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18 June 2026

Esther Hughes
Principal Environmental Planner
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Via email: esther@mraconsulting.com.au

RE: Response to Submissions on Air Quality for MidCoast Regional Organics Processing Solution

Dear Esther,
The following outlines additional information and clarification to address the New South Wales (NSW) Department of Planning, Housing and Infrastructure (DPHI) and MidCoast Council requests for further information relating to the *Air Quality Impact Assessment MidCoast Regional Organics Processing Solution* (the AQIA) (**Todoroski Air Sciences, 2026**).

We acknowledge that the NSW Environment Protection Authority (EPA) did not provide specific comments on the AQIA; however, instead provided recommended air quality conditions for DPHI to consider in its determination of the application. We considered the recommended air quality conditions are appropriate for the Project.

Submissions from the general public regarding air quality issues associated with the Project have also been addressed in this report. Each of the key comments relating to air quality is shown in grey italics and is followed by our response to the comment.

DPHI

Describe the contingency measures that would be implemented in the event of an emission control system failure.

In the event of an emission control system failure, contingency measures would be implemented to minimise the potential for off-site odour or air quality impacts. The facility is designed with primary containment measures, including enclosed processing areas, negative pressure in the receival hall, fast-acting roller doors, and an air handling system comprising extraction, multi-stage scrubbing and biofiltration to manage odorous air.

If a failure of the odour control system were identified, the affected equipment would be isolated and inspected. Maintenance or repair works would be undertaken as soon as practicable, and operational activities contributing to emissions would be reduced or temporarily suspended where necessary. This may include limiting receival or processing activities, keeping roller doors closed when not required for access, and

maintaining material within enclosed areas until the control system is restored. Regular odour monitoring, visual inspections for dust or odour, process monitoring, and complaint management procedures would be used to identify and respond to any abnormal emissions.

For the CHP and biogas system, excess biogas would be directed to the enclosed low-emissions flare where it cannot be used in the CHP unit. The flare includes continuous flame detection, automatic restart in the event of flame extinguishment, automatic air damper control, gas sampling ports and automatic flame and pilot control. The CHP and flare plant would also include safety controls such as overpressure and underpressure protection, constant monitoring and feedback, remote operation capability and a manual pressure release option.

Following any failure or abnormal operating condition, the incident would be recorded and investigated, corrective actions would be implemented, and any reporting required would be undertaken. Stack testing and routine inspections would also be used to verify that the CHP, flare and other control systems are operating correctly following commissioning and during ongoing operation.

Specify the assumptions used in the Air Quality Impact Assessment.

The AQIA includes a range of assumptions relating to background air quality, source characterisation, emission rates and emission controls. These assumptions are considered appropriate for the purpose of assessing potential air quality and odour impacts, and where uncertainty exists, conservative assumptions have generally been adopted.

Background air quality levels were based on available DCCEEW monitoring data for the 2024 calendar year. In the absence of site-specific TSP and deposited dust monitoring data, these background levels were inferred from the measured annual average PM_{10} concentration using the relationship between the NSW EPA criteria for PM_{10}, TSP and deposited dust. This resulted in adopted background levels of 40.3µg/m^3 for annual average TSP and 1.7g/m^2/month for deposited dust.

The key odour emission assumptions include:

- the main odour-generating activities, including receival, pre-treatment and in-vessel composting, would occur within enclosed buildings or systems, with odorous air extracted and treated through the proposed air handling and odour control system;
- The total surface emission concentration from the biofilter is not expected to exceed 500 OU.
- The maturation area was modelled as a potential fugitive odour source because it is not maintained under negative pressure. Odour emissions from this source were estimated using the area of the maturation stockpile and an adopted SOER of 1.2 OU.m^3/m^2/s for mature compost. It is to be noted that the maturation area will include a water scrubber and thus emission rates are likely to be a small fraction of the conservatively adopted SOER for the assessment.
- Odour emissions from these sources were assumed to occur continuously during the modelling period.

- Cumulative odour impacts from the adjacent Tuncurry Waste Management Centre were considered with emissions estimated using odour measurement data from capped landfill areas at the Albury Waste Management Centre.

Operational dust emissions were estimated using recognised emission factors from locally developed and US EPA documentation accepted by the NSW EPA. These factors are based on the handling of earth materials, which are generally more dust-prone than the organic materials proposed to be handled at the facility. As the organic material is expected to be moister and less dust-prone, this assumption is considered conservative and is likely to overestimate actual impacts.

