

# TAFE NSW – Padstow Campus Outdoor Air Quality Baseline Assessment

**RAINE ROAD, PADSTOW, NSW, 2211**



Capital Insight Pty Ltd

Report No.: 51491

May 2025

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<b>Prepared For:</b>	<b>Prepared By:</b>	<b>Reviewed By:</b>
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<b>Status</b>	<b>Date</b>	<b>Prepared</b>	<b>Reviewed</b>	<b>Approved</b>
Version 1	29 May 2025	L Niven	G Murphy	J Duffy
Version 2	3 June 2025	G Murphy	L Niven	J Duffy

## 1. EXECUTIVE SUMMARY

On Monday 19<sup>th</sup> May 2025 EnviroScience Solutions was requested by Capital Insight Pty Ltd to conduct a limited outdoor air quality assessment prior at TAFE NSW – Padstow Campus, Raine Road, Padstow NSW. The purpose of the investigation was to generate a baseline air quality reading prior to the proposed development works in the nominated location of the outdoor housing for small animals to confirm the animal housing will not have any impacts on nearby residents.

The investigation included a site inspection and collection of eleven (11) fifteen-minute ambient dust samples from predetermined locations within and adjacent the proposed development area.

The sampling program comprised of the following parameters;

- Ambient Particulate Matter as PM<sup>1</sup>
- Ambient Particulate Matter as PM<sup>2.5</sup>
- Ambient Particulate Matter as PM<sup>10</sup>
- Ambient Particulate Matter as PM<sup>RSP</sup>
- Ambient Particulate Matter as Total Suspended Particulate (TSP)
- Ambient Odour

The samples taken, all recorded results that were acceptable or below concentrations when compared to the recommended exposure limits for ambient dusts. No odours were detected.

It has been determined that the outdoor section of the proposed development is likely to have a low odour and dust impact on the surrounding Environment due to the use of the site only 1-2 times per week and that the dust and odour mitigation recommendations as outlined in this report should be implemented once the site is operational.

Due to the proposed limited usage of the external areas including occupancy of up to three dogs for approximately one hour per day, coupled with regular cleaning of facilities, no significant impact external ambient air quality is expected to occur as a result of the proposed development.

## 2. GLOSSARY

Table 1 - Glossary & Key Terminology

Term	Meaning
<b>PM</b>	Particulate Matter
<b>Airborne Contaminant</b>	Means a contaminant in the form of a fume, mist, gas, vapour or dust, and in microorganisms.
<b>TWA</b>	Time Weighted Average (8-hour time weighted average). The average air concentration of a substance when calculated over a normal eight-hour working day.
<b>NATA</b>	National Association of Testing Authorities
<b>PCBU</b>	Person Conducting a Business or Undertaking



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### 3. INTRODUCTION

TAFE NSW – Padstow Campus is a vital tertiary education facility located at Raine Road, Padstow NSW. The campus comprises multiple buildings and carparks. Renovations works are proposed for Block A where construction training was undertaken including mixing of sand/mortar and building of temporary brick and cinderblock walls. The proposed development includes converting the workshop into an Animal Studies Facility expected to house small animals such as guinea pigs and rabbits as well as a up to 3 dogs per day with the outdoor area to be used for approximately 1 hour per day.

Prior to commencement of proposed works, a limited outdoor air ambient air quality assessment was conducted within the proposed work area and in adjacent areas where sensitive receptors may be located. Eleven particulate matter samples were obtained, ten on site and one off-site and observations were recorded of weather conditions and presence of any ambient odours,

### 4. SCOPE

On Monday 19<sup>th</sup> May 2025 EnviroScience Solutions was requested by Capital Insight Pty Ltd to conduct a limited outdoor air quality assessment prior at TAFE NSW – Padstow Campus, Raine Road, Padstow NSW. The purpose of the investigation was to generate a baseline air quality reading prior to the proposed development works in the nominated location of the outdoor housing for small animals to confirm the animal housing will not have any impacts on nearby residents.

