THE STAR

MODIFICATION 13 PLANNING SUBMISSION

AIR QUALITY AND MECHANICAL SERVICES REPORT – RESPONSE TO SUBMISSIONS

PREPARED BY

wsp

MEMO

TO:	Whom it may concern
FROM:	Giancarlo Oradini
SUBJECT:	**Air Quality and Mechanical Services Reports for Modifications 13 Planning Submission – Response to Submissions**
OUR REF:	181105-The Star-Mod 13-Mech-Air Quality_Response to Submissions rev04.docx
DATE:	**5 November 2018**

INTRODUCTION

A Section 75W modification for the project approval for the Star City Casino Pyrmont (MP08_0098 MOD 13 'Construction of a new hotel and residential tower and alterations to existing building') was lodged with the Department of Planning in August 2018 and exhibited through to 18 September 2018.

WSP prepared a Mechanical Services and Air Quality Reports which formed part of this submission.

This addendum report provides a response to issues raised in the submissions regarding tri-generation unit emissions, proposed cooling tower plantroom height and odours. This is based on relevant submissions provided to WSP by the Star.

DEPARTMENT OF PLANNING FEEDBACK

Department of Planning – Schedule of Key Issues:

Infrastructure

17. Update the Air Quality Assessment Report to include an assessment of the impact of emissions from the two tri-generation units (adjacent to the tower) on the surrounding locality. In addition, confirm the method of ventilating the plant room containing these two units.

Response

The power requirement of Star for Modification 14 and Modification 13 works has now been incorporated into the forward supply plan of Ausgrid for the precinct. After discussions with Ausgrid in the 4Q in 2017, an update application was submitted by The Star to Ausgrid in January 2018. The application detailed the phased rollout of Mod.14 and Mod.13 projects commencing 2018. This included analysis of the power requirements and timing of the Mod.13 projects. The Star has not formulated future expansion plans beyond Mod.14 and Mod.13

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The Star and Ausgrid is currently working closely to progress the design and delivery for power to the Sovereign project (ie. the major component of the Mod.14 works). Upon planning approval of Mod.13, the application for Mod.13 works will be lodged to Ausgrid.

An area for a substation has been detailed in the FJMT Level 4 Mezzanine plan. The Acoustic Report has included an assessment of the substation.

As such, The Star has decided to delete its alternative plan for tri-generation for Mod.13. The two units mentioned in DoP feedback were for Mod.13 and therefore the request for emission impact assessment is now not required.

Infrastructure

18. Reduce the height of the proposed cooling tower plant room by eliminating unnecessary void space below the louvered roof.

Response

The cooling tower plantroom height concept has been developed with the objective of minimising the height of the plantroom. The relative height of the screening wall provided for the cooling towers serves as acoustic measures for the cooling towers during operation.

WSP have reviewed the plantroom height and obtained internal peer review for alternative options and regretfully conclude there is no opportunity to the reduce the height. During the design development of the project, we will reassess plantroom height against the selected cooling towers.

SUBMISSION FROM A PRIVATE RESIDENT AT ASTRAL RESIDENCES

Odours

Exacerbated odour impacts on our client's enjoyment of their residences will occur due to the intensification of uses in The Star development and increases in building proximity

Response

This is a generalised comment which does not specifically describe how the intensification of uses and increase in building proximity will exacerbates odour impact.

Appendix KK Mechanical Services Modification 13 Planning Submission report, Section 4.4.1, has a table outlining proposed strategies for kitchen exhaust discharge (extract below).