For the CHP unit and flare, modelled combustion pollutant concentrations were provided by the Proponent and assume the implementation of appropriate controls to achieve compliance with the relevant standards of concentration under the POEO framework.

Overall, the assumptions used in the AQIA are considered suitable for assessing the potential air quality and odour impacts of the Project, and generally provide a conservative basis for the assessment where site-specific data were not available.

It is noted that subsequent iterations of the site layout have resulted in the biofilter area being reduced by approximately 33%, from 1,200 square metres (m^2) to 800m^2. This change is commensurate with the reduced building volume and footprint, which means that approximately 30% less air needs to be handled whilst retaining 3 air changes in the building. The changes do not make any alteration to the air flow through the odour generating processes or the scrubbers prior to reaching the biofilter. The biofilter retains essentially the same Empty Bed Residence Time (EBRT) of 60 seconds, and a floor airflow of 129 to 135 $m^3/hr/m^2$, which means that the efficiency and outlet concentration would also remain essentially the same. The adopted biofilter outlet odour concentration thus remains at 500 OU and the odour emission rate is consistent with that assessed in the AQIA. As the odour source location and emission rate are consistent with the AQIA, the revised layout would not result in any material change to the predicted odour impacts.

Describe the biotrickling system proposed for the Combined Heat and Power unit.

The biotrickling system would treat biogas generated by the anaerobic digestion process prior to its use in the CHP unit.

The system would remove reduced sulfur compounds, particularly hydrogen sulfide (H_2S), from the biogas stream to protect the CHP engine and reduce sulfur dioxide emissions from combustion. The system would operate by passing the biogas through a packed biological scrubber media that is continuously irrigated with recirculating water or nutrient solution. Sulfur-oxidising microorganisms established on the media would biologically oxidise H_2S to sulfate (SO_4^{2-}) or elemental sulfur (S), with the treated biogas then directed to the CHP unit for combustion and generation of renewable heat and electricity.

<u>MidCoast Council</u>

The Air Quality Impact Assessment report prepared by Todoroski Air Sciences Pty Ltd, also dated 12 January 2026, appears to have been generally prepared in accordance with the NSW EPA Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales and the assessment checklist incorporated within the Local Government Air Quality Toolkit. However, similar to the matter raised as part of the noise impact assessment, an additional receiver is requested to be included as part of the report.

The report identifies the dwelling at 661 The Lakes Way as a sensitive receiver. However, it is noted that a three-lot subdivision has been approved on this property (DA246/2018), with the potential for a dwelling to be constructed to the north of the existing residence, closer to Midge Orchid Road, Darawank. The report has not considered this potential receiver, which may be subject to greater air quality and odour impacts from this facility. It is recommended that the air quality and odour assessment report be amended to include assessment of this receiver.

It is understood that the approved development at 661 The Lakes Way, as described by Council, comprised the building envelope, fill, clearing and driveway, and was approved under DA-246/2018. A subsequent Stage 2 proposal, involving a modification to DA-246/2018 for the relocation of dwelling sites and the inclusion of a three-bay shed for each dwelling, was withdrawn. Two sheds on the site were later approved in 2025. There are currently no dwellings on the property, and it was therefore not assessed in the AQIA.

The approximate location of the future receptor is to the north of R5 and is shown in **Figure 1**.

Figure 1: Location of potential future receptor

Nevertheless, as a future receptor has been identified at this location, the potential air quality and odour impacts associated with the Project have been inferred based on the modelling predictions in the AQIA. A summary of the predicted impacts is presented in **Table 1**. The results indicate that the predicted levels due to the Project would comply with the applicable criteria at the future receptor R6.