The parameters selected to conduct the assessment were consistent with industry practices for testing of ambient air environments in conjunction with requests from the client. For the purposes of this study the following parameters were selected;

- Ambient Particulate Matter as PM<sup>1</sup>
- Ambient Particulate Matter as PM<sup>2.5</sup>
- Ambient Particulate Matter as PM<sup>10</sup>
- Ambient Particulate Matter as PM<sup>RSP</sup>
- Ambient Particulate Matter as Total Suspended Particulate (TSP)
- Ambient Odour

Figure 1 – Locality Map of TAFE NSW – Padstow Campus, Raine Road, Padstow NSW



## 5. METHODOLOGY

An Aeroqual Ranger PMX with a dust sampling head was used to sample ambient dust fractions:

- Ambient Particulate Matter as PM<sup>1</sup>
- Ambient Particulate Matter as PM<sup>2.5</sup>
- Ambient Particulate Matter as PM<sup>10</sup>
- Ambient Particulate Matter as PM<sup>RSP</sup>
- Ambient Particulate Matter as Total Suspended Particulate (TSP)

The Aeroqual Ranger real-time sampling devices provide real time analysis with the capability to log results for sample periods, the device was calibrated and set to run for 15-minute periods at the designated locations.

The *Safe Work Australia Guidance on the Interpretation of Workplace Exposure Standards for Airborne Contaminants, 2013* was used as reference material to compare the results where applicable.

In addition, a visual, olfactory and desktop review was undertaken of the site for assessment of ambient odours and weather conditions.

## 6. RESULTS

Eleven locations were sampled within and surrounding the proposed development area at TAFE NSW – Padstow Campus, Raine Road, NSW (Figure 2).

### 6.1. Meteorological Conditions

Weather conditions on the day were overcast with intermittent periods of rain. Unseasonally heavy rains had occurred over the previous week with the ground saturated with no dry external surfaces identified. A bricklaying class was underway during the assessment with the area excluded from sampling until students were on break during the sampling period where no dust generating works were undertaken.

Wind was blowing south southeast at 32km/hr with gusts recorded up to 48km/hr on the morning decreasing to blowing southerly at 28km/hr with 39km/hr gusts as the rainfall increased. Due to the layout of the existing buildings the wind was predominantly blowing from east to west and through the natural wind tunnels along the north western area from north to south.

This is consistent with the 9am Rose of Wind Direction of the Sydney Airport (closest location) presented in Appendix D, which shows from 1939-2019 the average wind direction is West to North West, whilst the 3pm average wind direction for the same time period is North-east to Southern.

## 6.2. Dust Monitoring Results

Results determined through the average of readings over each fifteen-minute sample period are displayed in Table 2 and compared to NSW EPA & National Environment Protection (Ambient Air Quality) Measure Standards where applicable. All sample locations produced concentrations below the adopted thresholds at the time of the assessment. On average highest ambient dust concentrations were recorded in reading R11 located in the centre of the proposed development area in the open with no shelter from vegetation or buildings.

Review of the NSW Government air quality monitoring website identified no ambient air quality station within five kilometres of the site. This website indicates locations of air quality stations which record concentration of Ambient Particulate Matter as  $PM^{2.5}$ . The site is situated between three stations, Lidcombe (4km North), Earlwood (11km Northeast) and Liverpool (11km West). Readings are taken hourly at each station and were compared to generate an approximate air quality reading for the site over the assessment period. The average concentration of Ambient Particulate Matter as  $PM^{2.5}$  over the sampling period was  $4.3\mu g/m^3$ .

No odours were detected across the investigation area at the time of sampling. Poor weather conditions may have attributed to the lack of odours detected so to the lack of activities within the immediate area. Poisonous, flammable and hazardous chemicals are stored adjacent the development area to the north.

