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TM312-03F01 Ardex Warehouse Kemps Creeks DPE noise limits (r1).docx

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Proposed Ardex Warehouse & Manufacturing Facility, 657-769 Mamre Road, Kemps Creek - Additional response to submissions - Noise and vibration

1 Introduction

Renzo Tonin & Associates (RTA) has been engaged by The Trust Company (Australia) Limited on behalf of Altis Frasers JV Pty Ltd (Altis Frasers JV) to undertake an operational and construction noise and vibration impact assessment (NVIA) to accompany the State Significant Development Application (SSDA) 25725029 for the proposed Ardex Warehouse and Manufacturing Facility at the proposed Lot 12, 657-769 Mamre Road, Kemps Creek (the Proposal).

Following the exhibition period, RTA prepared responses to submissions received from the following regulatory authorities on the SSDA NVIA report:

- NSW Department of Planning and Environment (DPE)
- Penrith City Council (PCC) (ECM Ref: 9812606, 23/12/2021)
- NSW Environment Protection Authority (EPA) (reference: DOC21/1028187-4, dated 13/12/2021)

This included providing an updated SSDA NVIA (reference: *TM312-01F05 Ardex Kemps Creek NVIA (r9), dated 10 February 2022*) (SSDA NVIA) which addressed the recently adopted Mamre Road Precinct Development Control Plan (19 November 2021) (MRP DCP).

Additional comments were then received from DPE on 18 May 2022 with further detailed requirements in relation to noise limits for the MRP DCP. The response to these comments is covered in this technical memorandum.

2 Responses to submissions

2.1 Summary of response

Table 2-1 provides RTA's responses to the DPE submission, which relates to the SSDA NVIA.

Table 2-1: Responses to additional DPE submission

Submission details	RT&A response
Department of Planning and Environment (DPE)	
<p>Clause 4.3.1(5) Noise and Vibration of MRP DCP states: <i>Acoustic Reports for individual developments must assess cumulative noise impacts, including likely future noise emissions from the development and operation of the Precinct. The consultant should liaise with the relevant consent authority to determine acceptable amenity goals for individual industrial developments and background noise levels.</i></p> <ul style="list-style-type: none"> In response to Clause 4.3.1(5) of the MRP DCP, DPE requires that all developable industrial zoned land within the Mamre Road Precinct and any existing / approved industrial sites near the precinct must be considered when using section 2.4.2 of the Noise Policy for Industry to derive project amenity noise levels. Night-time project amenity noise level for rural-residential areas in Mount Vernon and Luddenham should be no more than 27 dBA. The NIA is to be updated to address all controls of MRP DCP and to detail the relevant design and operational mitigation measures considered in the proposed development to minimise noise impacts. The NIA is to be updated to address the point above and the controls as per Clause 4.3.1 Noise and Vibration of the MRP DCP November 2021. Please ensure that the figure in the NIA detailing the MRP DCP structure plan is updated to reflect the adopted structure plan. The current surrounding SSDA/DAs figure within the NIA is out of date and subject to further change. The Department requires that all developable industrial zoned land within the Mamre Road Precinct and any existing/approved industrial sites near the precinct must be considered when using section 2.4.2 of the Noise Policy for Industry to derive project amenity noise levels. Table 3-12 needs to be updated to: <ul style="list-style-type: none"> reflect more than 10 developments occurring at once as per major projects portal tracker. show residences within MRP DCP as being categorised as 'residential'. Also update the NIA as required. 	<p>Further assessment has been undertaken to determine the required operational noise mitigation measures for the proposal to achieve the night-time amenity noise level contribution of 27 dB(A) for rural-residential areas in Mount Vernon and Luddenham as requested by DPE. This is to reflect that more than 10 industrial developments may concurrently impact the same receiver location.</p> <p>Additionally, the assessment has been updated to consider residences within the MRP as 'rural-residential' receivers as per NSW EPA Noise Policy for Industry (NPfI) Table 2.2 and ignore the table notes regarding "Isolated residences within an industrial zone" as per DPE's request. The NVIA has been updated to reflect these revised assessments and DPE requests.</p> <p>Regarding the MRP DCP structure plan, the final Mamre Road Precinct Development Control Plan 2021 (November 2021) presents the MRP DCP structure plan on page 10 (Figure 2). This structure plan is dated June 2020. This is the same structure plan presented in the NVIA Figure 4, and so is the correct adopted structure plan.</p>

