



# Planning Approval Consistency Assessment Form

SM-17-00000111

Sydney Metro – Metro Body of Knowledge (MBoK)

<b>Assessment Name:</b>	George Street Shops remediation
<b>Prepared by:</b>	Sydney Metro
<b>Prepared for:</b>	Sydney Metro
<b>Assessment number:</b>	SMW16
<b>Type of assessment:</b>	Assessment under EP&A Act 1979, Division 5.2
<b>Version:</b>	Final (1.0)
<b>Planning approval No. (where relevant):</b>	SSI-10038
<b>Date required:</b>	October 2024
<b>iCentral number</b>	SM-24-00298027

Form information – do not alter

<b>Form number</b>	SM-17-00000111
<b>Applicable to:</b>	Sydney Metro
<b>Document Owner:</b>	Director, Planning Approvals
<b>System Owner:</b>	Executive Director, Environment, Sustainability & Planning
<b>Status:</b>	Final
<b>Version:</b>	4.0
<b>Date of issue:</b>	AUGUST 2023
<b>Review date:</b>	As required

© Sydney Metro 2023

OFFICIAL

## Table of Contents

1. Existing Approved Project.....	3
2. Description of proposed change which is the subject of this assessment .....	4
3. Timeframe.....	7
4. Site description .....	7
5. Site Environmental Characteristics.....	7
6. Justification for the proposed change.....	7
7. Environmental Benefit.....	8
8. Control Measures .....	8
9. Conditions of approval / Environmental mitigation measures .....	8
10. Impact Assessment – Construction .....	10
11. Impact Assessment – Operation.....	17
12. Consistency with the Approved Project .....	18
13. Other Environmental Approvals .....	19
14. Recommendation.....	19
Author certification.....	20
Appendix A – Condition Assessment Report.....	22
Appendix B – Heritage Review of Recommendations .....	23

## 1. Existing Approved Project

Planning approval reference details (Application/Document No. (including modifications)):

CSSI 10038 Sydney Metro West Concept and Stage 1 (11 March 2021)  
 Administrative Modification 1 (28 July 2021)  
 Modification 2 Clyde stabling and maintenance facility (3 June 2022)  
 Administrative Modification 3 (4 July 2022)  
 Administrative Modification 4 (22 December 2022)  
 Administrative Modification 5 Clyde stabling and maintenance facility – Additional Mangrove Impact (September 2023)

Date of determination:	Determination: 11 March 2021 Modification 1: 28 July 2021 Modification 2: 3 June 2022 Modification 3: 4 July 2022 Modification 4: 22 December 2022 Modification 5: 20 September 2023	Type of planning approval:	Critical State Significant Infrastructure (CSSI) (EP&A Act Division 5.2)
------------------------	---	----------------------------	--

Relevant background information (including EA, REF, Submissions Report, Director General's Report, MCoA):

Sydney Metro West Concept and Stage 1, Environment Impact Statement, April 2020  
 Sydney Metro West Concept and Stage 1, Amendment Report, November 2020  
 Sydney Metro West Concept and Stage 1, Submissions Report, November 2020  
 Sydney Metro West Concept and Stage 1, Assessment Report (SSI 10038), March 2021  
 Sydney Metro West Concept and Stage 1, Conditions of Approval (CoA), released on 11 March 2021 and updated on 28 July 2021 (Modification 1), 3 June 2022 (Modification 2), 4 July 2022 (Modification 3), 22 December 2022 (Modification 4) and 20 September 2023 (Modification 5).

Description of existing approved project you are assessing for consistency:

The approved project includes the Concept and major civil construction work between Westmead and The Bays (Stage 1 of the planning approval process). This Consistency Assessment relates to Stage 1 works, as described below.

**Sydney Metro West - all major civil construction works between Westmead and The Bays (referred to throughout as the Approved Project)**

Approved major civil construction work for Sydney Metro West between Westmead and The Bays (Stage 1 of the planning approval process) includes (refer to Section 9 of the Environmental Impact Statement (EIS)):

- Enabling works, such as demolition, utility supply to construction sites, utility adjustments and modifications to the existing transport network

- Tunnel excavation including tunnel support activities between Westmead and The Bays
- Station excavation for new metro stations at Westmead, Parramatta, Sydney Olympic Park, North Strathfield, Burwood North, Five Dock and The Bays
- Shaft excavation for services facilities
- Civil work for the stabling and maintenance facility at Clyde.

### George Street shops

Impacts on heritage items within the Parramatta metro station construction site were detailed in Chapter 12 of the EIS (Table 12-7). Heritage item Shops (and potential archaeological site) (41-59 George Street, Parramatta) was determined to have local significance on Parramatta LEP 2011 (I703) with potential for the following heritage impacts:

- Direct impact (minor) – minor impact to the remaining historic building could occur due to accidental damage during construction, which could potentially result in localised physical impact, although appropriate measures would be put in place to reduce the likelihood of impact
- Potential direct impact: vibration (minor) - Vibration modelling indicates that this item could experience vibration levels above the cosmetic damage screening criteria
- Indirect impact: views and vistas (minor and temporary) - The works would result in changes to the visual amenity and character of the site, as well as views and vistas around the site. The context of the item has been previously altered by modern development restricting views towards this item. Following the demolition of the modern developments, the construction site would potentially temporarily detract from views towards the heritage item from the northern side of George Street and intersection at Church Street.

## 2. Description of proposed change which is the subject of this assessment

The Shops (and potential archaeological site) at 41-59 George Street, Parramatta was detailed in Chapter 12 of the EIS as a local heritage item listed with Parramatta City Council, in Parramatta Local Environmental Plan 2011 (I703). The EIS identified that the item would be acquired as part of the Parramatta metro station construction site (but not to be demolished), resulting in a direct impact. Furthermore, Section 12.4 of the EIS stated that where a heritage item is located within a construction site, the item would be retained and protected. Since determination of the Approved Project, Sydney Metro has undertaken further detailed investigation of the item, to understand the full condition of the building and identify protective measures required to prevent an adverse impact. This investigation work has identified that significant weathertightness elements, including roofing, guttering, downpipes and stormwater drainage have deteriorated with age and resulted in subsequent deterioration and mould growth of internal elements, and as a result, require remediation in order to ensure the long-term integrity of the building.

An Environmental Review (SMW09) was prepared in April 2023 for the installation of metal ridge cappings on the roof of the shops as a temporary measure to prevent ingress of water to the building, where flashing was previously stolen in a vandalism event. The Heritage Impact Assessment appended to the Environmental Review identified that while the installation of the metal ridge cappings would provide sufficient weather proofing, that this solution would only be installed temporarily until a permanent restoration solution was developed.

A Condition Assessment (Appendix A) was prepared in June 2024 to inform decisions about the management of the building and documentation of appropriate rectification works. This assessment stated that whilst the condition of some elements of the building are compromised, there is a sufficient amount of original fabric remaining to inform building conservation work, including repair of damaged elements and reconstruction of missing elements.

A Heritage Review of Recommendations (Appendix B) was prepared in June 2024, which identified that elements of the roof and stormwater drainage system are missing, corroded or otherwise not functioning as intended, which is contributing to damp conditions around and within the building. As a result of the poor condition of the elements of external fabric, the interiors have been subject to considerable water ingress which has led to mould growth on both ceilings and walls. Following the completion of the Condition Assessment and Heritage Review of Recommendations, it was identified that a two part approach to remediation would be necessary. In the first instance to undertake further investigation and assessment to identify and define a full and detailed scope of remediation work and in the second instance to undertake that work.

This Consistency Assessment assesses the first part (Part 1A) of proposed works as detailed below at 43-47 George Street, Parramatta, known as George Street Shops; a separate Consistency Assessment will be completed at a later date to assess the second part (Part 1B) of proposed works once the full scope is known.

The Condition Assessment in Appendix A identifies that further investigation and assessment is required to several elements including:

1. Structural Engineer should review chimneys for potential seismic strengthening.
2. Engage Structural Engineer to investigate movement in west brick wall and cracking in brickwork.
3. Timberwork should be surveyed and deteriorated or rotted fabric identified and repair methodology prepared by Structural Engineer.

The Heritage Review of Recommendations in Appendix B identified that the following Part 1A physical works to facilitate further investigation and assessment as well as to retard deterioration until Part 1B remediation and rectification work are able to be completed.

1. Soft-strip demolition to remove mould affected carpet, insulation, ducted air conditioning including risers, and other fabric assessed in the CMP (OCP July 2023) to be of little or intrusive significance. (Recommendation 3)
2. Undertake localised destructive investigation to walls identified to be potential lath and plaster construction prior to remediation. Mortar and render samples to be taken from affected walls for mortar analysis to inform remediation work (Recommendation 4)
3. Temporary removal of timber floorboards (ground and first floor levels) to facilitate investigation of sub-floor ventilation and condition of structural timbers as described in the Condition Assessment (Recommendation 6)
4. Brick dust samples to be taken from damp affected walls for salt analysis to inform desalination of masonry fabric (Recommendation 8)
5. Engage a specialist Structural Engineer to inspect structural timbers (floor and roof structure) once fabric is opened up. (Recommendation 10)

The proposed recommendations for remediation works are provided in Table 3 (external) and Table 4 (internal) in Appendix A and within the recommendations provided in Appendix B. The physical works not identified in the Part 1A scope above shall be assessed and undertaken separately under Part 1B once the full scope of work is known.

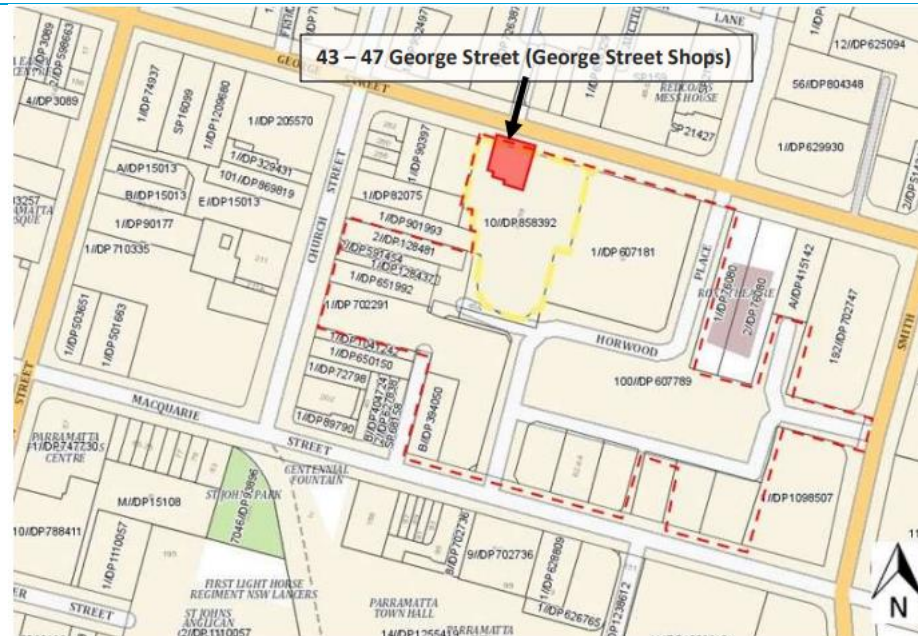


Figure 1 – Location of works. Cadastral plan showing the subject site at 43-47 George Street shaded in red with a continuous red outline. The extent of Parramatta Metro Precinct is indicated by a dashed red line; the lot boundary for 41-59 George Street is indicated by a dashed yellow line.

Source: NSW ePlanning Spatial Viewer (Figure 1-2 of Appendix B).

The proposed works against the approved project, is shown in Table 1 1- Comparison of the proposal with relevant elements of the Approved Project below.

Table 1- Comparison of the proposal with relevant elements of the Approved Project

Relevant elements of the Approved Project	Proposed change
Table 12-7 of the EIS states that there is potential for minor impact to the remaining historic building due to accidental damage during construction, which could potentially result in localised physical impact.	The proposed remediation works would consist of direct impacts to George Street Shops in order to physically remove fabric of little or no significance (soft-strip work) and to undertake localised destructive investigation as required to assess the necessary scope of physical work required. Whilst the proposed direct impacts aren't accidental, they are required to reduce the risk of exposure to mould and to prevent structural damage in order to provide conservation works to the heritage item.