Figure 2 – Site Plan Showing Approximate Sample Locations – TAFE NSW, Padstow Campus, Raine Road, Padstow NSW



Table 2 – Ambient Dust Results

Sample Location	PM <sub>1</sub> (µg/m <sup>3</sup> )	PM <sub>2.5</sub> (µg/m <sup>3</sup> )	PM <sub>10</sub> (µg/m <sup>3</sup> )	PM <sub>RSP</sub> (µg/m <sup>3</sup> )	TSP (µg/m <sup>3</sup> )
R1	1.0	4.6	15.7	9.1	21.1
R2	1.1	5.1	17.8	10.2	24.0
R3	1.1	5.3	18.9	10.6	25.6
R4	1.5	5.1	16.4	9.7	21.9
R5	1.0	4.9	17.4	9.9	23.5
R6	1.1	5.3	18.4	10.7	24.6
R7	1.2	5.7	19.8	11.4	26.6
R8	1.2	5.7	20.8	11.6	28.3
R9	1.2	5.8	21.0	12.0	28.3
R10	1.3	6.3	23.9	13.0	32.8
R11	1.4	6.7	26.0	13.9	35.8
<b>NEPM Guidelines Thresholds</b>	<b>Not Applicable</b>	<b>25 µg/m<sup>3</sup> - 24 Hour Average</b>	<b>50 µg/m<sup>3</sup> - 24 Hour Average</b>	<b>Not Applicable</b>	<b>Not Applicable</b>

## 7. PROPOSED DEVELOPMENT

EnviroScience understands that the proposed new development is an Animal Studies facility which will include an outdoor area which will be used for the animals to get some outside time.

### 7.1. Proposed Outdoor Areas

There will be two external areas that the animals will be able to access these areas will be;

- Outdoor Animal House
  - Grassed Area
  - High 2 metre Mesh Fence cast into footing so dogs can't dig under
  - Used for Dogs to run around and relieve themselves
  - Existing asphalt area is to covered with Artificial Grass in eastern section
  - Covered with Shade sail or roof to protect animals from sun
  - Solid Block Wall on Northern wall to Block Sun
  - Area for smaller animals (e.g. guinea pigs) to run around

Proposed usage of the facility is minimal. Information provided by the client representative indicates that up to 3 dogs will be housed in the facility at one time. During this time the animals will have limited time on site split between indoor and outdoor occupancy with outdoor usage expected to be for approximately one hour per day for stretching, running around etc. The proposed layout of the outdoor area is shown in Figure 3 below.



north to south. The overall risk of Dust and odour emissions to the surrounding sensitive receivers is considered to be low impact.

However it is recommended that the following is implemented to ensure that dust and odour impact of the site is kept to a minimum;

- Cleaning of outdoor animal areas daily following use using wet methods as to not create dust and making sure areas are well drained and that runoff is captured
- Ensure that vegetation (i.e. grass) is kept in good condition so that it provides surface coverage to underlying soils
- Designing the outdoor areas so that;
  - The openings are away from prevailing winds and upwind of receptors
  - Areas have good ventilation
- Ensuring any food stored outside is in stored in sealed containers when not in use or alternatively stored indoors
- Ensure frequent emptying of rubbish bins
- Installation of windbreaks using vegetation where required (i.e. ensure trees remain on the eastern side of the site to screen residential receptors from potential dust generation.

## 9. CONCLUSION

Based on the unseasonal environmental conditions in the lead up and on the day of sampling, the ambient dust concentrations were recorded at low concentrations and may not be considered representative of the standard ambient dust concentrations. It is recommended that should any concerns be raised from neighbouring sensitive receptors regarding dust or odour once the facility is operational that further investigations are undertaken to ensure an accurate ambient dust and odour concentration can be determined for the site and that further mitigation measures may be implemented to ensure there is no impact on the adjacent sensitive receivers.

No odours were detected within the proposed development area or adjacent the area in public spaces or near the aviation work zone. A post development assessment may be required when the site is developed and occupied to determine if any odours will be observed

It has been determined that the outdoor section of the proposed development is likely to have a low odour and dust impact on the surrounding environment due to the use of the site only 1-2 times per week and that the dust

and odour mitigation recommendations as outlined in this report should be implemented once the site is operational.

Due to the proposed limited usage of the external areas including occupancy of up to three dogs for approximately one hour once a day, coupled with regular cleaning of facilities, no significant impact on external ambient air quality is expected to occur as a result of the proposed development.

## 10. REFERENCES

NSW Work Health & Safety Act, 2011, Government Printers, Sydney.

NSW Work Health & Safety Regulation, 2017, Government Printers, Sydney.

Safe Work Australia, 2024, Guidance on the interpretation of workplace exposure standards for airborne contaminants.

