of at least the Central Coast Highway / Wiseman's Ferry Road traffic signals for the 2030 traffic conditions including the development traffic from both developments should have been undertaken as part of the traffic assessments for both developments.

Should you require further information or clarification please do not hesitate to contact me on 0423 324 188.

Yours sincerely

Jeff Garry
Director
Intersect Traffic