OFFICIAL

### 3. Timeframe

Works are proposed to commence Q4 2024.

### 4. Site description

Parramatta metro station construction site as described in Chapter 9 of the EIS, covers about 24,150m<sup>2</sup> within the block bounded by George, Church, Macquarie and Smith streets. The site previously contained commercial buildings and a multi-storey car park.

George Street Shops are part of a larger site at 41-59 George Street, the whole site of which is subject to statutory heritage listing at a local level. This site is on Lot 10, Deposited Plan 858392, located within the City of Parramatta Council. The cadastral register comprises the following land parcels:

- 41 George Street, Parramatta.
- 43-47 George Street, Parramatta (George Street Shops), a locally listed heritage item.
- 49-59 George Street, Parramatta.

The study area for this Consistency Assessment is the shops building at 43-47 George Street, Parramatta (George Street Shops). It does not include the additional parcels of land comprising the full extent of the lot boundary for 41- 59 George Street or the amalgamated site area of the Parramatta Metro Precinct.

The site location is provided in Figure 1.

### 5. Site Environmental Characteristics

The area surrounding the construction site is mainly commercial, typically general office or retail use.

The heritage item George Street Shops is located within the Parramatta metro station construction site. It is registered as a local heritage item on Parramatta LEP 2011 (1703) and the site is identified as a potential archaeological site and may contain relics of State Significance relating to the c1790 convict huts recorded in a 1792 map. As the item has been acquired as part of the Parramatta metro station construction site, the item is also listed in the Sydney Metro Heritage and Conservation Register, in accordance with Section 170 of the Heritage Act (1977). The Victorian Regency two-storey shop building at 43-47 George Street is of significance within NSW for historic, aesthetic and scientific reasons and a rare example of an early commercial / residential building built before 1844.

### 6. Justification for the proposed change

This Consistency Assessment is required to provide remediation and conservation works to the heritage item to prevent the deterioration of significant fabric. As identified in the Heritage Review of Recommendations in Appendix B, excessive damp conditions within the building have resulted in mould growth on interior building material surfaces as well as the presence of elevated levels of airborne mould spores. This can pose health risks to occupants and individuals entering the building, and while the building is currently vacant, SafeWork NSW indicates that mould absorbs substances (organic material) from building surfaces, eventually destroying them in the process. Left unchecked mould erodes building materials, furnishings and can cause structural damage to buildings.

The proposed remediation works constitute essential works both in terms of maintaining the building and/or preventing further damage in accordance with the objectives of Section 118 of the *NSW Heritage Act 1977* and in terms of human health and safety.

As noted in the Condition Assessment (Appendix A) whilst the condition of some elements of the building are compromised, there is a sufficient amount of original fabric remaining to inform building conservation work.

### 7. Environmental Benefit

The proposed Part 1A works would provide access to investigate and assess necessary Part 1B works to facilitate the implementation protective measures to the building to prevent the further ingress of water and prevent adverse impacts to the heritage significance of the item. The scope would ensure the long-term integrity of significant heritage fabric. Furthermore, the proposed works would ensure the protection of human safety and prevent deterioration of the building in order to enable its future adaptive re-use.

### 8. Control Measures

Will a project and site specific EMP be prepared?	<input checked="" type="checkbox"/> Yes	Are appropriate control measures already identified in an existing EMP?	<input checked="" type="checkbox"/> Yes
	<input type="checkbox"/> No		<input type="checkbox"/> No

### 9. Conditions of approval / Environmental mitigation measures

Number	Condition of Approval/ Environmental mitigation measure	Discussion on relevance and consistency for proposed change
D13	<p>The Proponent must not destroy, modify or otherwise affect any Heritage item not identified in documents referred to in Condition A1 of this schedule. Unexpected heritage finds identified by Stage 1 of the CSSI must be managed in accordance with the Unexpected Finds Protocol outlined in Conditions D31 to D33 of this schedule. Consideration of avoidance and redesign to protect state significant unexpected finds must be addressed where this condition applies.</p> <p>Note: Affect in this condition means any impact above "little to no impact" as defined in the Material Threshold Policy (Heritage NSW, 2020)</p>	<p>The Heritage Review of Recommendations in Appendix B of this Consistency Assessment provided the Preliminary Mould Assessment prepared in July 2023. The preliminary remediation works identified in the assessment are required to remediate affected fabric and make the building safe for occupation. While proposals for remediation must be developed further in consultation with an accredited IICRC contractor, the potential to remove some affected porous elements has been identified.</p> <p>The Heritage Review of Recommendations (Appendix B) detailed that much of the affected fabric, such as plasterboard, is reconstructed fabric which in principle can be removed and replaced as necessary without impacting on the overall heritage significance of the building in conjunction with mitigation strategies.</p> <p>Preliminary recommendations are identified in Section 6.1 of Appendix B and Section 5.1 of Appendix A.</p>



<p>D16</p>	<p>During construction, the Proponent must implement protective measures to prevent adverse impacts on the heritage significance of the Victorian Regency terraced shops at 41-45 George Street, Parramatta and Kia Ora Georgian House at 64 Macquarie Street, Parramatta. Before installing such measures, the advice of a suitably qualified and experienced built heritage expert must be obtained and implemented to ensure any such work does not have an adverse impact on the heritage significance of the item. Protection measures must also consider and avoid potential impacts to significant historical archaeology and seek the advice from the Excavation Director approved under Condition D27 below.</p>	<p>The Condition Assessment (Appendix A) details that whilst the condition of some elements of the building are compromised, there is a sufficient amount of original fabric remaining to inform building conservation work, including repair of damaged elements and reconstruction of missing elements. There are defects to the roof and associated rainwater goods and stormwater system that require repair/replacement in order to protect heritage fabric.</p> <p>The rectification works require further assessment which includes some localised destructive investigation in order to complete a Structural Engineering Assessment. Preliminary recommendations are identified in Table 3 (external) and Table 4 (internal) in Appendix A.</p> <p>As noted in The Heritage Review of Recommendations in Appendix B, proposals to remediate mould affected surfaces are protective measures in and of themselves as left untreated, the mould has the potential to cause decay to the built fabric. As such, measures to treat mould would have a positive impact that supports retention of the building overall and its heritage significance through prevention of mould-induced decay.</p> <p>The preliminary recommendations in Appendix B and are broadly appropriate to meet objectives for both protection of fabric (through remediation of mould) and protection of human safety. Preliminary recommendations to mitigate against potential adverse impacts are identified in Section 6.1 of Appendix B and Section 5.1 of Appendix A.</p>
<p>Will the proposed change be consistent with the conditions of approval?</p>	<p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>	

## 10. Impact Assessment – Construction

Aspect	Nature and extent of impacts (negative and positive) during construction (if control measures implemented) of the proposed change, relative to the relevant impact in the Approved Project	Proposed Control Measures in addition to project CoA and REMMs	Consistent Impact Y/N	Do any CoA need to be changed? Y/N	Endorsed	
					Y/N	Comments
Biodiversity	No change from approved project.	No additional measures required	Y	N	Y	
Water	No change from approved project.	No additional measures required	Y	N	Y	
Soils and contamination	<p>Section 20.7.2 of the EIS states that the soils, groundwater and vapour in the vicinity of the construction site have a moderate potential contamination risk due to current and historical activities.</p> <p>The proposed remediation work would involve some localised ground disturbing activities to allow for repair/replacement of drainage and sub-floor ventilation. This is anticipated to be minor, localised excavation and ground disturbance in comparison to the Approved Project. Any potential impacts would be managed in accordance with existing conditions and mitigation measures within the CEMP and CEMP sub-plans for the Approved Project.</p>	No additional measures required	Y	N	Y	
Air quality	<p>There is potential for localised air quality impacts during removal of mould growth and spores and affected porous building material. The proposed mould remediation would be conducted by an accredited Institute of inspection cleaning and restoration certification (IICRC) mould remediation contractor and specific remediation strategies would be employed to reduce the risk to workers and occupants during remediation.</p> <p>The proposed remediation works have the potential for localised air quality impacts associated with the construction works required and delivery of material. These impacts are to be managed as per the Principal contractor's Air</p>	No additional measures required	Y	N	Y	

OFFICIAL

Aspect	Nature and extent of impacts (negative and positive) during construction (if control measures implemented) of the proposed change, relative to the relevant impact in the Approved Project	Proposed Control Measures in addition to project CoA and REMMs	Consistent Impact Y/N	Do any CoA need to be changed? Y/N	Endorsed	
					Y/N	Comments
	<p>Quality Management Procedure. The air quality impacts are anticipated to be consistent with the impacts assessed for the Approved Project.</p> <p>The proposed works would not result in any change to the construction methodology or construction machinery to be used.</p>					
Noise and vibration	<p>Construction noise and vibration was assessed in Chapter 11 and Technical Paper 2 of the EIS for the Approved Project.</p> <p>The area surrounding the construction site is mainly commercial, typically general office or retail use. Residential receivers are generally on the outskirts of the catchment. There are many 'other sensitive' receivers in this catchment, including education and a number of nearby hotels and places of worship.</p> <p>The proposed remediation work would consist of but not limited to physical removal of mould growth and spores, and affected porous building material and replacement or repair to damaged elements of the building and reconstruction of missing elements. This has the potential for localised noise impacts, however any impacts are considered to be negligible relative to the Approved Project.</p> <p>Table 41 of Technical Paper 2 identified the noise management level (NML) exceedances from surface construction sites for all receiver types. This predicted that for surface construction the peak noise intensive works has potential for the predicted worst case to be 11-20 dB above NML.</p> <p>There is also potential for minor increase in heavy vehicles for delivery associated with the proposed works.</p>	No additional measures required	Y	N	Y	

Aspect	Nature and extent of impacts (negative and positive) during construction (if control measures implemented) of the proposed change, relative to the relevant impact in the Approved Project	Proposed Control Measures in addition to project CoA and REMMs	Consistent Impact Y/N	Do any CoA need to be changed? Y/N	Endorsed	
					Y/N	Comments
	Noise and vibration impacts would continue to be managed in accordance with the measures and processes outlined in the Construction Noise and Vibration Standard.					
Aboriginal Culture and Heritage	<p>Section 13.7.2 of the EIS identified one recorded area of archaeological potential within the Parramatta metro station construction site (AHIMS ID 45-6-3582) around 48 Macquarie Street and 220-230 George Street. The assessment found that the item and surrounding area was of high significance to Aboriginal people, and that the archaeological potential for the area is moderate to high.</p> <p>The proposed works would involve minor localised ground disturbing works to allow for repair/replacement of drainage and sub-floor ventilation. Any potential impacts would be managed in accordance with Condition AH3 and AH4.</p>	No additional measures required	Y	N	Y	
Historic Heritage	<p>Potential impacts to items of Historic Heritage were assessed in Chapter 12 and Technical Paper 4 of the EIS.</p> <p>George Street Shops was determined to have the following impacts:</p> <ul style="list-style-type: none"> <li>• Direct impact (minor) – minor impact to the remaining historic building could occur due to accidental damage during construction, which could potentially result in localised physical impact, although appropriate measures would be put in place to reduce the likelihood of impact</li> <li>• Potential direct impact: vibration (minor) - Vibration modelling indicates that this</li> </ul>	Recommendations have been provided in Section 6 of Heritage Review of Recommendations (Appendix B) and Section 5 of Condition Assessment Report (Appendix A).	Y	N	Y	

Aspect	Nature and extent of impacts (negative and positive) during construction (if control measures implemented) of the proposed change, relative to the relevant impact in the Approved Project	Proposed Control Measures in addition to project CoA and REMMs	Consistent Impact Y/N	Do any CoA need to be changed? Y/N	Endorsed	
					Y/N	Comments
	<p>item could experience vibration levels above the cosmetic damage screening criteria</p> <ul style="list-style-type: none"> <li>Indirect impact: views and vistas (minor and temporary) - The works would result in changes to the visual amenity and character of the site, as well as views and vistas around the site.</li> </ul> <p>A Heritage Review of Recommendations (Appendix B) and a Condition Assessment Report (Appendix A) have been prepared for the proposed works. The proposed works provide essential works both in terms of maintaining the building and/or preventing further damage to the heritage item and in terms of human health and safety. The purpose of the remediation works would be to correct the moisture problem and to remove mould and contaminated materials to prevent human exposure and further damage to building materials and contents. As noted in Appendix A, there is a sufficient amount of original fabric remaining to inform building conservation work, including repair of damaged elements and reconstruction of missing elements.</p> <p>Whilst further direct impacts are required to George Street than was anticipated in the EIS, as a result of the poor condition to the external and internal fabric, the proposed works are required to retain and conserve the heritage item in accordance with Conditions D13 and D16.</p> <p>The proposed works would not involve more than negligible localised ground disturbing works and would not affect the significance of George Street</p>					