Code of Practice Managing the Work Environment and Facilities, 2019, SafeWork NSW, Gosford & Safe Work Australia, Canberra.

National Health and Medical Research Council, 1996, Ambient and Interim National Indoor Air Quality Goals Recommended by NHMRC.

NSW Government Air quality website <https://www.airquality.nsw.gov.au/>

Bureau of Meteorology, Wind Roses

[http://www.bom.gov.au/climate/averages/wind/wind\\_rose.shtml#:~:text=Interpreting%20the%20wind%20rose&text=Each%20branch%20of%20the%20rose,speed%20ranges%20from%20that%20direction.](http://www.bom.gov.au/climate/averages/wind/wind_rose.shtml#:~:text=Interpreting%20the%20wind%20rose&text=Each%20branch%20of%20the%20rose,speed%20ranges%20from%20that%20direction.)

NSW Government, July 2024, Dairies guidance note: Information on good design and management practices to reduce air emissions from dairies.

NSW Government, July 2024, Beef cattle feedlots guidance note: Information on good design and management practices to reduce air emissions from feedlots



## APPENDIX A – Proposed Site Layout



**General notes**

- All dimensions and existing conditions shall be checked and verified by the contractor before proceeding with the work.
- All levels relative to 'Australian Height Datum'.
- Do not scale drawings.
- Use figured dimensions only.

**Legend**

**GA PLANS NOTES**

**REPRODUCTION OF DRAWINGS**  
THE DRAWINGS HAVE BEEN DOCUMENTED IN COLOUR. AS SUCH, THE DRAWINGS ARE REQUIRED TO BE PRINTED IN COLOUR. FAILURE TO DO SO MAY RESULT IN LOSS OF INFORMATION. BLACK & WHITE PRINTING MAY BE USED IF SPECIFIC BLACK & WHITE DOCUMENTS HAVE BEEN OBTAINED FROM fcstudio.

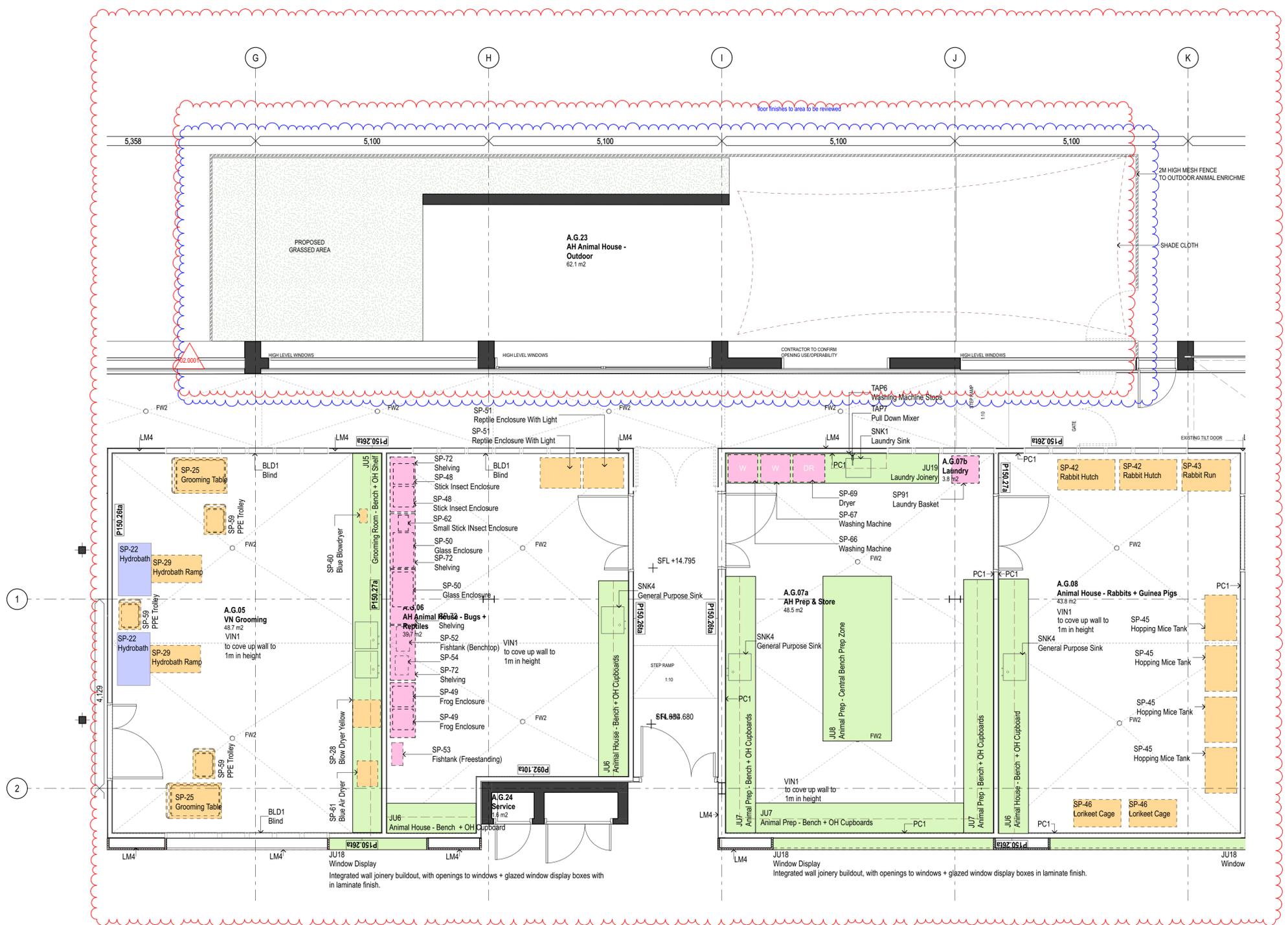
**GLAZING**  
ALL INTERNAL GLAZED PARTITIONS OR DOORS SHALL BE R60/35 REQUIRING 10mm LAM. GLAZING SPECIFICATION; REFER TO ACUSTIC REPORT FOR DETAILS