Commercial Kitchen Facility Location	Proposed Exhaust Discharge Location	Relevant Standard or Additional Treatment
Club Lounge (Upper Hotel Tower)	Exhaust vertically discharged above the Tower Roof Level	Designed in accordance with AS1668.1:2015, AS1668.2: 2012 and AS3666.1: 2011. No additional treatment proposed due to low-risk nature of discharge location (i.e. substantially above any nearby buildings or sensitive receivers).
Sky Lobby Restaurant and Servery (Mid Hotel Tower)	Exhaust vertically discharged above the Tower Roof Level Or Horizontally at L41	Designed in accordance with AS1668.1:2015, AS1668.2: 2012 and AS3666.1: 2011 No additional treatment proposed due to low-risk nature of discharge location (i.e. substantially above any nearby buildings or sensitive receivers).When discharged at roof level Inclusion of a combination of electrostatic filters, water washing and/or ultraviolet treatment to minimize odour/pollutant discharge when discharge at L41
Level 5 Sky Terrace Restaurants	Exhaust horizontally discharged at Level 6	Designed in accordance with AS1668.1:2015, AS1668.2: 2012 and AS3666.1: 2011 Inclusion of a combination of electrostatic filters, water washing and/or ultraviolet treatment to minimize odour/pollutant discharge.
Level 7 F&B	Exhaust horizontally discharged at Level 6	Designed in accordance with AS1668.1:2015, AS1668.2: 2012 and AS3666.1: 2011 Inclusion of a combination of electrostatic filters, water washing and/or ultraviolet treatment to minimize odour/pollutant discharge.

Commercial Kitchen Facility Location	Proposed Exhaust Discharge Location	Relevant Standard or Additional Treatment
Residential Entrance Level Restaurant (Level 00)	Exhaust horizontally discharged at Level 6 with plant located at level 3/5	Designed in accordance with AS1668.1:2015, AS1668.2: 2012 and AS3666.1: 2011 Inclusion of a combination of electrostatic filters, water washing and/or ultraviolet treatment to minimize odour/pollutant discharge.
New Restaurant Street Level 00	Exhaust horizontally discharged at Level 6 with plant located at level 3/5	Designed in accordance with AS1668.1:2015, AS1668.2: 2012 and AS3666.1: 2011 Inclusion of a combination of electrostatic filters, water washing and/or ultraviolet treatment to minimize odour/pollutant discharge.
New Darling Union and Edward Streets food and beverage.	Exhaust vertically discharged above the existing roof level	Designed in accordance with AS1668.1:2015, AS1668.2: 2012 and AS3666.1: 2011 Inclusion of a combination of electrostatic filters, water washing and/or ultraviolet treatment to minimize odour/pollutant discharge.
Existing Level 00 F&B and Level 02 Nightclub	Exhaust horizontally discharged at Level 6	Designed in accordance with AS1668.1:2015, AS1668.2: 2012 and AS3666.1: 2011 Inclusion of a combination of electrostatic filters, water washing and/or ultraviolet treatment to minimize odour/pollutant discharge.
Level 05 Bistro adjacent to Astral Residencies	Exhaust vertically above new roof	Designed in accordance with AS1668.1:2015, AS1668.2: 2012 and AS3666.1: 2011 Inclusion of a combination of electrostatic filters, water washing and/or ultraviolet treatment to minimize odour/pollutant discharge.

Appendix EE Air Quality Modification 13 Planning Submission Report, Section 9.1.3, also describes the exhaust discharge treatment methodology as the mitigating approach for air quality (extract below).

Commercial exhaust ventilation system

Restaurant facilities are planning to expand to include multiple new food and beverage outlets in the redevelopment of The Star. The new food and beverage outlets will incorporate commercial cooking facilities which will require a commercial exhaust ventilation system, which will be vertically discharged from the ribbon roof level.

To minimize risk of nuisance to users of The Star, neighbouring properties, and the general public, the exhaust discharge has been designed in accordance with the Australian Standard (AS) 1668.1:2015, AS 1668.2: 2012 and AS 3666.1: 2011. By incorporating electrostatic filters, water washing and ultraviolet treatment, air emissions will be mitigated. Furthermore, discharge locations will be co-ordinated to ensure an appropriate separation distance to the design footprint, as stipulated by the AS 1668.2: 2012, will minimise risk of exhaust air affecting local sensitive receptors.

Appendix EE Air Quality Modification 13 Planning Submission Report, Section 9.1.3 and 10.2.1 describes the operational consideration of the diesel generator flue relocation (extract below).

The diesel generators only operate as an emergency power supply. These generators are tested on a monthly basis as part of a routine maintenance program.