Aspect	Nature and extent of impacts (negative and positive) during construction (if control measures implemented) of the proposed change, relative to the relevant impact in the Approved Project	Proposed Control Measures in addition to project CoA and REMMs	Consistent Impact Y/N	Do any CoA need to be changed? Y/N	Endorsed	
					Y/N	Comments
	Shops, including their industrial setting and landmark qualities. Any visual impact associated with the proposed remediation work including installation of hoarding and use of machinery, would be minor and temporary in nature and would have negligible visual impacts to the setting of the items. Any potential impacts to the heritage item would be managed through the Parramatta station Principal contractor's Heritage Management Plan.					
Community and socio-economic	No change from the approved project. Relevant mitigation measures and Conditions of Approval for the project would continue to apply to minimise any community and socio-economic impacts.	No additional measures required	Y	N	Y	
Traffic and transport	The anticipated vehicle numbers (heavy and light vehicles) at the Parramatta Station construction site over a typical day are provided in Figures 10-8 and Figure 10-9 of the EIS. The EIS anticipated up to 24 light vehicle movements per hour (6-7AM and 6-7PM) and up to 22 heavy vehicle movements per hour (7AM-6PM) for site establishment. Vehicle movements would be required for the delivery of construction material and removal of mould and contaminated materials and damaged elements. There is potential for a minor increase of delivery vehicles. However, any impacts would be short-term only and will be managed per the Principal contractor's Construction Traffic Management Plan.	No additional measures required	Y	N	Y	
Waste and resource management	There is potential for minor waste impacts as a result of the proposed remediation works and	No additional measures required	Y	N	Y	

OFFICIAL

Aspect	Nature and extent of impacts (negative and positive) during construction (if control measures implemented) of the proposed change, relative to the relevant impact in the Approved Project	Proposed Control Measures in addition to project CoA and REMMs	Consistent Impact Y/N	Do any CoA need to be changed? Y/N	Endorsed	
					Y/N	Comments
	removal of mould and contaminated materials and damaged elements. The waste material from construction activities will be managed in accordance with relevant mitigation measures and Conditions of Approval for the project and the Paramatta station Principal contractor's Construction Environment Management Plan to ensure waste is disposed of appropriately.					
Visual	<p>Visual impacts associated with construction of the Approved Project were assessed in Technical Paper 5 of the EIS.</p> <p>Daytime visual impacts (during construction) at Parramatta construction site were considered in Section 6.4.2. The assessment identified that George Street includes several heritage listed buildings with west terminated by gatehouses in the historic Parramatta Park and is therefore of local sensitivity. These important views, however, are not present in the vicinity of the construction site. Overall, it was concluded that there would be a minor adverse landscape impact associated with construction of the Approved Project, with these impacts being primarily associated with reduction in the quality of George Streets streetscapes due to changes in amenity and permeability.</p> <p>There is potential for visual impacts associated with the external remediation and repair work to the roof and associated rainwater goods and stormwater system, associated with hoarding and scaffolding. This may have minor and temporary impacts to the heritage item and receivers.</p> <p>Similar to the Approved Project, there would be minor visual impacts associated with construction works, plant and equipment and any temporary</p>	No additional measures required	Y	N	Y	

Aspect	Nature and extent of impacts (negative and positive) during construction (if control measures implemented) of the proposed change, relative to the relevant impact in the Approved Project	Proposed Control Measures in addition to project CoA and REMMs	Consistent Impact Y/N	Do any CoA need to be changed? Y/N	Endorsed	
					Y/N	Comments
	fencing and safety measures implemented. The project would adopt all appropriate mitigation measures to minimise visual intrusiveness to these receivers where possible. Any visual impact associated with the proposed remediation works and associated hoarding/scaffolding would be short-term and a negligible visual impact beyond what was assessed in the Approved Project.					
Land use and property	No change from approved project.	No additional measures required	Y	N	Y	
Hazard and risk	The purpose of the proposed mould remediation is to correct the moisture problem at George Street Shops and to remove mould and contaminated materials to prevent human exposure and further damage to building materials and contents. The works would provide essential works both in terms of maintaining the building and/or preventing further damage in accordance with the objectives of Section 118 of the <i>NSW Heritage Act 1977</i> and in terms of human health and safety. From a health perspective, the proposed mould remediation would be conducted by an accredited IICRC mould remediation contractor and specific remediation strategies would be employed to reduce the risk to workers and occupants during remediation.	No additional measures required	Y	N	Y	
Other <i>Such as geotechnical, climate change, cumulative</i>	No change from approved project.	No additional measures required	Y	N	Y	



## 11. Impact Assessment – Operation

The proposed works are during construction only.

Aspect	Nature and extent of impacts (negative and positive) during construction (if control measures implemented) of the proposed change, relative to the relevant impact in the Approved Project	Proposed Control Measures in addition to project CoA and REMMs	Consistent Impact Y/N	Do any CoA need to be changed? Y/N	Endorsed	
					Y/N	Comments
Biodiversity	No change from approved project.	No additional measures required	Y	N		
Water	No change from approved project.	No additional measures required	Y	N		
Soils and contamination	No change from approved project.	No additional measures required	Y	N		
Air quality	No change from approved project.	No additional measures required	Y	N		
Noise and vibration	No change from approved project.	No additional measures required	Y	N		
Aboriginal Culture and Heritage	No change from approved project.	No additional measures required	Y	N		
Historic Heritage	No change from approved project.	No additional measures required	Y	N		
Community and socio-economic	No change from approved project.	No additional measures required	Y	N		
Traffic and transport	No change from approved project.	No additional measures required	Y	N		
Waste and resource management	No change from approved project.	No additional measures required	Y	N		
Visual	No change from approved project.	No additional measures required	Y	N		
Land use and property	No change from approved project.	No additional measures required	Y	N		
Hazard and risk	No change from approved project.	No additional measures required	Y	N		
Other	No change from approved project.	No additional measures required	Y	N		

## 12. Consistency with the Approved Project

Question	Response
Is the project (including the proposed changes) consistent with the conditions of approval?	Yes. The proposed remediation works at Parramatta Station construction site would be consistent with the conditions of approval and allows for protection of heritage fabric and protection of human safety.
Is the project (including the proposed changes) consistent with the objectives and functions of elements of the Approved Project?	Yes. The changes identified in this assessment are consistent with the objectives and functions of the elements of the Approved Project. The purpose of the proposed change is to provide remediation and conservation works to the heritage item to reduce the risk of human exposure to mould and to prevent structural damage to George Street Shops.
Are the environmental impacts of the proposed change consistent with the impacts of the approved project?	The proposed works would result in a change to heritage impact as assessed in the EIS. However, the proposed remediation work constitutes essential works both in terms of maintaining the building and/or preventing further damage in accordance with the objectives of Section 118 of the <i>NSW Heritage Act 1977</i> and in terms of human health and safety. Any potential environmental impacts would be adequately managed through the use of existing REMMs and Conditions of Approval.
Are there any new environmental impacts as a result of the proposed works/project changes?	The proposed change would not result in new environmental impacts beyond those considered in the Approved Project. The proposed works would result in a change to heritage impacts as assessed in the Approved Project, however the nature and scale of impact would be consistent.
Are the impacts of the proposed activity/works known and understood?	Yes. The impacts of the proposed works are known and understood.
Are the impacts of the proposed activity/works able to be managed so as not to have an adverse impact?	Yes. The impacts of the proposed works can be managed so as to avoid an adverse impact. The purpose of the proposed remediation works is to prevent further human exposure and damage to building materials and contents.
Would any Conditions of Approval be required to be changed as a result of the proposed change (having regard to the above assessment)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Is the proposed change/s consistent with the approval (having regard to the above assessment)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

### 13. Other Environmental Approvals

Identify all other approvals required for the proposed works:	N/A
---	-----

### 14. Recommendation

Based on the above impact assessment, and with reference to the *Sydney Metro West – Concept and Stage 1 (major civil construction between Westmead and The Bays) Environmental Impact Statement*, *Sydney Metro West – Concept and Stage 1 (major civil construction between Westmead and The Bays) Submissions Report*, *Sydney Metro West – Concept and Stage 1 (major civil construction between Westmead and The Bays) Amendment Report*, including the conditions of approval, it is recommended that:

Tick relevant box	
The proposed change has negligible or more than negligible impacts on the environment or community however is consistent with the Approval, including the conditions of approval. The proposed impacts are consistent with those assessed for the Approved Project (i.e., does not trigger a change to the conditions of approval).	✓
The proposed change is not consistent with the Approved Project including the conditions of approval and would be subject to a separate modification application.	
The proposed change is not substantially the same as the Approved Project and is considered a radical transformation. A new planning pathway should be considered.	

## Author certification

I certify that to the best of my knowledge this Consistency Checklist:

- Examines and takes into account the fullest extent possible all matters affecting or likely to affect the environment as a result of activities associated with the proposed change; and
- Examines the consistency of the proposed change with the Approved Project; is accurate in all material respects and does not omit any material information.

Name:	Isabella Caruso	Signature:	<i>Isabella Caruso</i>
Title:	A/ Manager Planning Approvals		
Company:	Sydney Metro	Date:	24 October 2024

## Assessment Supporting Signature

Application supported and submitted by

Name:	Cathy Lestrangle	Date:	24.10.2024
Title:	A/ Senior Manager Planning Approvals	Comments:	N/A
Signature:	<i>Cathy Lestrangle</i>		


## Assessment Endorsement

Based on the above assessment, are the impacts and scope of the proposed change consistent with the existing Approved Project?

Yes  The proposed change is consistent with the Approved Project and no further assessment is required.

No  The proposed change is not consistent with the Approved Project.

A modification or a new activity approval/ consent is required. Advise Senior Project Manager of appropriate alternative planning approvals pathway to be undertaken.

Endorsed by			
Name:	Ben Armstrong	Date:	25 October 2024
Title:	Director Project (Sydney Metro West) Environment, Sustainability and Planning	Comments:	
Signature:			

---

## Appendix A – Condition Assessment Report

# 43-47 GEORGE STREET, PARRAMATTA

(George Street Shops)

Condition Assessment Report (Roof & Stormwater Drainage)



For Gamuda Laing O'Rourke Consortium (GLC)

Job No 23065

Issue B – 11 June 2024

### Report Register & Document Status

The following register indicates the development and issue number of this report, undertaken by OCP Architects.

Issue	Date	Purpose	Author
A	11 April 2024	Issue A for Client review	Karen Urquhart & Milena Crawford
B	11 June 2024	Updated based on Client review	Karen Urquhart & Milena Crawford

### Copyright

OCP Architects has, where possible, referenced the historical sources and reference material within this report. Reasonable effort has been made to identify, contact, acknowledge and obtain permission to use material from the relevant copyright holders. Copyright in this report remains with OCP Architects Pty Ltd ('OCP') and in the owners of any pre-existing historic source or reference material.

### Right to Use

OCP Architects grants the right for the client to reproduce or use this report, specific to this project and site, unless the use infringes on other copyright or rights of OCP Architects or third parties.