Table 1: Summary of predicted impact at future receptor R6

Pollutant	Averaging period	Incremental impact	Cumulative impact	Criteria	Complies
Odour	99th percentile nose-response	1.3	1.3	7	Yes
$PM_{2.5}$	24-hour	0.4	18.3	25	Yes
	Annual	0.1	4.7	8	Yes
PM_{10}	24-hour	0.7	31.8	50	Yes
	Annual	0.1	11.3	25	Yes
TSP	Annual	0.1	40.4	90	Yes
DD	Annual	<0.1	1.7	4	Yes
NO_2	1-hour	31.6	74.7	164	Yes
	Annual	1.6	11.9	31	Yes
CO	15-minute	21.6	21.6	100,000	Yes
	1-hour	16.4	17.3	30,000	Yes
	8-hour	10.8	10.8	10,000	Yes
SO_2	1-hour	1.4	38.6	215	Yes
	24-hour	0.4	3.3	57	Yes
Benzene	99.9th percentile 1-hour	3.9	3.9	29	Yes

General public

The following comments are made in relation to the Air Quality Impact Assessment (AQIA):

AQ1. The AQIA is based on climate data from Taree Airport AWS station. As more representative weather data is available from the Forster Marine Rescue station, the Taree data does not appear to represent the most suitable data source for modelling. Given the high proportion of westerly winds recorded at Taree AWS, it is likely that the model would under-represent the frequency of winds from north-easterly directions and may not represent the worst-case scenario. Therefore, the AQIA should be critiqued to understand whether the model results are representative of the site.

The AQIA uses climate and meteorological data from a range of sources to inform the assessment. For dispersion modelling, the relevant consideration is not only proximity to the site, but whether the available observational data are current, complete, and measured in accordance with appropriate siting and instrumentation standards for the meteorological parameters required by the model. On this basis, the nearest station considered suitable for use and applied in the meteorological modelling was the Taree Airport Automatic Weather Station (AWS) (Site No. 060141).

The Forster – Tuncurry Marine Rescue weather station (Site No. 060013) is not considered a suitable source of contemporary meteorological data for dispersion modelling. Bureau of Meteorology metadata identify the current station purpose as telegraphic rain, and the equipment history indicates that the former surface observation instruments for wind and temperature were removed in March 2020. The current available record is therefore not suitable as a contemporary source of the wind and temperature data required for the meteorological modelling. Were suitable contemporary meteorological data available from this station, it would have been considered in the assessment.

As noted in the AQIA, the meteorological modelling methodology applied a 'hybrid' approach which includes a combination of prognostic model data from the Weather Research and Forecasting model (WRF) with surface observations from the from the Taree Airport weather station. An evaluation of the generated data used in the modelling is described in Section 7.2 of the AQIA and found to reflect the expected wind distribution patterns in the area.

It is acknowledged that there is a high proportion of winds from the west recorded at the Taree Airport weather station, which is reflected but less pronounced in the CALMET extract data presented in Figure 7-2 of the AQIA. This is not unexpected for the NSW east coast, where westerly components are associated with broader synoptic flows and land-breeze effects, while northeasterly winds are generally associated with sea-breeze circulation.

A review of annual wind roses from other coastal stations to the north and south, including Port Macquarie Airport AWS and Williamtown RAAF, as presented in **Figure 2**, also shows a pronounced westerly component together with a northeasterly sea-breeze component. This indicates that the wind distribution adopted in the modelling is regionally plausible and does not, in itself, demonstrate that the AQIA has under-represented northeasterly flows or failed to assess representative meteorological conditions.