These generators have been present since construction of the site. The diesel generators are not a new item within Modification 13. Whilst the stack for the diesel generator is being moved, the distance to the nearest sensitive receivers is similar, and the emissions are considered to be of the same order of magnitude to that already approved. They have therefore not been assessed quantitatively within this assessment and are assumed to be an approved activity.

Due to the diesel generators being for emergency purposes, their consideration within any cumulative assessment was also not considered warranted.

As a proactive measure to reduce emissions from the diesel generators during maintenance, the following management practices will be implemented:

- Generator testing will be staggered. Only one generator will be turned on and tested at a time.
- Generators will only be tested at 50% load.

10.2.3 Diesel generators

The diesel generators are already pre-existing, and not an additional element as part of Modification 13's proposed design.

The Air Quality report concludes the following (extract below):

The air quality assessment concluded the following:

- Dust issues associated with The Star is unlikely to occur due to types of construction activities planned and implementation of dust mitigation measures.
- Operation of the commercial exhaust vent and the basement carpark's ventilation system were not considered to pose an air quality or odour issue.
- No surrounding or pre-existing activities were deemed to impact The Star's air quality environment.
- Air quality impacts from the surrounding environment and operation of the site upon the residential tower are considered a low risk.
- Air quality for NO_2, SO_2, CO, and $PM_{2.5}$ at 10 sensitive receptors locations from operations of the gas turbines are anticipated to meet air quality criteria objectives.

It is noted that mitigation measures have been proposed as part of the proposed development, including:

- As a proactive measure to reduce emissions from the diesel generators during maintenance, the following management practices will be implemented:

- Generator testing will be staggered. Only one generator will be turned on and tested at a time.
- Generators will only be tested at 50% load.

- Construction related mitigation measures.

Based on the above, it is concluded that the proposal (Modification 13) has limited impact upon the surrounding (at the nearest sensitive receivers) air quality environment.

KITCHEN EXHAUST DISCHARGE AND DIESEL GENERATOR FLUE LOCATIONS

For clarity, we have identified the kitchen exhaust discharges on the architectural plans (extracts below):

- For new Darling Union and Edward Streets F&B,
  - Refer to DWP drawing, MOD13-AS1003 and MOD13-AS4002.
- For existing Level 01 MGF F&B, Level 05 Bistro, Residential Entrance Level Restaurant (Level 00) and New Restaurant Street Level 00
  - Refer to FJMT drawing, AF1006
  - Refer to DWP drawing, MOD13-AS4001
- For Level 5 Sky Terrace Restaurants, Level 7 F&B, Existing Level 00 F&B and Level 02 Nightclub
  - Refer to FJMT drawing, AF1008
  - Refer to DWP drawing, MOD13-AS4001
- For existing MUEF kitchen exhaust and relocated diesel generator flues,
  - Refer to DWP drawing, MOD13-AS1009 and MOD13-AS4002

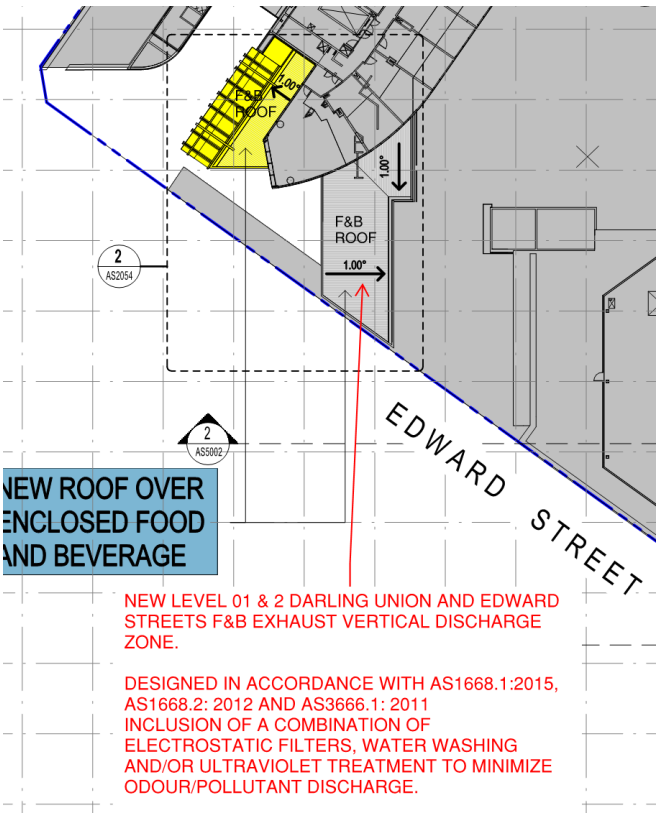

Figure 1 *Level 03 Plan view - New Darling Union and Edward Streets F&B exhaust discharge location.*