WHERE GLAZING IS INCLUDED WITHIN A PARTITION OR DOOR (i.e. VISION PANEL) IT SHOULD BE SPECIFIED TO ENSURE THAT THE OVERALL PERFORMANCE OF THE WALL OR DOOR IS NOT DEGRADED

**SINGLE GLAZING:**  
Rw0: 6.07mm LAM  
Rw0: 5.39mm LAM SMALL VISION PANEL; 10.37mm LAM WINDOW  
Rw0: 10.39mm LAM SMALL VISION PANEL; 12.37mm LAM WINDOW - LAB-TESTED INCLUDING FRAME

ALL DRAWINGS TO BE READ IN CONJUNCTION WITH ARCHITECTURAL SPECIFICATION FINISHES, FF&F FURNITURE SCHEDULES, TO BE READ IN CONJUNCTION WITH STRUCTURAL, MECHANICAL, HYDRAULIC, ACUSTIC ENGINEERING SPECIFICATIONS + DRAWINGS FOR SCOPE AND PERFORMANCE REQUIREMENTS

Code	Description	Code	Description
TAV1	Interactive Display	SP40	Staffroom Fridge
AV2	Presentation Display	SP41	Wire Racking (PPE Stand)
BB1	Bulletin Board, Type 1	SP42	Rabbit Hutch
BHR1	Broomstick Handle Rack	SP43	Rabbit Run
BLD1	Blind, Type 1	SP44	Guinea Pig Hutch
BSN1	Basin (Wall Mount)	SP45	Hopping Mice Tank
BSN2	Basin (Accessible Wall Mount)	SP46	Lorikeet Cage
BT1	Bottle Trap	SP47	Budgie Aviary
DW1	Dishwasher	SP48	Stick Insect Enclosure
FBI1	Female Sanitary Bin	SP49	Frog Enclosure
FW1	Floor Waste (Vinyl)	SP50	Glass Enclosure
FW2	Floor Waste (Vinyl Bucket Trap)	SP51	Reptile Enclosure with Light
GR1	90° Vertical Ambulant Grab Rail	SP52	Fish Tank (Benchtop)
GR2	90° Vertical Accessible Grab Rail	SP53	Fish Tank (Freestanding)
MIR1	Mirror	SP54	Hermit Crab Tank
MW1	Microwave	SP55	Bar Fridge
PR1	Printer	SP56	Portable Scales
PTD1	Surface Mounted Paper Towel Dispenser	SP57	Benchtop Anaesthetic Machine (Mobile)
PTW1	Toilet Cubical Partition system	SP58	Drip Tank
RH1	Robe Hook	SP59	PPE Trolley
SD1	Soap Dispenser	SP60	Blue Slowdryer
SNK1	Laundry Sink	SP61	Blue Air Blower
SNK2	Cleaners Sink	SP62	Small Stick Insect Enclosure
SNK3	Kitchenette Sink	SP63	Cadaver Freezer
SNK4	Sink General Cleaning	SP64	Existing Reused
SNK5	Large Sink	SP65	Existing Reused
SNK6	Surgical Prep Sink	SP66	Washing Machine (Human)
SP01	Intensive Care Unit	SP67	Washing Machine (Animal)
SP02	Endoscope (Bench Top)	SP68	Wet Bench
SP03	Benchtop ECG	SP69	Dryer