3 Requested updates due to DPE submission

3.1 Requested DPE noise limits

The five point request from DPE is slightly unclear and contradictory in parts. However, we read it that DPE has requested that noise emissions from the Proposal achieve a night (10 pm to 7 am) noise level of 27 dB(A) $L_{Aeq(period)}$ (equivalent to 30 dB(A) $L_{Aeq 15min}$) at Luddenham residences. This is 3 dB(A) more stringent than the criteria presented in the SSD NVIA for Luddenham residences.

This appears to be based upon making allowance for up to 20 developments to contribute to the same receiver, at the same time, with similar levels of noise. The aim being to achieve cumulatively from the entire MRP industrial development a noise level of 40 dB(A) $L_{Aeq(period)}$ at the Luddenham residences, with them being classified as rural-residential.

3.2 Updates to the SSD 9522 masterplan

As part of further design development of the adjacent site to the west, which is proposed to be occupied by the tenant Cargoline, the Lot 11 warehouse footprint has been updated. This has altered the shielding from the adjacent warehouse to receivers in Luddenham assumed in the SSD NVIA. This change removed the acoustic shielding of the Ardex dock face and hardstand area to these receivers. As such, this is addressed in the updated mitigation and management measures.

The following recommendations are based upon the future Cargoline building as shown in the latest design issued (*Site Facilities Floor Plan CL-KC-DA-A001, Rev P4, dated 18/05/2022 & Elevations CL-KC-DA-A200, Rev P4, dated 18/05/2022*).

However, noting that the current layout of the Cargoline warehouse and that trucks will operate along its western boundary, the site will likely require mitigation (ie. noise wall) along the western boundary. There is potential for these mitigation measures to assist in reducing or eliminating some mitigation measures on the Ardex site, and so this should be reviewed during detailed design.

3.3 MRP DCP residential receiver classification update

The recommended approach is similar to that already adopted for Altis Frasers JV for the SSD 9522 warehouse operations due to similar comments from DPE.

As requested by DPE, the NPfI Table 2.2 note for "*isolated residences within an industrial zone*" will be ignored. Instead, the NVIA will be updated, so that existing residences within the MRP are classified as per a residential category in NPfI Table 2.2 ignoring the table note in regard to "*Isolated residences within an industrial zone*", and instead will be classified as residential (rural) classification.

If it is recommended that the NVIA provide justification to adopt the normal the NPfI typical cumulative consideration of 5 dB(A) adjustment for 3-4 developments, and not the 'more than 10 developments' adjustment that has been requested by DPE for Mount Vernon and Luddenham receivers. This can be

justified because of the relative location of these residences within the MRP and impacts will likely only be during early development stages of the MRP. This approach along with the revised criteria will not require further mitigation measures to achieve these levels at the existing MRP residences.

However, if DPE insist that the same cumulative correction be adopted for residences within the MRP as those that are located outside of it, in Mount Vernon and Luddenham, this will result in the predicted noise levels exceeding this criteria. In this case, the only reasonable mitigation measures would be at-property treatment through negotiated agreement, similar to those identified for Aspect Industrial Estate (SSD 10448), and the approach adopted for SSD 9522 RtS response. This would be due to the minimal number of receivers identified as impacted and the temporary nature of these receivers, and so it would be unreasonable to install fixed onsite mitigation measures (ie. barriers, increase façade constructions, etc.).

4 Further assessment

Following the above, on the direction of Altis Frasers JV, further investigation was undertaken to determine what additional mitigation and management measures were required to achieve the DPE noise limit. This included additional mitigation and management measures on top of those required by the SSD NVIA. These generally covered:

- Increase transmission loss for facade and roof elements for:
 - Powders and liquids manufacturing area.
 - Powder silo.
- Acoustic absorption treatment to the face adjacent to the powders loading area.
- Noise barriers
 - western boundary of loading dock hardstand area, overlapping with the Cargoline warehouse, and
 - western end of loading dock.
- Increase noise reduction of dust collector noise mitigation.
- Review of internal noise level assumptions, including existing facility noise measurements.
- Internal acoustic absorption to reduce internal noise levels and associated breakout.