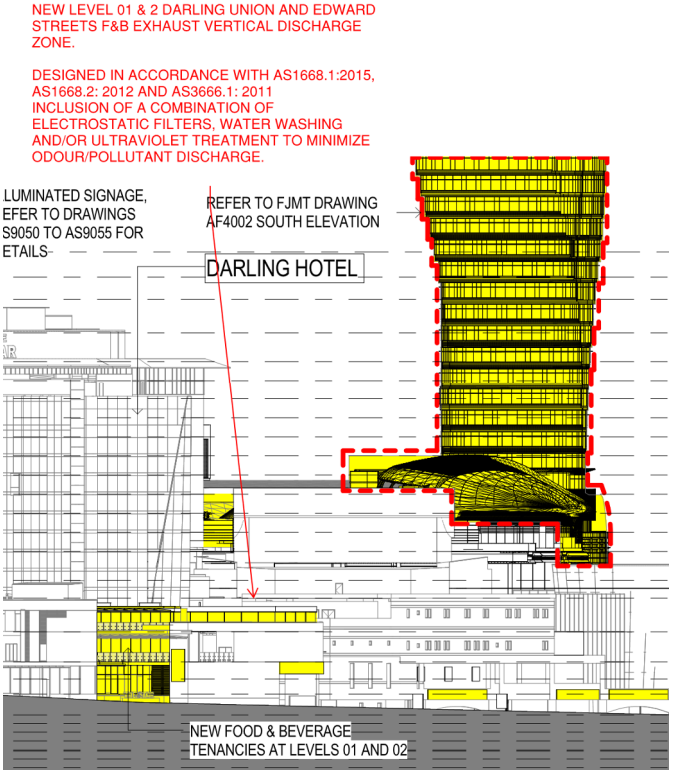

Figure 2 *Level 03 Elevation view - New Darling Union and Edward Streets F&B exhaust discharge location.*

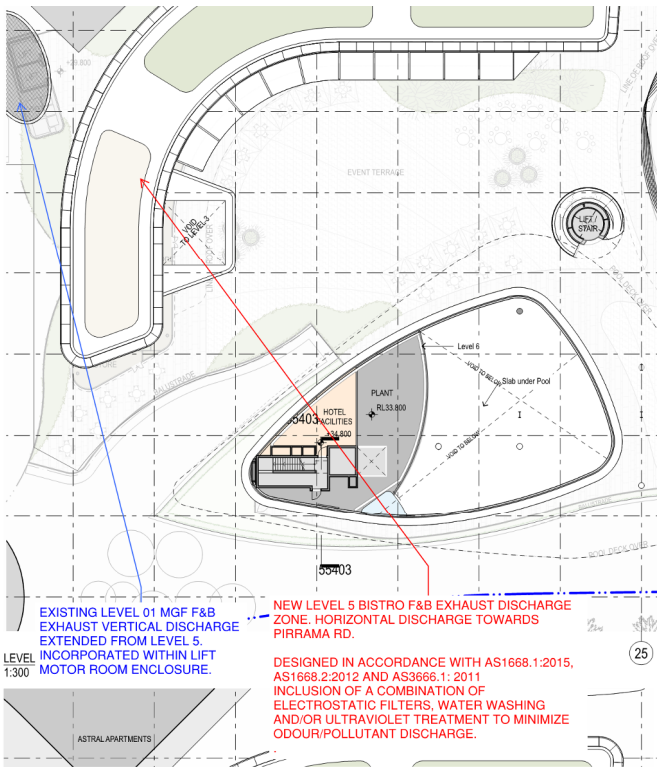

Figure 3 *Level 06 Plan view - Existing Level 01 MGF F&B and Level 05 Bistro exhaust discharge location.*