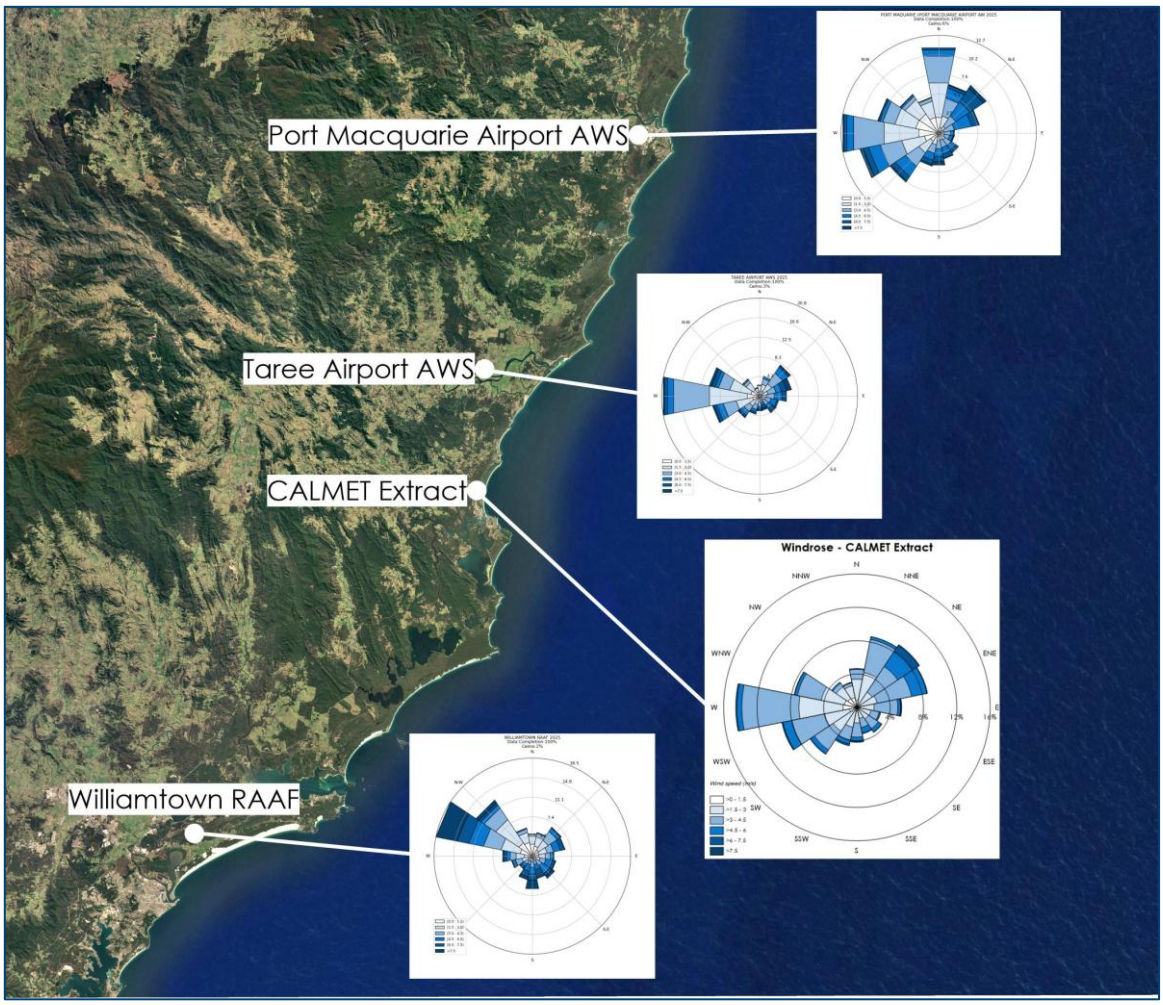

Figure 2: Annual windroses

AQ2. As above, the local meteorological conditions described in Section 5 of the AQIA are based on Taree Airport and are not representative of the site.

The data presented in Section 5 of the AQIA is only used to characterise the climatic conditions of the Project site. A similar analysis of the Forster – Tuncurry Marine Rescue weather station is presented in **Figure 3** below.

A comparison of the climate statistics for Taree Airport AWS (see Table 5.1 and Figure 5-1 of the AQIA) and Forster–Tuncurry Marine Rescue indicate broadly similar seasonal patterns, with expected differences associated with the more coastal exposure of Forster–Tuncurry Marine Rescue. The Forster–Tuncurry Marine Rescue data show slightly more maritime characteristics, including moderated temperatures, higher humidity and slightly higher wind speeds.

These summary climate statistics in Section 5 of the AQIA do not directly determine the suitability of meteorological data for dispersion modelling, which depends more specifically on the availability, quality, completeness and representativeness of wind, temperature and other model-input parameters in Appendix A of the AQIA. As described in the previous response, the Forster – Tuncurry Marine Rescue weather station is not considered a suitable source of contemporary meteorological data for use in dispersion modelling.