Following initial recommendations, project cost, design complications and operational issues were raised, and so further investigation was required to determine feasible and reasonable mitigation measures that could be adopted to achieve the DPE limit.

Further noise measurements were undertaken at the Ardex (Richlands, Queensland) facility to further refine the internal noise level assumptions within the key noise source of the powder tower.

5 Indicative additional acoustic mitigation required

To achieve the DPE requested noise levels, the following provides the indicative details for these mitigation measures to be considered in the design. These are included so that there is an understanding of what construction and management measures are required in principle. These are in addition to the mitigation and management measures presented in Section 5.3.2, 5.3.3 and 5.5.4 of the SSD NVIA.

The following provides a summary of the indicative details for these mitigation measures that we have arrived at following the investigations and updated internal noise measurements so far.

Please note that these recommendations are indicative and would be subject to review during detailed design based upon final design details (ie. final internal and external activities, layout, material selections, location of openings or gaps, and constructions). Please also note that these are in addition to those already detailed in Table 5-11 of the NVIA.

Table 5-1: Additional required minimum indicative noise mitigation and management measures

Item	Project element	Current SSD NVIA assumption	Updated minimum indicative requirement
1	West boundary	No barrier	<p>Approx. 65m long minimum 6m high barrier from the north most point, along the western boundary overlapping the northern end of Cargoline warehouse by a minimum 6 m.</p> <p>The effectiveness of this barrier will be subject to the final design of the adjacent Cargoline warehouse and any incorporated acoustic mitigation measures (ie. barriers). This barrier will require review at detailed design to confirm if it is still required to achieve the noise requirements.</p> <p>See APPENDIX A for indicative location.</p>
2	Loading dockface – Western end	No barrier	<p>Barrier extending down from the above awning (15 m long), closing off the western end of the dockface.</p> <p>See APPENDIX A for indicative location.</p>
3	Dust collector	Recommended maximum source sound power level of 101 dB(A) (5 dB(A) less than measured at the existing facility).	<p>Recommended maximum source sound power level of 97 dB(A) [9 dB(A) less than measured at the existing facility]. Similar to the existing situation, this will likely require both selection of a quiet pump and an enclosure to be designed around the pump to minimise noise emissions during operations (ie. cannot just enclose and then open up the door when in use as this will defeat the purpose).</p>
4	Powders loading area	<p>No specific mitigation or management recommended.</p> <p>Up to two loading activities taking place concurrently, either two powder tankers, or a powder tanker and a liquids tanker.</p>	<p>MITIGATION:</p> <ol style="list-style-type: none"> Acoustic absorption installed on the western facade, adjacent to the loading area up to 5m in height, and extending for a length up to 5m north from where the truck cab is located when loading. This is to minimise reflections of the building façade during loading operations. <p>MANAGEMENT:</p> <ol style="list-style-type: none"> During the night period (10pm to 7am), loading is to not take place concurrently with another powder tanker or liquids truck. Only one truck loading at a time.