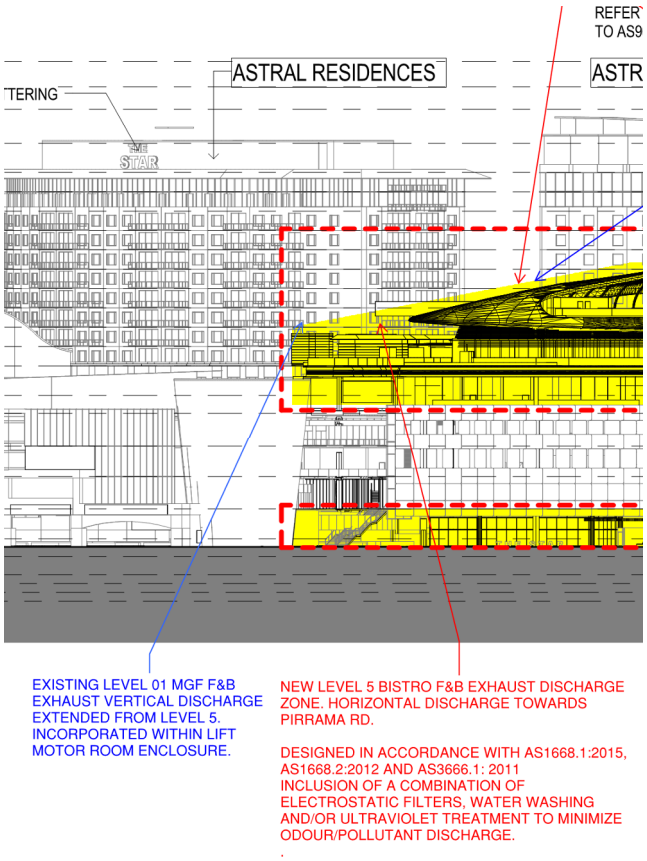

Figure 4 *Level 06 Elevation view - Existing Level 01 MGF F&B and Level 05 Bistro exhaust discharge location.*

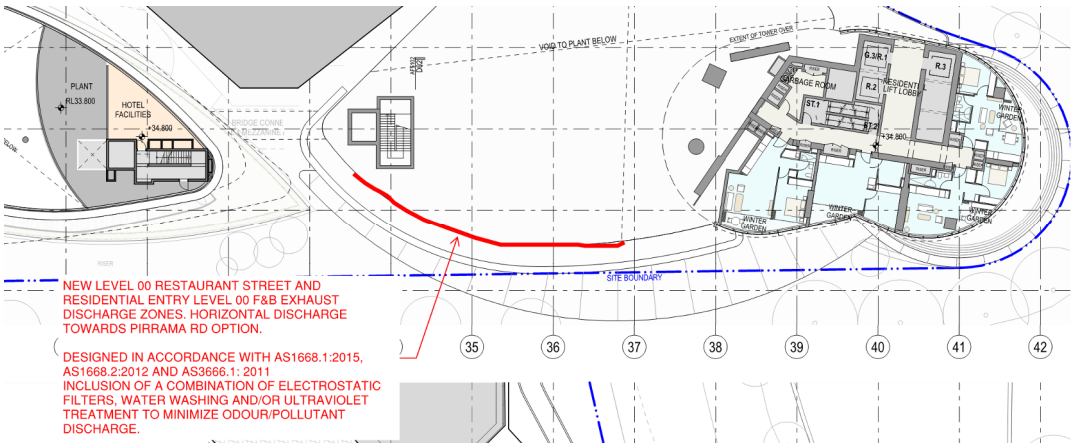

Figure 5 *Level 06 Plan view - Residential Entrance Level Restaurant (Level 00) and New Restaurant Street Level 00 exhaust discharge location.*