## CONTENTS

<b>1</b>	<b>INTRODUCTION .....</b>	<b>1</b>
1.1	Scope of Assessment and Limitations.....	1
1.2	Site Identification .....	1
1.3	Methodology and Terminology.....	3
1.4	Authorship.....	3
1.5	Heritage Listings .....	3
1.5.1	Statutory heritage listings .....	3
1.5.2	Non-statutory heritage listings .....	4
<b>2</b>	<b>HISTORICAL CONTEXT .....</b>	<b>5</b>
2.1	Chronology and Sequence of Development, George Street Shops .....	5
<b>3</b>	<b>STATEMENT OF SIGNIFICANCE.....</b>	<b>8</b>
<b>4</b>	<b>PHYSICAL SURVEY .....</b>	<b>9</b>
4.1	General Description .....	9
4.2	Physical Condition .....	11
4.2.1	General Condition .....	11
4.2.2	General comments on timber structure .....	18
4.3	Significance Gradings and Fabric Condition Survey .....	21
4.3.1	George Street Shops .....	21
<b>5</b>	<b>CONCLUSION AND RECOMMENDATIONS.....</b>	<b>30</b>
5.1	Recommendations .....	30
5.2	Conclusion .....	31
	<b>APPENDIX A – Franklins Australia (April 2024), Parramatta Heritage Building Hydraulic Investigation Report.....</b>	<b>32</b>
	<b>APPENDIX B –Architectural Leadworks P/L (April 2024), 43-47 George Street, Parramatta, Roof Report.....</b>	<b>33</b>

## 1 INTRODUCTION

This report has been prepared by OCP Architects for Gamuda Laing O'Rourke Consortium (GLC) to assess the physical condition of the building located at 43-47 George Street, Parramatta, known as George Street Shops. The building is currently unoccupied and the focus of this report in accordance with the brief is assessment of the roof and stormwater drainage system with a view to informing the approach to essential repairs to ensure that the building is weathertight. The subsequent recommendations made as part of this condition assessment are therefore intended to inform decisions about the management of the building and documentation of appropriate rectification works.

### 1.1 Scope of Assessment and Limitations

OCP Architects were engaged by GLC to review the condition of the George Street Shops, specifically in relation to the roof and stormwater drainage system, elements of which are missing, corroded or otherwise not functioning as intended, which is contributing to damp conditions around and within the building. This report has been prepared to assess the physical condition of these elements. Documentation to address the mould growth within the interior spaces has been addressed in a separate report and is not specifically addressed in this report.

This report is based upon physical inspection of the site undertaken by OCP Architects on 19 March 2024. The inspection was undertaken concurrently with Heritage Specialist Roofer Kevin Allan of Architectural Leadworks Pty Ltd. Physical investigation via closed-circuit television (CCTV) was also undertaken on this date by Franklins Australia, with the hydraulic team led by Michael Breed, Operation Manager (CCTV & Jetting).

The physical inspections of the site were undertaken externally and involved visual review of the roof from an elevated working platform (EWP) in addition to review from ground level. No fabric was removed during the course of investigations.

### 1.2 Site Identification

The George Street Shops are part of a larger site known as 41-59 George Street, the whole site of which is subject to statutory heritage listing at a local level. This site is legally known as Lot 10, Deposited Plan 858392, located within the City of Parramatta Council. The cadastral register comprises the following land parcels:

- 41 George Street, Parramatta.
- 43-47 George Street, Parramatta (George Street Shops), a locally listed heritage item.
- 49-59 George Street, Parramatta.

The study area for this Condition Assessment is the shops building at 43-47 George Street, Parramatta and its immediate setting. It does not include the additional parcels of land comprising the full extent of the lot boundary for 41-59 George Street or the amalgamated site area of the Parramatta Metro Precinct.

Refer Figure 1-1 and Figure 1-2.



Figure 1-1: Lot plan for 41-59 George Street, Parramatta. Source: NSW ePlanning Spatial Viewer.



Figure 1-2: Cadastral plan showing the subject site at 43-47 George Street shaded in red with a continuous red outline. The extent of Parramatta Metro Precinct is indicated by a dashed red line; the lot boundary for 41-59 George Street is indicated by a dashed yellow line. Source: NSW ePlanning Spatial Viewer.

## 1.3 Methodology and Terminology

The principles contained in the Australian ICOMOS *Charter for the Conservation of Places of Cultural Significance (The Burra Charter) 2013* are used as a methodology for undertaking the physical assessment and providing recommendations, which are based on the assessed heritage significance and physical condition of the George Street Shops.

## 1.4 Authorship

The report was prepared by OCP Architects Pty Ltd, written by Karen Urquhart (Associate - Architect & Heritage Specialist) and Milena Crawford (Senior Conservation Specialist - Architecture).

## 1.5 Heritage Listings

### 1.5.1 Statutory heritage listings

Statutory heritage listings for the subject site are presented in Table 1-1 below. The George Street Shops are currently a local heritage item listed with Parramatta City Council, in Parramatta Local Environmental Plan 2011. The site is also included in Sydney Metro’s draft Section 170 heritage register in accordance with requirements for State agencies under the NSW Heritage Act.

Statutory listings carry legal obligations that must be met in accordance with the proper management of the place.

Table 1-1: Statutory heritage listings for the George Street Shops

Register / listing	Item listed (Y / N)	Item name	Item no.	Type of listing
National Heritage List	N	-	-	-
Commonwealth Heritage List	N	-	-	-
Heritage Act State Heritage Register	N			
Sydney Metro NSW Heritage Act Draft Section 170 Heritage and Conservation Register	Y	George Street Shops, 43-47 George Street	TBC	Local / State
Parramatta Local Environmental Plan 2011	Y	Shops (& potential archaeological site) 41-59 George Street	I 1766	Local

### 1.5.2 Non-statutory heritage listings

Non-statutory heritage listings for the subject site are presented in Table 1-2 below. While these listings do not carry any legal obligations towards the management of a place, they are indicative of its importance to advocacy groups, or its significance under former heritage systems.

Table 1-2: Non-statutory heritage listings for the George Street Shops

Register / listing	Item listed (Y / N)	Item name	Item no.	Date of listing
<b>National Trust of Australia (NSW) Heritage Register</b>	Y	Shops 43-47 George St	-	23 July 1984
<b>Register of the National Estate</b>	N			
<b>Institute of Architects (NSW) Register of Significant Buildings</b>	N	-	-	-
<b>Engineers Australia Australian Engineering Heritage Register</b>	N	-	-	-
<b>Docomomo Australia Buildings Register</b>	N	-	-	-

## 2 HISTORICAL CONTEXT

The following brief historical chronology comprises information sourced from the Conservation Management Plan (CMP) prepared for the George Street Shops.<sup>1</sup> Refer to the CMP for additional historical information.

### 2.1 Chronology and Sequence of Development, George Street Shops

Year	Development / Event
1790	The allotment encompassing George Street Shops is known to have had two convict huts.
1801	Weatherboard repairs to huts.
1820s	Convict huts replaced.
1822-1844	'St Patrick's Inn' operates on the site; most likely located of between the two convict huts, as per 1823 map (on Allotment 14).
1823	George Street lots move further north, most likely to the current configuration, where width of George Street altered.
1823	John Montgomery is lessee of the site.
1839-1844	Construction of 'two attached sandstone shops and dwellings' (today known as 45 & 47 George Street).
1841	Montgomery died, leaving his wife, Elizabeth Andrews, a life interest in Allotment 14 and bequeathing it to the Roman Catholic Church after her death.
1845	Elizabeth Andrews relinquished her life interest in Allotment 14 to Rev. John Bede of the Roman Catholic Church.
1848	Allotment 14 (subject site) was subdivided into three lots and advertised for auction. The subject site is now located on Lot 1 of Allotment 14; described as cottage with verandah and outbuildings of stables, kitchen and blacksmith.
1848	Lot 1 purchased by Frederick Beale for £250, who operated a bakery on site.
By 1854	Substantial improvements may have been made to the property, noting significant increase in its value in sale to publican Peter Miller for £1000.

<sup>1</sup> OCP Architects, July 2023, *43-47 George Street, Parramatta (George Street Shops) Conservation Management Plan*.

Year	Development / Event
	Council rate book describes Lot 1 as comprising 2 stone houses, each having a rateable value of 78 pounds and 65 pounds for the western and eastern halves respectively, indicating that the houses were attached dwellings.
1854	Wholesale wine and spirits store operates on site; potential site of 'Miller & Co.'s Cordial Factory.'
1860	General drapery shop operates on site prior to sale of their goods advertised owing to impending extensive renovations of the premises.
1876	Miller sold the property to Henry Charles Woolcott for £2000. 'Woolcott Chemist' Chemist / druggist / dispensary shop operates on site.
1876	Chemist owned by Samuel Harris operates on the site until 1883.
1882	Council Rate Book describes the property as containing brick houses.
1883	Interest in the property conveyed to Joseph Whitworth.
1891	Council Rate Book describes the western half as a brick house and dwelling and the eastern half as a brick shop and dwelling.
1895	Various outbuildings to rear, including large outbuilding on the western boundary. Cartway to the west of the building appears on plan with a structure overhead, suggesting that the first floor of 43 George Street had been constructed by this time.
Around turn of the century	Cartway converted into third shop - No. 43. George Street.
Early 1900s	Bank operates on site.
1921	'Victoria Theatre' Cinema music house operates at No. 45 George Street.
1923	Finalisation of the Whitworth estate sees the property advertised for auction.
1926	The buildings on the front of the lot were described as brick shops. There were extensions to the rear, the eastern one of which was called a brick dwelling. There was also a detached brick outbuilding to the rear, on the eastern boundary of the lot.
1926-1950s	Warehouse for furrier and dyer operates on site (Lot 1).
1927	Booth & McCallum' home furnishers operates at No. 47 George Street.
By 1930s	Post supported timber awning replaced by a suspended awning.

Year	Development / Event
1931	'Maples Furnishings' operates at No. 45 and No. 47 George Street.
1933	'Sterling Furniture Co.' operates at (No. 45 and) No. 47 George Street.
1936	'Wilks Piano' operates at No. 47 George Street.
1939	Fire destroys the Old Victoria Theatre to the east of the site. The contents of shops fronting George Street were badly damaged by smoke and water, although no structural damage was reported.
1939-1970s	Fruit and grocery shop operates at the site (Lot 1).
1947	Leather goods by Arthur Hertford operates at the site.
1970s	Building photographed with suspended awning still extant and chimney missing from the front north eastern corner.
1984	El Cheapo Book Warehouse' operates at 47 George Street.
1994	Extensions to the rear included two one-storey brick-and-fibro shops, a two-storey brick building with an aluminium roof, a brick-and-fibro shed with a galvanised iron roof, and a galvanised iron lean-to.
1990s	Major conservation works that included reconstruction of missing chimney, timber-post supported awning and timber joinery within the building.  Rear additions of original building demolished.
2020	Accountant, 'Max Tax' at No. 43 George Street, 'Barber Salon' at No. 45 George Street, Hairdresser, 'High Cut' at No. 47 George St and adult English coaching in first-floor level offices, named 'PTE Institute.'  Property was vacated subsequent to acquisition by Sydney Metro.
2022	Demolition works within the Parramatta Metro Precinct in accordance with State Significant Infrastructure approval (SSI-10038 <i>Sydney Metro West - Concept and Stage 1 (major civil construction between Westmead and The Bays)</i> ).  Demolition works included: <ul style="list-style-type: none"> <li>• Other development within the lot boundary for 41-59 George Street, including buildings on George Street to the east and the west.</li> <li>• Rear two storey C20th addition and rear balcony of the George Street Shops.</li> </ul> The western wall of the subject site was revealed to be in part shared with the previous building at 41 George Street.