Item	Project element	Current SSD NVIA assumption	Updated minimum indicative requirement
5	Liquids loading area	No specific mitigation or management recommended. Up to two loading activities taking place concurrently, either two powder tankers, or a powder tanker and a liquids tanker.	MANAGEMENT: 1. During the night period (10pm to 7am), loading is to not take place concurrently with powders loading. Only one truck loading at a time.
6	Powder tower – Western Facade	0.48mm BMT corrugated steel sheeting	0.48mm BMT corrugated steel sheeting Glazed and transparent elements – Upgraded elements, ie. 16mm Danpalon or 6.38mm laminated glazing
7	Powder tower – South Facade	0.48mm BMT corrugated steel sheeting	0.48mm BMT corrugated steel sheeting Glazed and transparent elements – Upgraded elements, ie. 16mm Danpalon or 6.38mm laminated glazing
8	Powder tower – Roof	0.48mm BMT corrugated steel sheeting with roofing insulation & sarking	0.48mm BMT corrugated steel sheeting, with upgraded roofing insulation & sarking, being Bradford Anticon insulation, minimum 14kg/m ³ 100mm thick with heavy duty foil facing, or acoustically equivalent.
9	Powder and liquids area roof	0.48mm BMT corrugated steel sheeting with roofing insulation & sarking	0.48mm BMT corrugated steel sheeting, with upgraded roofing insulation & sarking, being Bradford Anticon insulation, minimum 14kg/m ³ 100mm thick with heavy duty foil facing, or acoustically equivalent.
10	Powder and liquids area walls (southern and western)	0.48mm BMT corrugated steel sheeting	1. 0.48mm BMT corrugated steel sheeting 2. Internal acoustic insulation installed on the southern and western internal walls. Extending from the underside of the roof down a minimum 3m. Minimum 70% surface area coverage. Acoustic absorption to achieve a minimum acoustic performance of NRC 0.9. Minimum 75mm thick insulation (32 kg/m ³) (perforated foil face) or acoustically equivalent.
11	Liquids tower – Roof	0.48mm BMT corrugated steel sheeting with roofing insulation & sarking	0.48mm BMT corrugated steel sheeting, with upgraded roofing insulation & sarking, being Bradford Anticon insulation, minimum 14kg/m ³ 100mm thick with heavy duty foil facing, or acoustically equivalent.
12	Liquids tower – Western Facade	Acoustic louvre – Fantech SBL2 or acoustically equivalent	Acoustic louvre – Fantech SBL2 or acoustically equivalent

6 Mitigation measures in NVIA updates

Generally, the aim would be for only indicative mitigation measures to be identified at the EIS stage, and the required mitigation and management measures to be refined and reviewed during detailed design as part of further design development.

As such, we will be including the requirement to review facade construction during detailed design in the updated NVIA with general references only, and not including any specific constructions. This is similar to what we already have in NVIA Table 5-11 mitigation measures M1.1. We would note that constructions would be reviewed during detailed design to then achieve the overall required noise levels. To provide DPE evidence that further work has been undertaken, we may update the words to identify the elements that may require upgraded constructions or materials and required specific consideration during reviews at later design stages.

The noise barriers will be included in the report and noted that these are indicative and subject to detailed design.

For the western boundary noise barrier, we will include a comment that the requirement for this barrier is subject to the final Cargoline warehouse, and any noise barriers or similar elements that provide acoustic shielding. This barrier may not be required because of the shielding provided by these adjacent lot warehouse or acoustic mitigation elements. This is to minimise the chance that these barriers are mandated in conditions of approval, and if so, that there is allowance to have it removed or altered at detailed design if it is no longer needed as documented to achieve the criteria.

Management measures will be included in the NVIA, to be included in the site operational management plans. It is our experience that DPE may require some type of further commitment that these management measures will be incorporated into the final operations.

Document control

Date	Revision history	Non-issued revision	Issued revision	Prepared	Instructed	Authorised
14.07.2022	Initial issue	0	1	A. Leslie	A. Leslie	P. Karantonis

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APPENDIX A Additional mitigation markups

See Table 5-1 for reference number details

*(ALL AREAS ARE BASED ON TENANT PLANS, NOT TRUE GFA/GLA)

1 SITE PLAN
1: 500
CIC 907



See Table 5-1 for reference number details



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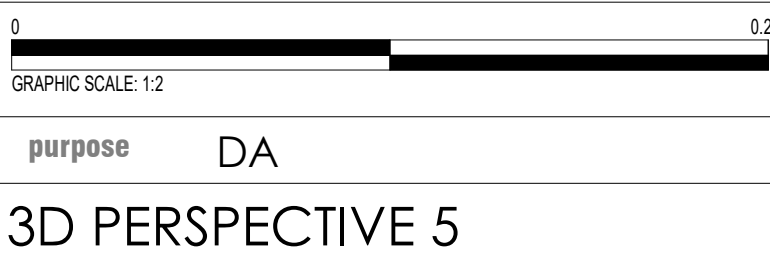
DEVELOPMENT APPLICATION

REVISION	DESCRIPTION	DATE
1	ISSUED FOR SSDA	15.09.21
A	ISSUED FOR SSDA	24.09.21

P/ACE
ARCHITECTS



ALTIS
PROPERTY PARTNERS



scale		A1
project no 210618		
date 24.09.21		
dwn	dwg no	
AA	210618 - DA 905	



issue

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