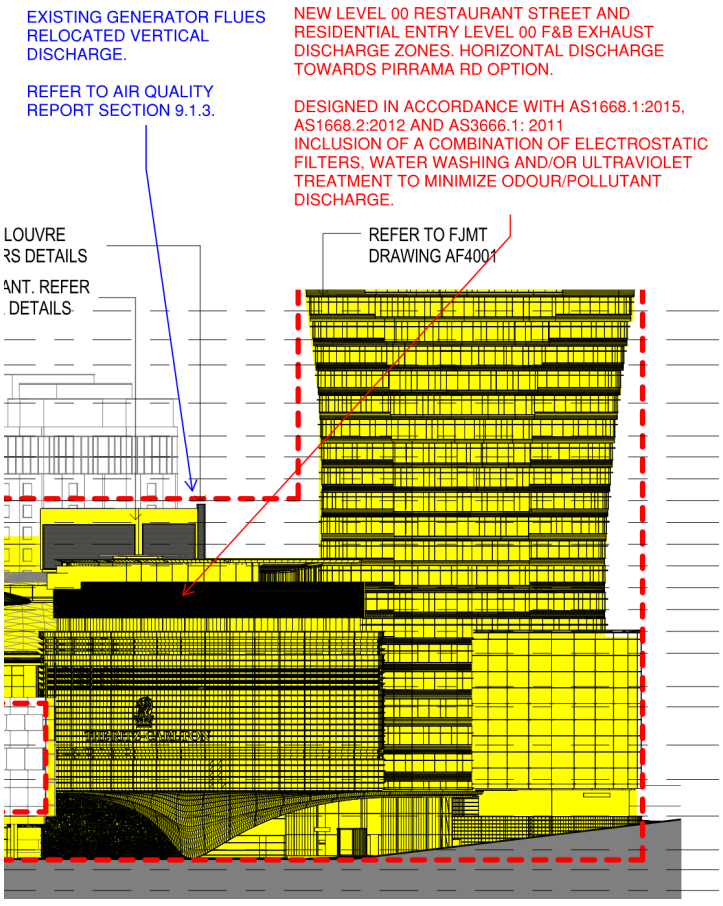

Figure 6 *Level 06 Elevation view - Residential Entrance Level Restaurant (Level 00) and New Restaurant Street Level 00 exhaust discharge location.*

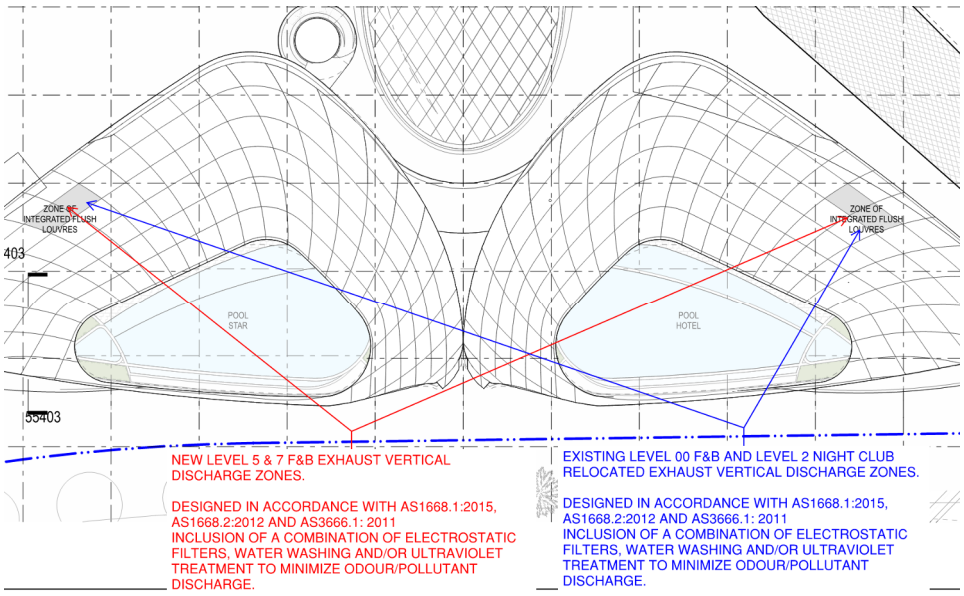

Figure 7 *Level 08 Plan view - Level 5 Sky Terrace Restaurants, Level 7 F&B, Existing Level 00 F&B and Level 02 Nightclub exhaust discharge location.*