### 3 STATEMENT OF SIGNIFICANCE

The CMP established the heritage significance of the George Street Shops and provided the following statement of significance:

*The George Street Shops at 43-47 George Street, Parramatta, are of is of State significance in terms of their historical, rarity and representativeness values; and of local significance in terms of their aesthetic and technical values. Sited on the major historic thoroughfare of George Street within the planned city grid alongside the Parramatta River and part of the first major development cycle in the nineteenth century, the place directly contributes to the cultural significance of Parramatta as the first planned town landscape among Australian cities, subject only to two major development cycles over two centuries of its history.*

*The site of the George Street Shops are significant for its ability to provide material evidence of European settlement, including land tenure, subdivision, urban planning and land use in pre-1850s Parramatta. It is significant for its association with late eighteenth century convict huts; with the historical realignment of George Street; and for its connection with the early growth of Parramatta as a major regional centre, which in itself is recognised for its high contribution to NSW's cultural heritage. These latter associations are embodied in the construction of the building in the 1840s, which occurred at a time when the focus of land use was evolving to commercial activity rather than the agricultural premise on which Parramatta was founded. The building demonstrates continuity of historical use as commercial premises from its construction until recently, a period exceeding 170 years.*

*The George Street Shops constitute an archetypal example of a nineteenth century commercial tenement consisting of shopfronts at ground floor level with (former) residences above – built in the early Victorian Regency style. It is a rare example of the style within this context, the only surviving example of its type and style in Parramatta and one of only a limited number of like surviving examples located in the vicinity of the first settlement at Sydney. While the building has been affected by alterations and additions, sufficient evidence remains to demonstrate the typology in accordance with the original design intent, which in conjunction with conservation works implemented in the 1990s provides evidence of the traditional character of the building. The building remains as a good example of a Victorian Regency commercial development.*

*As one of the few surviving examples of its kind, the George Street Shops serve as an important physical reminder of the nineteenth century streetscape character of George Street, Parramatta's original High Street. Aesthetically, it is comprised of clearly defined rectangular forms arranged symmetrically with sparing detail including shallow projecting stone window surrounds, string line and parapeted roof which characterise the style in conjunction with the shopfront joinery and ground floor post-supported awning with shaped timber joinery. As the original and early planning layout is relatively intact, it provides a resource for understanding spatial planning and room layout in a nineteenth century residential and commercial tenement.*

*The George Street Shops constitute a potential resource for investigation and public interpretation through archaeological investigation. Future archaeological investigations within the footprint of the building have the potential to yield new or further scientific and / or archaeological information associated with the building as an important benchmark of its type and aspects of commercial activity in the nineteenth century Parramatta. The value of the potential archaeological resource would likely be enhanced by broader archaeological investigation of immediately surrounding sites considering the nature of changes that have occurred across the site over time, not least being the narrowing and realignment of George Street.*

## 4 PHYSICAL SURVEY

### 4.1 General Description

The George Street Shops consist of three ground floor shops with first floor level. The first floor of the building is accessed via internal stairs located behind an entrance between No. 45 and No. 47 George Street. A timber post-supported awning provides a protected pedestrian walkway to the footpath on George Street in front of the three shops.



Figure 4-1: George Street elevation of the Shops. Source: OCP Architects (2020).

The shopfronts facing onto George Street are in the early Victorian Regency style with a plain Ashlar sandstone façade above a reconstructed timber awning. The first-floor level has a simple classic style sandstone parapet, architrave mouldings, sills, and stringline between floor levels, while each shopfront to the ground floor level presents typical Victorian shopfront features, including engraved sandstone decorative pilasters between the recessed entrances of the shopfronts.

The rear and side walls of the building are brick laid in English bond. Notably along the rear elevation, the floor plate of each shop becomes progressively deeper from east to west, which is reflected in the stepping of walls, and also roof form.

Historic masonry buildings were designed to ‘breathe’ and were traditionally left unpainted or finished with coatings that allowed moisture to permeate through the exterior walls if they became damp. At the George Street Shops, the ground floor level of the shopfronts – both masonry and timber components - has been painted, and the brickwork of the side and rear walls has also been painted.

The half-round gutters to the main building appear as copper-coloured powder-coated finish steel, and are fixed to timber quirk profiled fascias. The soffits to the eaves are painted timber boards.

There are a variety of painted round galvanised downpipes and one unpainted PVC downpipe (rear elevation, Shop 43). The round gutter to the eastern side façade has deteriorated and rusted through. There are rainwater heads in select locations, including on the eastern façade at the northern corner. These are in various different styles and have been introduced to the building over time.

The primary roof is slate, with cross hip slate roofs are situated over each of 45 and 47 George Street. The roof comprises reconstructed fabric (c.1990s) that retains the original form. Metal ridge cappings have been replaced in May 2023 with a temporary adhesive proprietary product ('Wakaflex') to prevent ingress of water to the building, which was occurring as a result of missing ridge cappings and deterioration of remaining fabric.

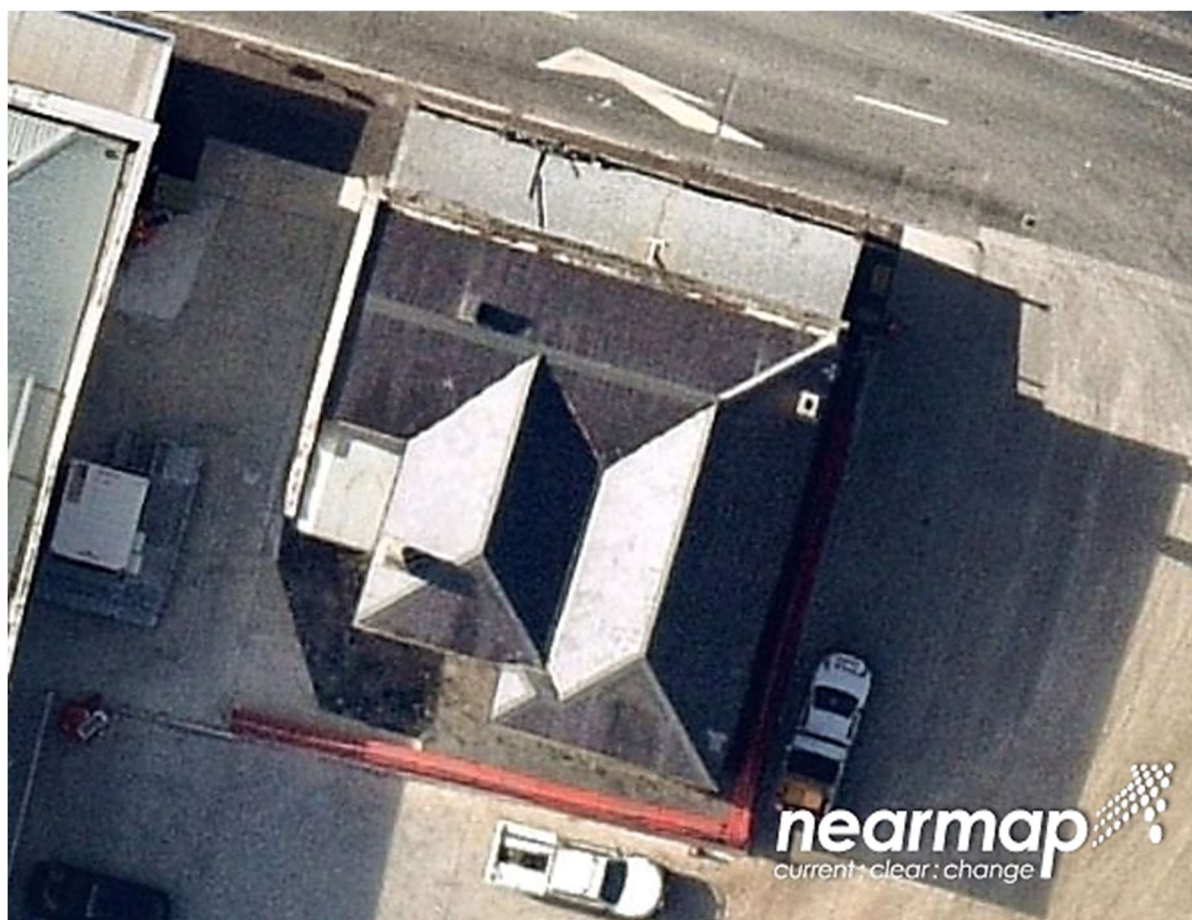


Figure 4-2: Aerial view of roof showing cross hipped slate roofs, location of chimneys and the corrugated steel roofs of the front awning and skillion to 43 George Street.

Source: Nearmap, image dated 13 March 2024; accessed April 2024.

The rear single storey skillion addition to 43 George Street is roofed in corrugated galvanised steel. Corrugated steel roofing is also present above the over street awning along George Street. Missing flashing to the skillion roof has recently been replaced, with new roof sheets also installed along the western edge. The flashing to the awning along the front façade has lifted and is missing in some areas.

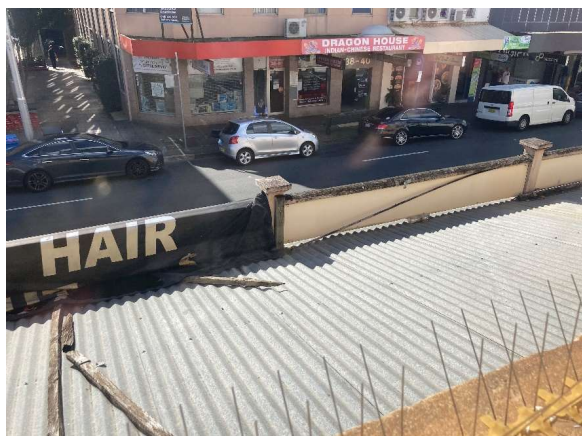


Figure 4-3: Corrugated steel roof of front awning and timber sign boards. Note miscellaneous timbers fixed to roofs for unidentified purpose. Source: OCP Architects (2022).



Figure 4-4: View of front awning at junction with sandstone wall. Source: OCP Architects (2022).

The physical condition of the roof and rainwater goods are described in greater detail below. External timbers, including fenestration and walls generally are outside the scope of this report, however general comments are included where condition defects were observed. Interiors are outside the scope of this report and no condition defects for interiors have been recorded.

## 4.2 Physical Condition

The roofs and rainwater goods of the George Street Shops were visually inspected on 19 March 2024. An overview of the condition of these elements is provided below, which is based on the site inspection and summarises the findings of OCP Architects and subconsultants (Architectural Leadworks and Franklins Australia). Subconsultant reports are listed below and included in the appendices to this report:

- Franklins Australia, April 2024, *Parramatta Heritage Building Hydraulic Investigation Report* (Appendix A);
- Architectural Leadwork, April 2024, [TBA] (Appendix B).

Refer Condition Assessment Drawings at Figure 4-26 & Figure 4-27, and further details in Section 4.3.1

### 4.2.1 General Condition

#### Roof Slate

The Welsh blue slates are not original, having been replaced in the 1990s. Despite this, there are hipped roof faces where the slates are in poor condition, and have deteriorated to the point of requiring replacement. The affected areas are at the rear of the main roof (refer Figure 4-5).

The existing slates are generally suitable for retention over the remainder of the roof, however there is evidence of slipped and cracked slates and there will be a consequent need to allow for some replacement of slates.



Figure 4-5: Detail view of rear face of main roof (over 45 & 47 George Street) showing slates in poor condition. Note also corroded galvanised steel valley gutters.

## Roof Sheeting

The verandah roof and the skillion roof over the rear addition to 43 George Street is clad in corrugated galvanised custom orb steel sheets. The existing roof sheeting is not original. Its replacement would be expected over the life of the building as corrugated metal roof sheeting has a finite life span which varies depending on its finish, gauge, exposure conditions and maintenance program.

The inspection indicates that the roof sheeting generally is corroded, as are the fixings, with the exception of the roof sheeting recently replaced at the western end of the skillion roof. On the verandah, the abutment flashing is dislocated (refer Figure 4-6), and there are debris on the roof, including fixed timbers (refer Figure 4-3), which should be removed. For the skillion roof, the abutment flashing has been replaced with a synthetic flashing (similar to Wakaflex self-adhesive sheet) (refer Figure 4-7).



Figure 4-6: Dislocated abutment flashing at junction of sandstone north wall and verandah roof.



Figure 4-7: Synthetic abutment flashing recently installed on rear skillion roof.

## Ridges and Valleys

Hardwood rolls for roof ridges and hips are partly replaced with softwood, with ridge rolls covered by synthetic flashing (similar to Wakaflex self-adhesive sheet), which is intrusive to the heritage building. It is noted that this was installed as a temporary measure to prevent water ingress to the building. Refer Figure 4-8.

Roof valleys are formed of galvanised steel sheeting that has extensively corroded, beyond repair. Refer Figure 4-9.



Figure 4-8: Synthetic flashing applied as a temporary measure to roof ridges.



Figure 4-9: Example of galvanised steel roof valley, extensively corroded.

## Chimneys

Chimney cowls have deteriorated and are in poor condition or missing. The damaged capping of the north east chimney (Chimney 1) appears to be a potential source of water ingress.



Figure 4-10: Extant cowl of south west chimney (Chimney 3). The adjacent cowl is missing.