SP04	Ultrasound (mobile)	SP70	Cupboard
SP05	Centrifuge (Bench Top)	SP71	Filing Cabinet
SP06	Datex Monitoring Machine	SP72	Shelving
SP07	IM3 Dental Machine	SP73	Terrarium (Benchtop)
SP08	Oxygen Generator	SP74	Terrarium (Freestanding)
SP09	Syringe Pump	SP75	Autoclave (Old Girl)
SP10	Chemistry Analyser	SP76	Autoclave (Mid Mark)
SP11	VelLab Station	SP77	Autoclave (222)
SP12	Ultrasonic Cleaner	SP78	Wet Prep Table
SP13	Anaesthetic Machine Large (Mobile)	SP79	Stainless Steel Benches
SP14	Anaesthetic Machine Blue (Mobile)	SP80	Collapsible Crate
SP15	Anaesthetic Machine Blue (Mobile)	SP81	Collapsible Crate
SP16	Student Microscope	SP82	Collapsible Crate
SP17	XRay Processor	SP83	Collapsible Crate
SP18	CR Monitor Bench Top	SP84	Collapsible Crate (New)
SP19	Computer for CR Machine Under Bench	SP85	Clothes Line
SP20	XRay Machine + Bench	SP86	Horse Statue
SP21	XRay Viewer Quad Bay Standard	SP87	Storage Trolley
SP22	Hydrobath	SP88	Storage Trolley
SP23	Floor Scales	SP89	Large Hay Storage Bin
SP24	Fridge - Food Storage	SP90	Laundry Trolley (Mobile)
SP25	Grooming Table	SP91	Laundry Trolley (Mobile)
SP26	Stainless Trolley	SP92	Ultrasound Machine
SP27	Fibreglass Cages	SSC1	Stainless Cages
SP28	Blow Dryer-Yellow	SSC2	Stainless Cages
SP29	Hydrobath Ramp	TAP1	Mixer Tap
SP30	Stainless Trolley	TAP2	Zig Tap
SP31	PPE Blue Trolley	TAP3	Cleaners Tap
SP32	Incubator Trolley	TAP4	Accessible Basin Mixer
SP33	Shor-Line Mobile Animal Lift Table	TAP5	Time Flow Tap
SP34	Drip Stand	TAP6	Washing Machine Stops
SP35	Crash Cart	TAP7	Pull Down Mixer
SP36	Mphi Vet Trolley Orange	TAP8	Hands Free Mixer
SP38	Surgery Table	TAP9	Hose Tap
SP39	Dental X-ray Table	TRH1	Toilet Roll Holder
		WC1	WC
		WC2	Accessible WC



**Legend**  
This drawing is to be read in colour

	Supplied New by Tafe, Installed by Tafe
	Relocated from Bankstown + Installed by Tafe
	Supply + Installed by Contractor
	Relocated from Bankstown + Installed by Contractor

Rev	Date	Description	By	Chk
02	16/4/2025	100% Schematic Issue	02.0002	AMR
02	16/4/2025	100% Schematic Issue	02.0001	AMR
01	4/4/2025	50% Milestone Issue		AMR