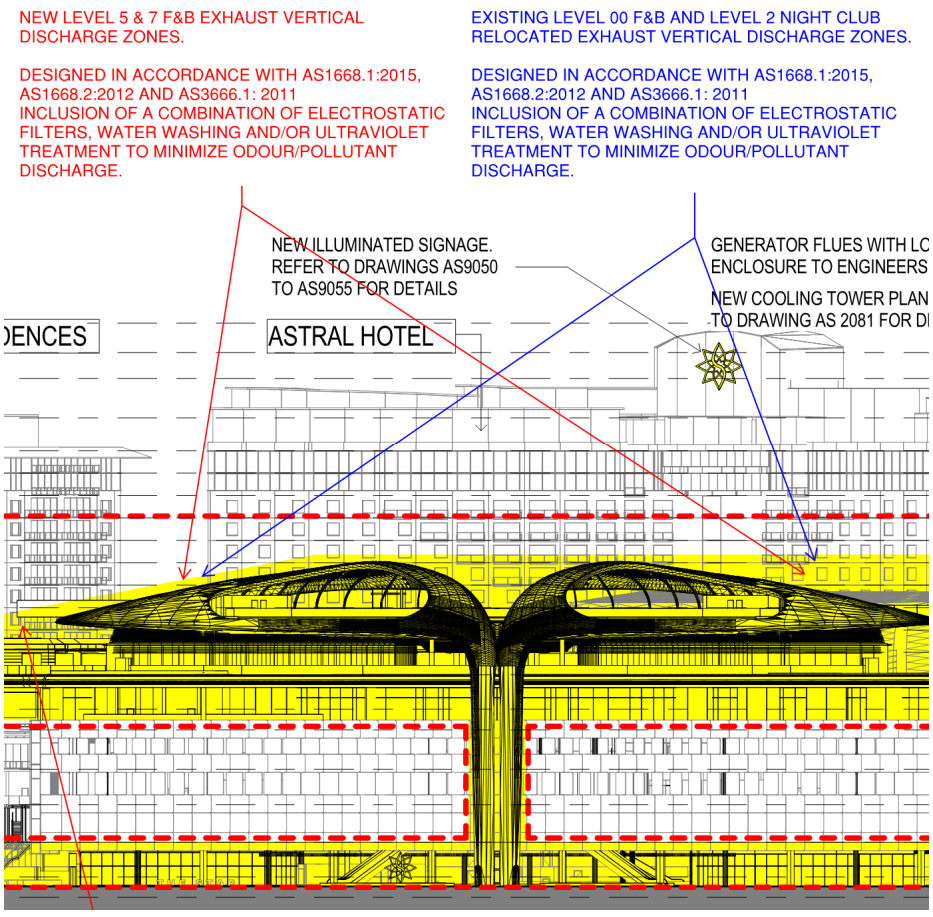

Figure 8 *Level 08 Elevation view - Level 5 Sky Terrace Restaurants, Level 7 F&B, Existing Level 00 F&B and Level 02 Nightclub exhaust discharge location.*