Figure 4-11: Capping of the north east chimney (Chimney 1) is damaged.

## Gutters and Downpipes

Galvanised steel rainwater goods are painted, including downpipes; the paintwork is deteriorating.

The rainwater is not being taken away properly by the current arrangement of rainwater goods and the situation is compounded by the elevated ground levels around the building beyond its curtilage, which leads to water collecting around the building. The provision of new rainwater goods is required to address current deficiencies, in conjunction with works to ensure that water does not collect around the base of the building.

The following points were noted:

### Gutters

- All painted galvanised steel eaves gutters are corroded (including to the point of disintegration in some areas), misshapen, loose and have missing over straps. Refer Figure 4-12.
- The north box gutter is galvanised steel that has corroded extensively and is beyond repair. Refer Figure 4-13.
- The middle box gutter, and consequently the associated roof structure, has been reconfigured at the southern end of the gutter. The resulting

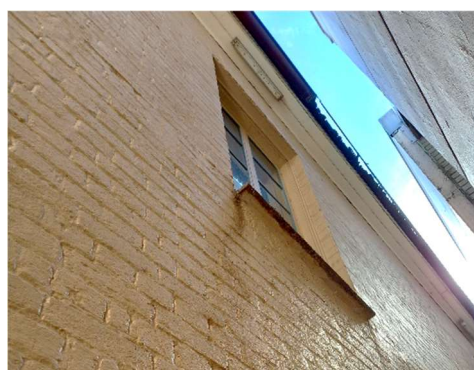


Figure 4-12: Corroded (disintegrated) gutter on east elevation (photo 2022).



Figure 4-13: Corroded box gutter behind sandstone parapet of the north elevation.

arrangement is a gutter that is too narrow, and insufficient slope. In conjunction with extensive corrosion to the galvanised steel material, these factors are contributing to rainwater penetrating the building structure. Refer Figure 4-14.



Figure 4-14: Middle box gutter and reconfigured roof structure.

### Downpipes

- The two north verandah galvanised steel painted downpipes discharge rainwater directly on footpath pavers close to the base of timber posts, accelerating deterioration of the timber.
- The original downpipe outlets under the footpath through stone kerbing to discharge rainwater onto the street are not in use. The outlets are blocked, and partly sunk under the surface level of the asphalt street. Refer Figure 4-15.
- The downpipe of the rear skillion roof is PVC and discharges to ground. Refer Figure 4-16.
- The outlet for missing downpipe originally discharging to the former verandah roof now discharges directly down the wall (downpipe at rear of 45 George Street).



Figure 4-15: North verandah downpipe discharging to paving, also showing outlet in stone kerbing.

Collectively, the rainwater goods are in poor condition and not functioning. The condition defects of the gutters and downpipes increase damp conditions under the building, as roof run-off is not being captured and rather saturates the ground surrounding the building. These conditions are contributing to acceleration of deterioration to the built fabric and are likely contributing to movement in the building, as evidenced by cracks in masonry walls and movement of the west gable wall.



Figure 4-16: PVC downpipe on rear elevation, skillion addition.

## Stormwater Drainage

The stormwater pipes are not original, and were identified as being 100mm PVC pipework. CCTV Inspections by Franklins Australia identified that the downpipes that are connected to the main stormwater are not functioning as required due to major breaks in the pipe work restricting the flow of water to the pits. It was also identified that the pits have no functioning outfall lines to the street or to a drainage network due to major breaks or the removal of the original outfall lines.

Specifically, major breaks were identified in five (5) of six (6) lines, preventing full inspection of the stormwater system, with some lines blocked with gravel. For the unaffected line, the water level was regardless high owing to no functioning outfall pipework. For the line adjacent to the eastern boundary, visual inspection found the line to be connected to an ag line extending to the north east corner. This connection is possibly broken or detached allowing gravel to enter the stormwater asset

The condition defects of the stormwater lines are not allowing rainwater to exit the property as intended and it is therefore likely to be flooding the area in rain events.

Refer Figure 4-17 and Appendix A: Franklins Australia, April 2024, *Parramatta Heritage Building Hydraulic Investigation Report*

## Sewer

The external inspection of the sewer line via CCTV by Franklins Australia was limited as access to the sewer on the property was only available via a gully at the back of the building. Due to the configuration of the gully, inspection was not possible and no other inspection access or location of the sewer on the property was identified.

CCTV inspection was performed from the Sydney Water sewer manhole upstream to the dead end, the inspection identified a sewer junction at 12 o'clock, this could possibly be the connection for the building service line. The inspection of this line was not possible as this is an incoming vertical junction.

Any further inspection or location of the sewer line will require excavation of the known access points to allow CCTV inspection equipment entry to continue the tracing and assessment of the sewer line.

Refer Figure 4-17 and Appendix A: Franklins Australia, April 2024, *Parramatta Heritage Building Hydraulic Investigation Report*



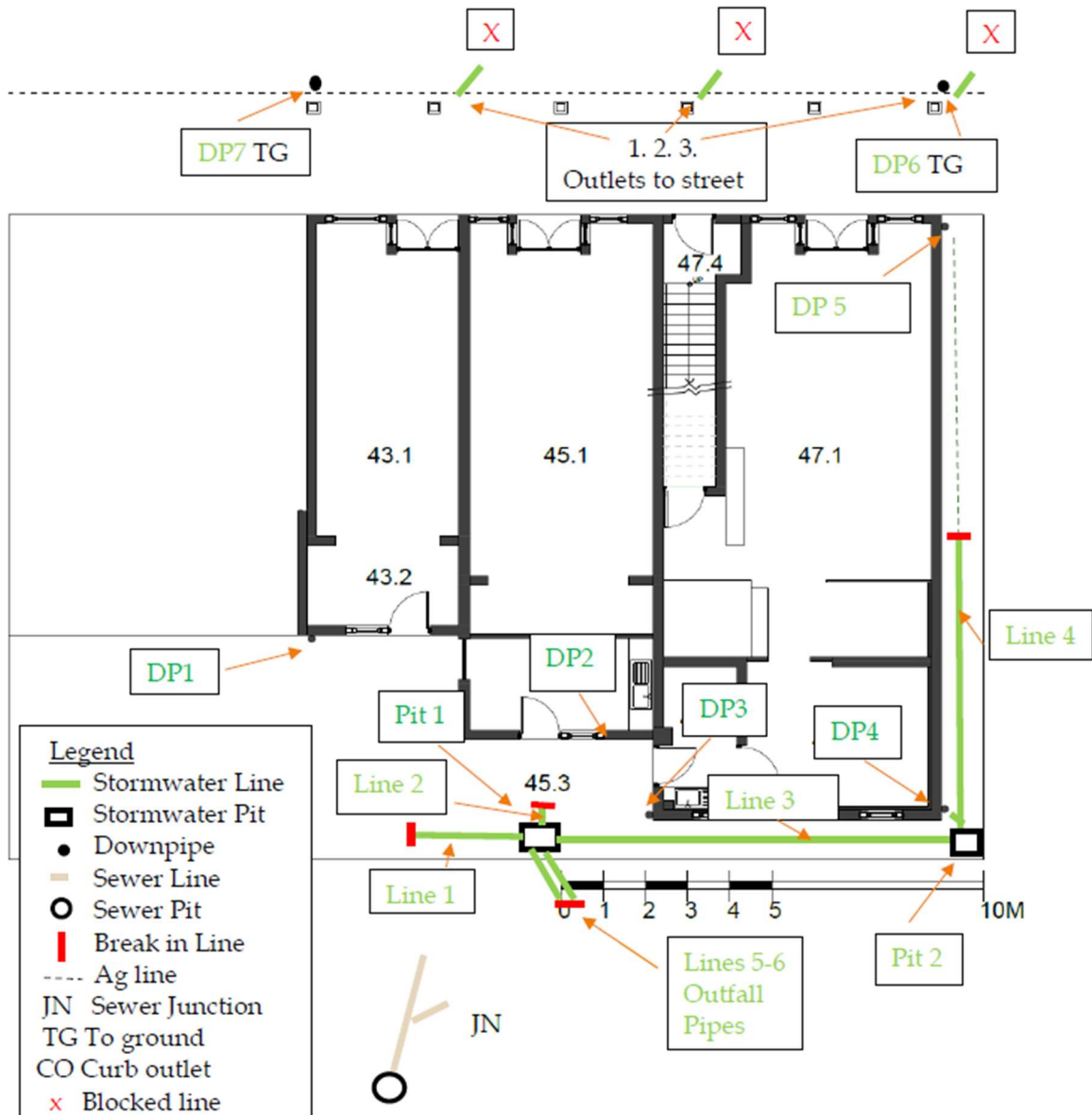


Figure 4-17: Graphic representation of stormwater and sewer line investigations undertaken.  
 Source: Franklins Australia, April 2024.

### Underfloor Vents

There are a series of underfloor vents external to the building around the eastern and southern perimeters. While the vents are set vertically at the base of the building walls, the vents are set lower than the ground level, with horizontal grated pits formed in the ground adjacent to the vents. This is a source of water ingress to the sub-floor area and the horizontal grated covers admit debris, which would affect their function as ventilators.

The hydraulic inspection identified that building-up of the surrounding ground levels combined with no adequate drainage outfall, and stormwater pipes with no



Figure 4-18: Horizontal grated pit adjacent to sub-floor wall vent.

functioning exit pipes is allowing stormwater to saturate the area. The oversupply of water has the potential to build up and enter the venting pits and travel under the building, which would contribute to issues associated with water damage to the building. It is notable that there was moss and wet soil in the venting pits when the grates were lifted for inspection.



Figure 4-19: Detail view of sub-floor vent and relationship to external ground level.

### Sandstone Wall

Sandstone parapet stones have open joints or otherwise deteriorated pointing. Rainwater is further penetrating through open joints of the stone cornice, resulting in damage to cornice stones in addition to lower stone courses. Refer Figure 4-20.

Previous synthetic repairs to the sandstone cornice are failing and the parapet stone on the north east corner is damaged beyond repair. Refer Figure 4-21.



Figure 4-20: Open joints of parapet stones.



Figure 4-21: Extensive cracking through full section of north east parapet stone.

### Brick Walls

The parapeted gable brick wall at the west end of the building, previously a common wall between two buildings, has previously been stabilised. The wall, however, is showing signs of further movement.

There is evidence of cracking to varying degrees in the east, south and west brick walls and a result of exposure to moisture and movement. There is evidence of both rising and falling damp.



Figure 4-22: Cracking brickwork around rear first floor window of 47 George Street.

### Timberwork (generally)

All painted timbers of the north verandah are in poor condition, having loose elements in addition to peeling paint. Post bases have been replaced in soft wood and are deteriorating significantly while the timber upstands show evidence of rotting.

There is evidence of damaged and loose timbers on the eaves, in addition to failing paint.



Figure 4-23: Western end of the timber verandah structure, showing evidence of rotting timber and peeling paint.

### 4.2.2 General comments on timber structure

The building has been constructed with bearers and joists and timber roof structure. Only a cursory inspection has occurred given a lack of access to the subfloor timbers (scope focused on roof) and roof timbers.

It is evident that moisture has affected timber floors (interiors) and there are localised sections where the floor is buckling. Whether this damage has extended to the floor structure, and the associated extent if any, cannot be determined and further detailed inspection of the structure will be required to determine corrective action required. This inspection would require destructive investigation of the floors owing to there being no subfloor access.

The condition of the roof timbers cannot be determined based on the limited review from manhole. It is, however, evident that there are roof timbers of relatively recent origin inserted amongst older timber structural members, likely to be associated with roofing works undertaken in the 1990s. There is further evidence of previous infestation by vermin, with timber beams extensively coated in bird droppings.

Noting that dampness can result in mould growth and wood rot, the condition of roof and floor timbers should be reviewed, including by a Structural Engineer. Noting the current scope focus on roof works, the roof structure may be inspected from above at a future stage in conjunction with remedial works to the roof slates, valleys and gutters.



Figure 4-24: Area of damaged flooring, previously buckled owing to the effects of moisture,.



Figure 4-25: Roof structure viewed from within the manhole.