**TBR Bankstown - Padstow Building A**

Raine Rd, Padstow  
Sydney NSW 2211

**General Purpose Classroom** Scale 1:50 @ A1  
Animal House

**Project Code** First Issued  
TBR 4/4/2025

**Sheet No.** Rev  
51510 02



## APPENDIX B – Calibration Certificate





Aeroqual Limited

460 Rosebank Road, Avondale, Auckland 1026, New Zealand.

www.aeroqual.com

### Calibration Certificate

**Calibration Date:** 07 Feb 2025

**Model:** PMX

**Serial No:** PMX 246-2000391-B

#### Measurements

	PM1 $\mu\text{g}/\text{m}^3$	PM2.5 $\mu\text{g}/\text{m}^3$	PM4 $\mu\text{g}/\text{m}^3$	PM10 $\mu\text{g}/\text{m}^3$	TSP $\mu\text{g}/\text{m}^3$
Reference Zero	0.4	0.6	0.7	0.7	0.7
PMX Zero	0.0	0.0	0.0	0.0	0.0
Reference Span	34.2	111.2	209.3	419.4	588.1
PMX Span	32.9	110.5	208.7	411.2	576.6

#### Calibration Acceptance Criteria

Zero	$\pm 1 \mu\text{g}/\text{m}^3$	Span	$\pm 8\%$
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#### Calibration Standards

	Standard	Manufacturer	Model	Serial Number
Reference	EN 16450	Palas	Fidas 200	11329
Test Aerosol	ISO 12103-1	Powder Technologies	A1 Arizona Test Dust	n/a

QC Approval: Marcus Tse



## APPENDIX C – Field Observations



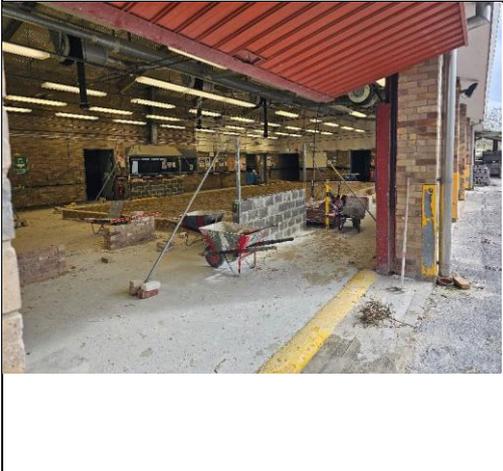
Photo	GPS Location	Description
	Latitude: -33.947480 Longitude: 151.026351	Reading R1  Adjacent brick stockpile  Northeastern section of proposed development area
	Latitude: -33.947723 Longitude: 151.026875	Reading R2  Adjacent woodchip garden bed  Eastern end of proposed development area
	Latitude: -33.947499 Longitude: 151.026211	Reading R3  Adjacent bricklaying workshop  Southern end of proposed development area  No works undertaken during sampling period





Photo	GPS Location	Description
	<p>Latitude: -33.947178 Longitude: 151.025846</p>	<p>Reading R4</p> <p>Adjacent undercover area on corner of A Block</p> <p>Western end of proposed development area</p>
	<p>Latitude: -33.947287 Longitude: 151.026043</p>	<p>Reading R5</p> <p>Adjacent toxic materials storage box on SW corner of Block K.</p> <p>Light misty rain from 8min into sample</p> <p>Northwestern end of proposed development area</p>
	<p>Latitude: -33.947525 Longitude: 151.026462</p>	<p>Reading R6</p> <p>Adjacent flammable liquid storage unit off Block K</p> <p>Carpark northeast of the proposed development area</p>





Photo	GPS Location	Description
	Latitude: -33.947786 Longitude: 151.026818	Reading R7  Eastern boundary at gate to Raine Road  East of proposed development area
	Latitude: -33.947475 Longitude: 151.026254	Reading R8  Between flammable and toxic materials storage areas of Block K.  Central northern side of proposed development area
	Latitude: -33.947737 Longitude: 151.026823	Reading R9  Opposite side of road under large tree of number 3 Raine Road  Off-site to east of proposed development area