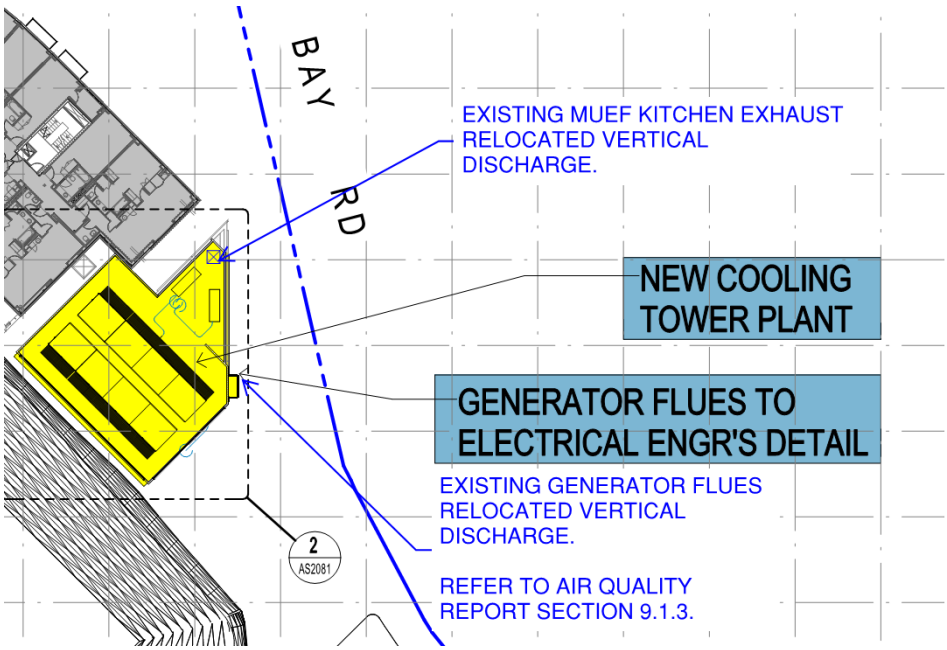

Figure 9 Level 09 Plan view - Existing MUEF kitchen exhaust discharge location.

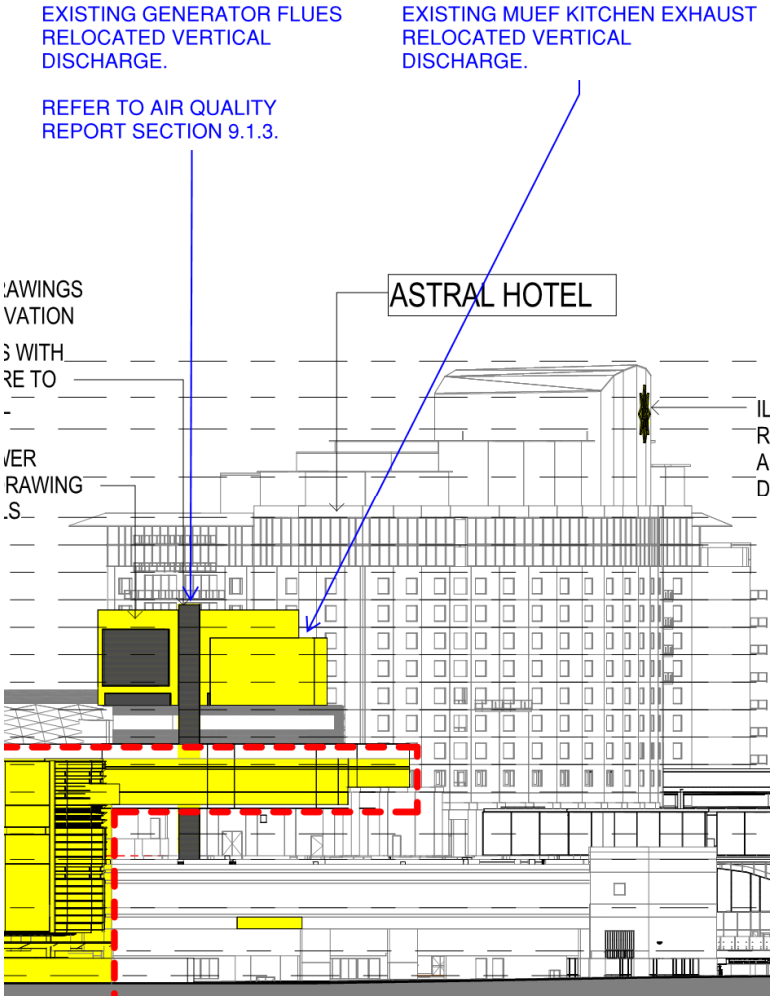

Figure 10 Level 09 Elevation view - Existing MUEF kitchen exhaust discharge location.

CONCLUSION

The proposed infrastructure and ventilation of F&B premises will comply with the relevant Australian Standards, AS1668.1:2015, AS1668.2: 2012 and AS3666.1: 2011 and with the mitigation measures discussed will have limited impact upon the surrounding (at the nearest sensitive receivers) air quality environment.

For the diesel generator flue relocation, we repeat the conclusion of the Air Quality report, the proposal (Modification 13) has limited impact upon the surrounding (at the nearest sensitive receivers) air quality environment.

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