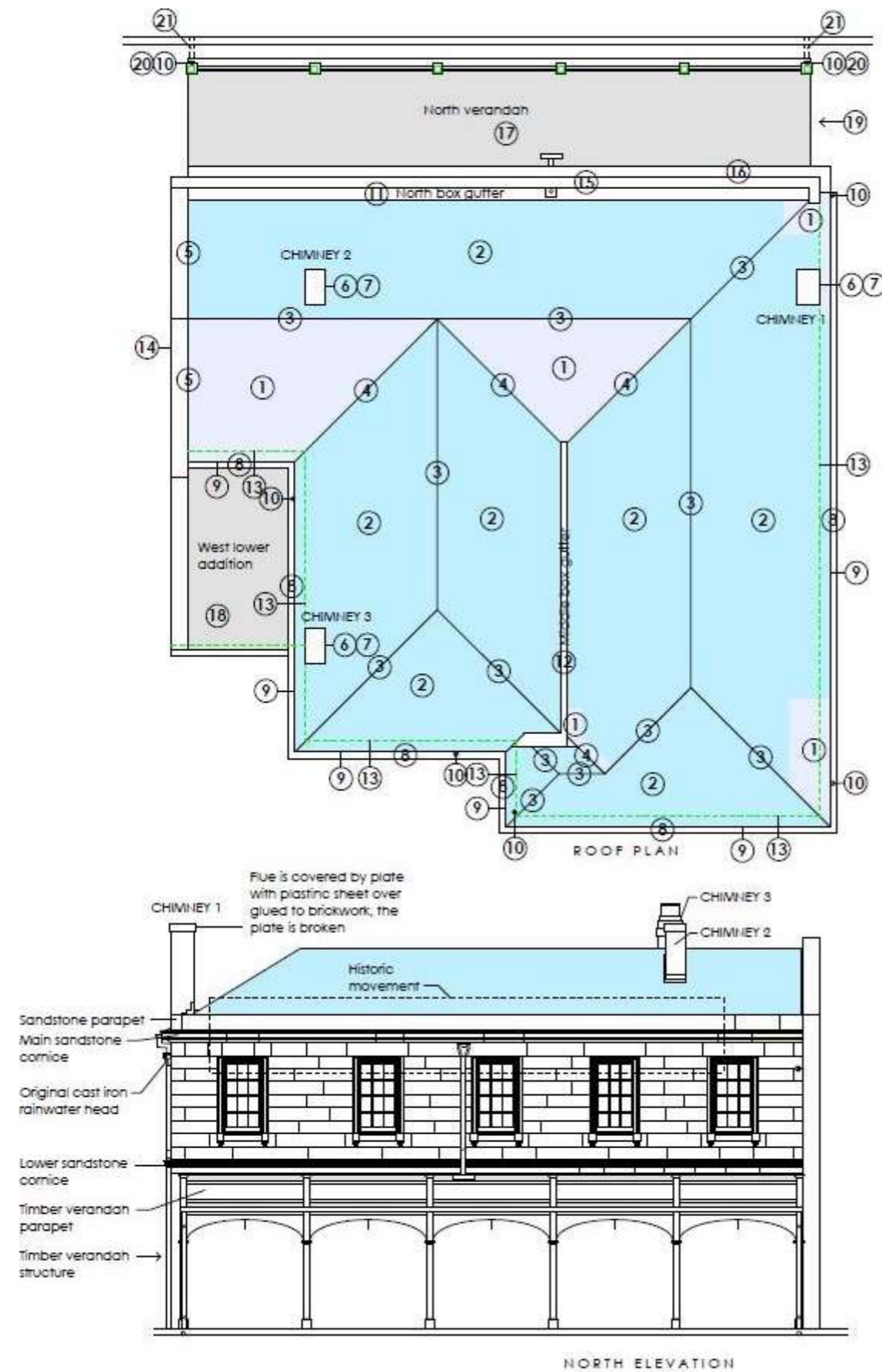


Figure 4-26: Condition Assessment Drawing (Roof Plan and North Elevation). Source: OCP Architects 2024.



- 1 Slates covering main roof are deteriorated.
- 2 Another 30% from remaining slates are damaged.
- 3 All hardwood rolls for roof ridges and hips are partly replaced with softwood and covered by plastic (Wakaflex) self-adhesive flashing intrusive on historic building.
- 4 All roof valleys are clad with corroded galvanised steel beyond repair.
- 5 Abutment roof flashing at west gable missing fixing elements and is installed over existing slates.
- 6 Various covers of chimneys 1, 2 and 3 are deteriorated.
- 7 Paint on brickwork of all three chimneys is peeling.
- 8 All painted galvanised steel eave gutters are corroded, misshapen, loose and have missing over straps. The paint is peeling.
- 9 Timber eaves have damaged and loose sections and peeling paint.
- 10 All galvanised steel downpipes are painted; the paint is deteriorating.
- 11 North box gutter is clad with galvanised steel sheet corroded beyond repair.
- 12 Original middle box gutter and timber roof structure at south end of gutter have been reconfigured to new shape with box gutter clad by galvanised steel sheets. Due to box gutter being too narrow without adequate slope and corroded galvanised steel cladding, the rainwater is penetration building structures.
- 13 East, south and west painted brickwork is cracking in various locations.
- 14 West brick wall (originally a common wall between two buildings) has been previously stabilised. The wall is showing further movement.
- 15 Sandstone parapet blocks have open or deteriorating pointing. North-east corner stone is broken beyond saving.
- 16 Rainwater is penetrating through open joints of main sandstone cornice causing damage to cornice stones and to the stones of couple courses below. Previous repairs to cornice sandstone using synthetic stone are failing.
- 17 Corrugated galvanised steel north verandah roof sheets are corroding, including fixings. A large area of weathering abutting sandstone north wall under lower sandstone cornice is dislocated.
- 18 Majority of corrugated galvanised steel roof sheets on west lower addition is corroded, including all fixings. Abutment flashing has been replaced with plastic (Wakaflex) self-adhesive sheets. Rainwater from painted galvanised steel eave gutter is discharging to ground by PVC downpipe.
- 19 All painted timbers of north verandah are in poor condition, having loose elements and peeling paint. All post plinth bases have been replaced in softwood and are disintegrating. The top of the verandah timber parapet is partly rotting.
- 20 Two north verandah galvanised steel painted downpipes discharge rainwater on footpath paving closely to timber posts plinths causing further timber deterioration.
- 21 Original downpipe outlets under footpath surface through stone kerb discharging rainwater to street ground gutter are not in use, blocked and partly sunk under level of street asphalt surface.
- 22 Underfloor vents are source of water ingress to the sub-floor area and the horizontal grated covers admit debris.

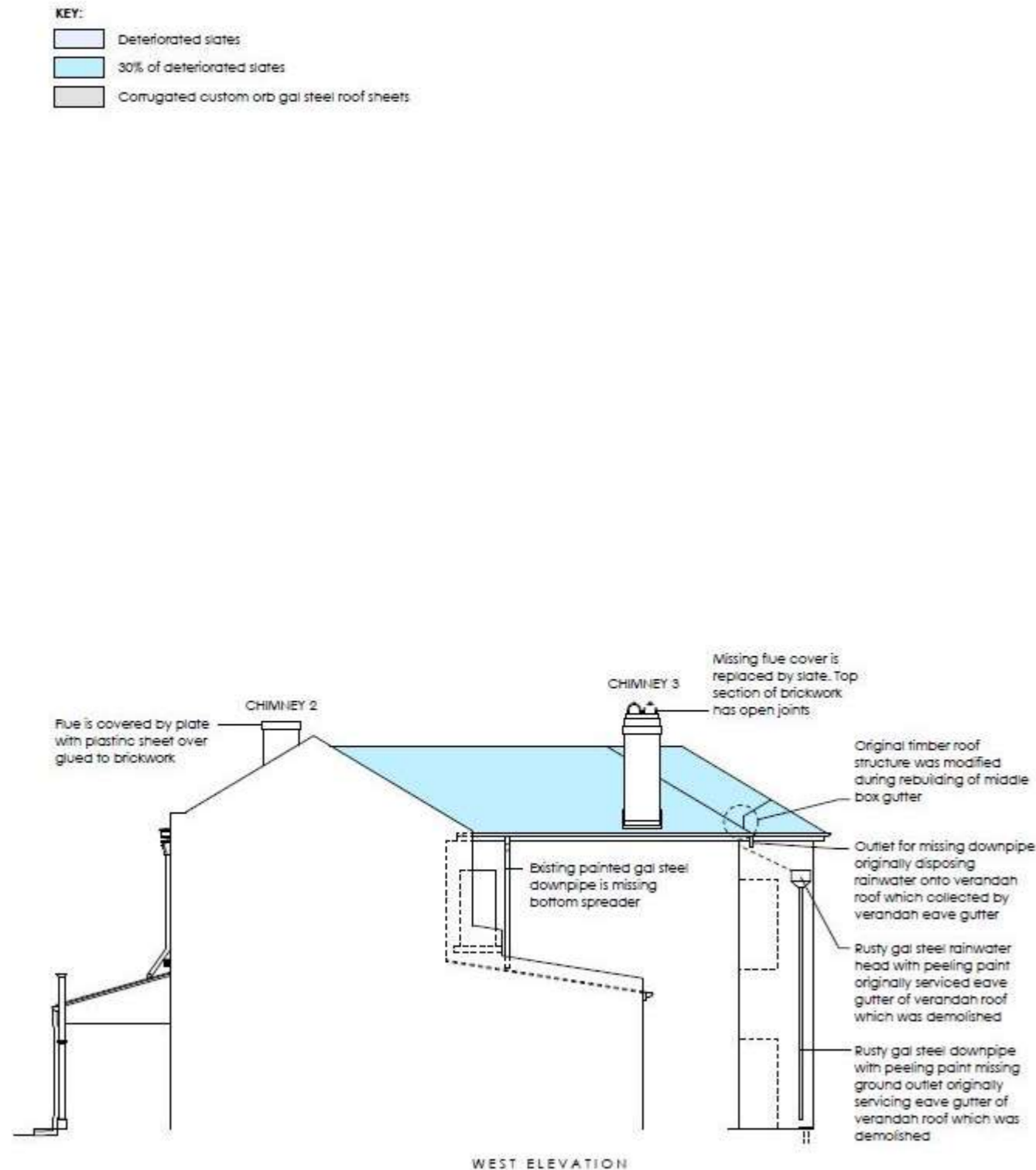


Figure 4-27: Condition Assessment Drawing (West Elevation). Source: OCP Architects 2024.

- 1 Slates covering main roof are deteriorated.
- 2 Another 30% from remaining slates are damaged.
- 3 All hardwood rolls for roof ridges and hips are partly replaced with softwood and covered by plastic (Wakaflex) self-adhesive flashing intrusive on historic building.
- 4 All roof valleys are clad with corroded galvanised steel beyond repair.
- 5 Abutment roof flashing at west gable missing fixing elements and is installed over existing slates.
- 6 Various covers of chimneys 1, 2 and 3 are deteriorated.
- 7 Paint on brickwork of all three chimneys is peeling.
- 8 All painted galvanised steel eave gutters are corroded, misshapen, loose and have missing over straps. The paint is peeling.
- 9 Timber eaves have damaged and loose sections and peeling paint.
- 10 All galvanised steel downpipes are painted; the paint is deteriorating.
- 11 North box gutter is clad with galvanised steel sheet corroded beyond repair.
- 12 Original middle box gutter and timber roof structure at south end of gutter have been reconfigured to new shape with box gutter clad by galvanised steel sheets. Due to box gutter being too narrow without adequate slope and corroded galvanised steel cladding, the rainwater is penetration building structures.
- 13 East, south and west painted brickwork is cracking in various locations.
- 14 West brick wall (originally a common wall between two buildings) has been previously stabilised. The wall is showing further movement.
- 15 Sandstone parapet blocks have open or deteriorating pointing. North-east corner stone is broken beyond saving.
- 16 Rainwater is penetrating through open joints of main sandstone cornice causing damage to cornice stones and to the stones of couple courses below. Previous repairs to cornice sandstone using synthetic stone are failing.
- 17 Corrugated galvanised steel north verandah roof sheets are corroding, including fixings. A large area of weathering abutting sandstone north wall under lower sandstone cornice is dislocated.
- 18 Majority of corrugated galvanised steel roof sheets on west lower addition is corroded, including all fixings. Abutment flashing has been replaced with plastic (Wakaflex) self-adhesive sheets. Rainwater from painted galvanised steel eave gutter is discharging to ground by PVC downpipe.
- 19 All painted timbers of north verandah are in poor condition, having loose elements and peeling paint. All post plinth bases have been replaced in softwood and are disintegrating. The top of the verandah timber parapet is partly rotting.
- 20 Two north verandah galvanised steel painted downpipes discharge rainwater on footpath paving closely to timber posts plinths causing further timber deterioration.
- 21 Original downpipe outlets under footpath surface through stone kerb discharging rainwater to street ground gutter are not in use, blocked and partly sunk under level of street asphalt surface.
- 22 Underfloor vents are source of water ingress to the sub-floor area and the horizontal grated covers admit debris.