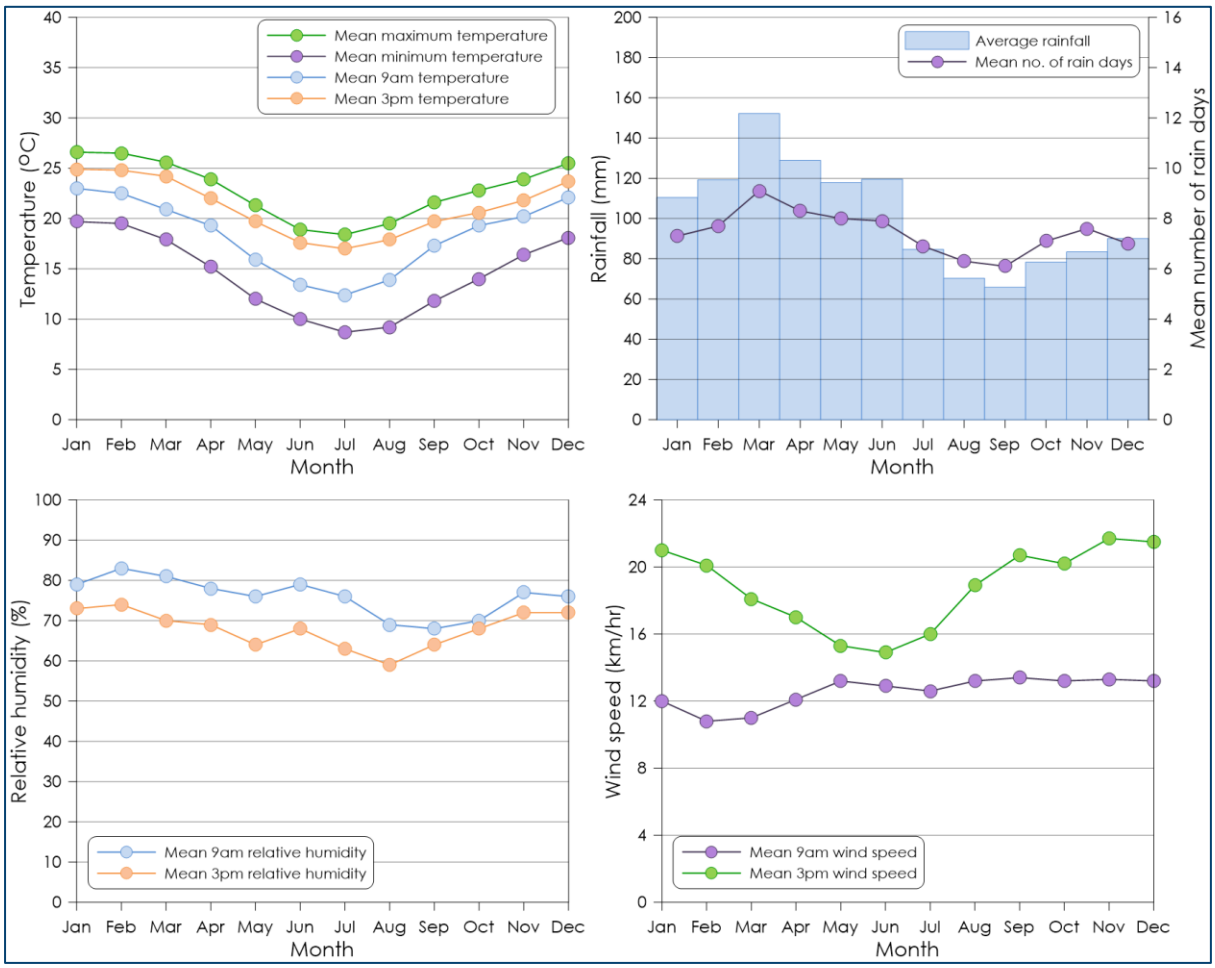

Figure 3: Monthly climate statistics summary – Foster - Tuncurry Marine Rescue

AQ3. While peak-to-mean (P/M) factors are described in Section 4.1.2 of the AQIA, the assessment does not provide any further information on how the factors are applied to the modelled odour sources in Section 7.3.1 of the assessment. Also, there is no information on whether the modelled odour impacts have considered the P/M factors. As such, it is not possible to determine whether the receptors based on 1-second concentrations.

The peak-to-mean values are multiplicative factors which are applied to the 1-hour average modelling predictions to convert them to 1-second peak concentrations. For each of the modelling odour sources described in Section 7.3.1 of the AQIA, the appropriate peak-to-mean values were applied to the modelling

results. These include conservative values of 2.5 for the biofilter and 2.3 for the Maturation area and Tuncurry landfill.

AQ4. The AQIA should draw a clear conclusion as to whether any 'odour buffer' is necessary and under what circumstances and/or conditions. The EIS mentions that a future odour buffer (potential) would be a matter for Council to consider 'and is not part of the SSD proposal'. The mere mention of the potential need for an odour buffer to mitigate odours suggests that this should be a matter for the AQIA to consider and determine.