Photo	GPS Location	Description
	<p>Latitude: -33.947346 Longitude: 151.026257</p>	<p>Reading R10</p> <p>Centre of proposed development area</p>
	<p>Latitude: -33.947552 Longitude: 151.026147</p>	<p>Reading R11</p> <p>Below covered walkway of Block G</p> <p>West of proposed development area</p>





## **APPENDIX D – Rose of Wind Direction versus Wind Speed Sydney Airport AMO**





### Rose of Wind direction versus Wind speed in km/h (01 Apr 1939 to 31 Jul 2019)

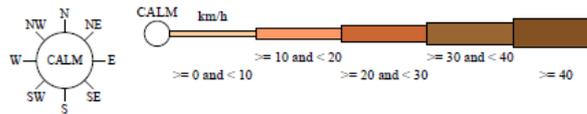
Custom times selected, refer to attached note for details

#### SYDNEY AIRPORT AMO

Site No: 086037 • Opened Jan 1929 • Still Open • Latitude: -33.9465° • Longitude: 151.1731° • Elevation 6m

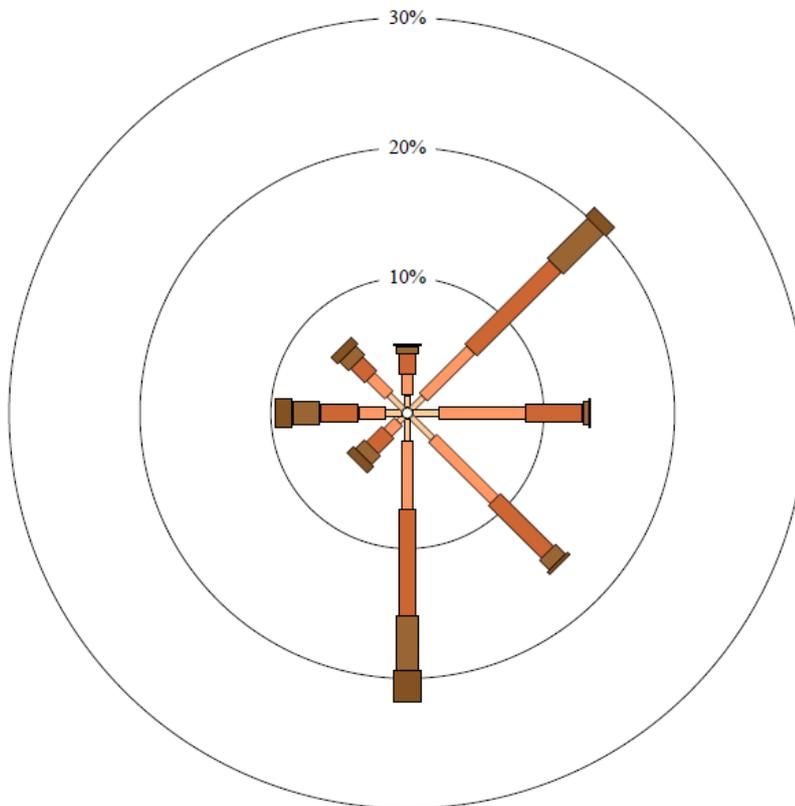
An asterisk (\*) indicates that calm is less than 0.5%.

Other important info about this analysis is available in the accompanying notes.



3 pm  
28945 Total Observations

Calm 2%





Rose of Wind direction versus Wind speed in km/h (01 Apr 1939 to 31 Jul 2019)

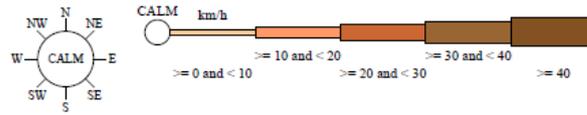
Custom times selected, refer to attached note for details

SYDNEY AIRPORT AMO

Site No: 086037 • Opened Jan 1929 • Still Open • Latitude: -33.9485° • Longitude: 151.1731° • Elevation 6m

An asterisk (\*) indicates that calm is less than 0.5%.

Other important info about this analysis is available in the accompanying notes.



9 am  
28871 Total Observations

Calm 8%