The AQIA has assessed potential odour impacts using a conservative, hypothetical odour emission scenario. The resulting odour contours are not intended to define a fixed statutory buffer but provide an indication of the potential extent of odour influence under the adopted assumptions.

The AQIA does not identify the need for an odour buffer to protect existing sensitive receptors from the Project. Rather, the modelling indicates that the facility is appropriately located, having regard to the existing surrounding land uses and separation distances.

The reference to a potential future odour buffer in the EIS relates to longer-term land use planning around the facility. The form and extent of any such buffer would be a matter for Council to consider through future planning controls, having regard to the odour assessment as well as other relevant environmental, planning and operational factors. These may include future land-use compatibility, potential encroachment by sensitive receptors, local meteorology, topography, noise, traffic, visual impacts and the need to avoid constraining the operation of the facility.

Accordingly, the odour contours should be interpreted as a planning indicator, not a definitive buffer distance. Future nearby development should be managed to avoid introducing sensitive land uses in locations that could be affected by, or could unnecessarily constrain the operation. Development in the vicinity would be more appropriately limited to non-sensitive industrial or compatible employment uses.

Also, site-specific odour measurements should be obtained for the Tuncurry Waste Management Centre (TWMC) for consideration in the AQIA in relation to cumulative odour impacts from the MCROF and TWMC

As noted in the AQIA, the odour character associated with the Tuncurry Waste Management Centre (TWMC) is expected to be different from the odours associated with the Project. Landfill operations at TWMC ceased in 2022, and the remaining activities are understood to be limited and not significant odour-generating sources.

On this basis, site-specific odour measurements from TWMC are not considered necessary or proportionate for the assessment of cumulative odour impacts. The AQIA has considered the potential for odour impacts using representative odour emission data from similar operations, which is an accepted approach where site-specific measurements are not available or where existing operations are not expected to materially contribute to cumulative odour levels.

Given the different odour character and the limited residual operations at TWMC, any odour from that site would not be expected to materially alter the conclusions of the AQIA for the Project. If significant odour were to arise from TWMC in the future, it would be managed separately by the operator and relevant regulatory authority, rather than through the assessment of the Project.

The NSW EPA odour criteria range from 2 OU (odour units) for dense urban areas to 7 OU for a single rural residence of 1-2 people. The report applies the maximum 7 OU criterion to every residential receptor, including

properties where multiple residents live. This is the least stringent standard available under NSW EPA guidelines and flatters the applicant's case considerably. Given the number of properties and the rural residential character of the area, a criterion of 4-5 OU would be more appropriate.

The applicable odour criteria for the Project calculated based on the number of receptors within the 2 OU incremental impact contour for the Project to determine the applicable "population affected". There are no receptors within the 2 OU contour (refer to Figure 8-1 of the AQIA) and thus the 7 OU was adopted for the assessment.

Nevertheless, the modelling predictions in Table 8-1 of the AQIA indicate a maximum odour concentration of 1 OU at the assessed residential receptor locations and would comply with the suggested criterion of 4-5 OU.

All air dispersion modelling is based on data from the Bureau of Meteorology station at Taree Airport — located 26.5 kilometres north of the site. No on-site meteorological monitoring was conducted. The site is in a coastal location near the Wallamba River and Nine Mile Beach, where local sea breezes, land breezes, and terrain effects create wind patterns that the Taree Airport data may not capture. This is a material methodological deficiency.

As described in the previous response, the AQIA did not rely solely on observed meteorological data from Taree Airport AWS. The meteorological dataset used for dispersion modelling was developed using a hybrid CALMET approach, incorporating prognostic meteorological data together with suitable surface observations.

Taree Airport AWS is the nearest publicly available Bureau of Meteorology station with contemporary meteorological data suitable for use in the modelling.

The CALMET data were evaluated as part of the AQIA, including comparison with observed wind patterns from other regional coastal stations. This evaluation indicates that the modelled meteorology captures the broader regional wind flows, including both the westerly component associated with synoptic and land-breeze conditions and the northeasterly component associated with sea-breeze conditions.

On this basis, the use of the Taree Airport AWS observations within the hybrid CALMET modelling framework is not considered to represent a material methodological deficiency, and the generated meteorological dataset is considered representative for the purpose of the AQIA.

The facility will accept paunch (abattoir stomach contents), dissolved air flotation residue, offal, grease trap waste, poultry manure, and shed cleanout material. These are among the most malodorous organic waste streams in the industry. The odour emission rates used in the modelling are drawn primarily from green waste composting studies and a 2015 research paper. They do not specifically address the odour profile of industrial food waste and agricultural residues that will make up a significant portion of the facility's feedstock.

The most odorous stages, including receival, handling, processing and early decomposition, would occur within enclosed or controlled areas serviced by the purpose-designed odour control system, including extraction, scrubbing and biofiltration. Odorous gases from the anaerobic digestion process would also be captured and combusted through the CHP system, reducing the potential for fugitive odour emissions.

The odour emission rates adopted from other composting studies were applied only to the maturation stage. This material occurs later in the composting process and would be expected to have a similar odour profile which is of a much lower odour potential than fresh receival material or material undergoing early decomposition. The adopted rates are therefore considered appropriate for the source type to which they were applied.

The SEARs specifically required worst-case emission scenarios and sensitivity analysis. The modelling assumes the biofilter operates at 500 OU maximum concentration at all times. No scenario is modelled for biofilter underperformance, maintenance downtime, failure, or bypass. Biofilters are a known point of operational vulnerability — they require consistent moisture, temperature, and biological activity. Any disruption can cause significant odour breakthrough, yet this is not modelled

The AQIA has considered a conservative worst-case operating scenario, including operation of the biofilter at the adopted maximum outlet odour concentration. This represents a conservative basis for assessing routine operating impacts, rather than assuming average or optimal biofilter performance.

The modelling does not include biofilter failure, bypass, maintenance downtime or other upset scenarios as continuous emission scenarios. These events would be abnormal, intermittent and managed through operational controls, rather than representing routine operating conditions suitable for dispersion modelling. Modelling a prolonged uncontrolled failure would not provide a realistic assessment of likely operational impacts.

The Project would be required to operate under appropriate odour management procedures, including inspection, maintenance and performance monitoring of the odour control system. Contingency measures would also be developed to manage potential disruptions, including operational restrictions, temporary shutdown or diversion of odorous activities where required. On this basis, potential biofilter underperformance is more appropriately addressed through operational management and approval conditions, rather than through a routine worst-case modelling scenario.

The report concludes that 'there are no specific ambient air quality monitoring recommendations for the Project at the receptors.' This means that if odour becomes a serious problem after the facility is operational, there will be no baseline monitoring data, no enforceable trigger point, and no scientific record to support complaints by residents. The Department should require comprehensive air quality monitoring at all identified sensitive receptors as a condition of any approval.

There is no practical continuous ambient monitoring equipment that directly measures odour concentration, odour character or offensiveness at sensitive receptors in the way particulate matter or gases can be measured. For this reason, continuous air quality monitoring at each receptor would not provide a reliable or enforceable measure of odour impact.

Odour performance is more appropriately managed through an Operational Odour Management Plan, including routine site inspections, daily odour observations by trained site personnel, maintenance and performance checks of the odour control system, and a clear complaints investigation and response procedure. The plan would include trigger levels and corrective actions, such as investigation of verified odour complaints, inspection of odour control equipment, review of operating conditions, and implementation of additional controls where required.

The cumulative impact assessment for the adjacent Tuncurry Waste Management Centre uses odour emission data from the Albury Waste Management Centre — a completely different facility in a different climate and geography. This substitution is scientifically unjustifiable given the significance of the cumulative impact calculation

The use of odour emission data from a comparable waste management operation is considered appropriate for the purpose of assessing cumulative impacts. Odour emission rates are intended to characterise emissions

from a particular source type and material, rather than the climate or geography of the site where the sampling was undertaken. Site-specific meteorology, terrain and landform effects are then accounted for separately through the dispersion modelling.

Odour emission data from the Albury Waste Management Centre provide a reasonable representative basis for assessing potential odour emissions from comparable waste management activities in the absence of site-specific measurements. This is particularly the case given that landfill operations at TWMC ceased in 2022 and the remaining activities are understood to be limited and not significant odour-generating sources.

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

Yours faithfully,
Todoroski Air Sciences

Philip Henschke

References

Todoroski Air Sciences (2026)
"Air Quality Impact Assessment MidCoast Regional Organics Processing Solution", prepared for MRA Consulting Group by Todoroski Air Sciences, June 2026.