### 4.3 Significance Gradings and Fabric Condition Survey

A grading of contributory significance is provided in Section 4.3.1 along with a description of the condition of the various elements of the George Street Shops, subject of this report.

The significance the building’s elements has been provided in order to inform future decisions about the management of the building. The grading of significance levels provided in this section is consistent with the Heritage NSW publication *Assessing Heritage Significance* (June 2023), utilising categories of Exceptional / High / Moderate / Little / Intrusive which are explained in Figure 4-28 below.

Grading	Justification
<b>Exceptional</b>	Rare or outstanding element directly contributing to a place or object’s significance.
<b>High</b>	High degree of original fabric.  Demonstrates a key element of the place or object’s significance.  Alterations do not detract from its significance.
<b>Moderate</b>	Altered or modified elements.  Elements with little heritage value, but which contribute to the overall significance of the place or object.
<b>Little</b>	Alterations detract from its significance.  Difficult to interpret.
<b>Intrusive</b>	Damaging to the place or object’s significance.

Figure 4-28: Table excerpt from Heritage NSW guidelines *Assessing Heritage Significance*, outlining the categories for the grading of heritage significance.  
 Source: Heritage NSW *Assessing Heritage Significance* (June 2023).



#### 4.3.1 George Street Shops

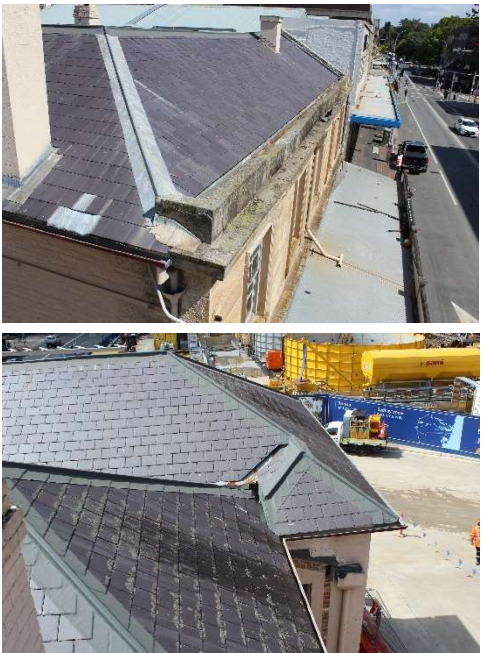

The George Street Shops building was visually inspected. In accordance with GLC’s brief, investigations were focused externally on the roof and associated stormwater drainage system, with a view to assessing condition and determining appropriate remedial works to replace temporary

works to make the building weathertight. Other elements of the building were also surveyed during the course of the site inspection, and where condition issues were readily apparent, these have been identified in the assessment below to inform decisions on future conservation and maintenance works.




The following schedule should be read in conjunction with the drawing at Figure 4-29.



Table 3: Summary Condition Assessment, Significance and Recommended Actions (External)


ELEMENT	SIGNIFICANCE	CONDITION	PHOTOGRAPH
<b>EXTERNAL</b>			
EXT 1 Slate Roof	Slate roof tiles: <b>Moderate</b> (reconstruction 1990s)	Fair to poor.  Some faces have deteriorated to the point of requiring replacement (rear of main roof). In other areas, there is a need for localised repairs to slipped and cracked slate.	
<p><b>Recommendation:</b></p> <ol style="list-style-type: none"> <li>1. Remove existing slates in poor condition and replace with new Penhryn Welsh slates (500 x 300 x 6mm). Retain individual slates in sound condition for use in localised repairs over the remaining roof areas (salvaged slates will match existing slates on visible faces).</li> <li>2. Allow to replace approximately 30% of existing slates to remaining roof faces.</li> <li>3. Install all associated flashings in lead.</li> </ol> <p><b>Priority 1</b> (short term)</p>			
EXT 2 Sheet Metal Roofs	Corrugated galvanised steel roof sheeting: <b>Moderate</b> (reconstruction 1990s)	Fair to poor	
<p><b>Recommendation:</b></p> <p>Remove existing corrugated metal sheet roofs (verandah roof and rear skillion roof) and replace with corrugated custom orb roof sheets. Install all associated flashings in lead.</p> <p><b>Priority 1</b> (short term)</p>			

ELEMENT	SIGNIFICANCE	CONDITION	PHOTOGRAPH
<b>EXTERNAL</b>			
EXT 3 Roof Ridges	Wood rolls: <b>Moderate</b> (reconstruction 1990s)  Ridge Coverings: <b>Moderate</b> (lead on north east ridge; reconstruction 1990s) <b>Intrusive</b> (modern temporary synthetic ridges 2023)	Fair  Fair  Good, although not suitable for long-term	
<p><b>Recommendation:</b>                      Install new hardwood cored lead ridges and hips.</p> <p><b>Priority 2:</b> Work is not urgent owing to temporary ridges, however ridges would be affected by other essential works e.g. slate repairs. It would therefore be more logical and cost effective to proceed with this work in conjunction with other Priority 1 roof works.</p>			
EXT 4 Roof Valleys	Galvanised steel valleys: <b>Little</b> (1990s)	Poor	
<p><b>Recommendation:</b>                      Install new lead valleys onto new timber underlay.</p> <p><b>Priority 1</b> (short term)</p>			



ELEMENT	SIGNIFICANCE	CONDITION	PHOTOGRAPH
<b>EXTERNAL</b>			
EXT 5 Chimneys	Rendered chimney (front façade, west end of 45 George St): <b>Exceptional</b>		
	Tall brick chimney (rear of 45 George Street): <b>High</b>	Fair to poor Introduced covers have deteriorated; lead flashing in fair conditions; loose and flaking paint on masonry surfaces.	
	Rendered chimney - (front NE corner): <b>Moderate</b> (reconstruction)		
<p><b>Recommendation:</b>                  Structural Engineer should review for potential seismic strengthening.</p> <p><b>Priority 1</b> (short term)                  Replace introduced covers to chimney flues to ensure water ingress. This work must be coordinate with sub-floor ventilation strategy to be determined.</p> <p><b>Priority 1</b> (short term)                  Report 30% brick masonry chimney (Chimney 3).</p> <p><b>Priority 1</b> (short term)                  Repaint masonry and replace lead flashings around each chimney.</p> <p><b>Priority 2</b></p>			

ELEMENT	SIGNIFICANCE	CONDITION	PHOTOGRAPH
<b>EXTERNAL</b>			
EXT 6 Gutters	<b>Little</b> (non-original fabric and profiles)	Poor	
<p><b>Recommendations:</b></p> <ol style="list-style-type: none"> <li>1. Replace corroded box gutter (north elevation behind front parapet) with new expandable lead lining with minimum 1 in 100 fall.</li> <li>2. Remove existing central box gutter including underlay. Reconstruct timber underlay to original shape and fall and line with lead. Rebuild hipped roof timber structure at south end of central box gutter to original shape to support reinstatement of functional box gutter.</li> <li>3. Replace all existing eaves gutters with new 150mm copper ogee gutters with minimum 1 in 100 fall. New gutters to have support brackets and over straps at maximum 1200mm centres.</li> </ol> <p>Paint gutters, including backs, prior to installation.</p> <p><b>Priority 1</b> (short term)</p>			
EXT 7 Rainwater Heads & Downpipes	<p><b>High</b> (cast iron rainwater head NE corner)</p> <p><b>Little</b> (Generally, non-original galvanised steel)</p> <p><b>Intrusive</b> (PVC)</p>	Fair to poor (Note: CCTV investigation not feasible without destructive investigation)	
<p><b>Recommendations:</b></p> <p>Retain existing fluted cast iron rain water head (NE corner).</p> <p>Replace rainwater head on north elevation with copper rainwater head to match profile of fluted RWH (NE corner).</p> <p>Replace existing downpipes with 100mm dia. copper downpipes secured by copper astragals to traditional profile (fixed to masonry using grade 316 stainless steel fixings). Provide 1.5m high bottom section in cast iron in accessible locations.</p> <p>Provide new copper spreaders in locations shown.</p> <p>Install 3/No. 100mm dia. underground outlets below footpath to be discharged to street gutter.</p> <p><b>Priority 1</b></p>			

ELEMENT	SIGNIFICANCE	CONDITION	PHOTOGRAPH
<b>EXTERNAL</b>			
EXT 8 Stormwater Drainage	<b>Little</b> (PVC pipework)	Major breaks restrict flow of water to the pits. There are no functioning outfall lines to the street or alternative network.  Stormwater is unable to exit the property: condition defects allow flooding during rain events.	
<p><b>Recommendations:</b></p> <p>Stormwater drainage lines should be replaced in their entirety due to the major breaks to the majority of the pipework (minimum 150mm stormwater drain). The re-establishment of the drainage outfall pipework is critical to the site as the stormwater drainage system has no functioning exit points, rectification works are required and reconnection to the council stormwater easement network would be a high priority.</p> <p><b>Priority 1</b> (short term)</p>			
EXT 9 Sewer	<b>Little</b>	Not fully determined	
<p><b>Recommendations:</b></p> <p>Lay new sewer lines.</p> <p><b>Priority 2:</b> Work is not urgent owing to current vacancy of the building, however it would be more logical to proceed with laying new sewer lines concurrently with Priority 1 works i.e. prior to major new construction works on the site. Retrospectively introducing this service is likely to be comparatively more difficult and costly.</p>			
EXT 10 Sub-floor ventilation	<b>Little</b> (existing terracotta wall vents and horizontal grates)	The vents and grates themselves are in fair condition, however the current arrangement is contributing to excessive sub-floor damp conditions.	
<p><b>Recommendations:</b></p> <p>Remove existing vents and grilles and provide new 100mm dia. vertical copper air vents extending between the subfloor area and the underside of the eaves. Secure by copper astragals to traditional profile (fixed to masonry using grade 316 stainless steel fixings).</p>			




ELEMENT	SIGNIFICANCE	CONDITION	PHOTOGRAPH
<b>EXTERNAL</b>			
Lay new ag line in the same trenches created for new stormwater lines and sumps to drain water from around the building, noting relative ground levels to surrounding context.			
EXT 11 Sandstone Walls	<b>Exceptional</b>	Good generally. Detailed inspection from EWP has revealed localised condition defects at parapet level.	
<p><b>Recommendations:</b></p> <p>Localised stone indents (approximately 30% of stone cornice at parapet level) and replace 1/No. damaged stone as shown on drawings.</p> <p>Provide new lead weathering to north sandstone cornice and parapet wall.</p> <p><b>Priority 2</b></p>			
EXT 12 Brick Walls	<b>High</b>	Fair Movement evident in west gabled end wall. Some cracking and repairs to previous penetrations required. Repointing required.	
<p><b>Recommendations:</b></p> <p>Engage Structural Engineer to investigate movement in west brick wall and cracking in brickwork.</p> <p>Install new lead capping to west brick gabled wall.</p> <p>Replace synthetic flashing along west brick gabled wall with new lead flashing.</p> <p><b>Priority 1</b></p>			
EXT 13 Timberwork	<b>Moderate</b> (reconstructed fabric)	Fair to poor	
<p><b>Recommendations:</b></p> <p>Timbers should be surveyed and deteriorated and rotted fabric replaced like-for-like. Seven year painting maintenance cycle is overdue for all timberwork.</p> <p><b>Priority 1</b></p>			

Table 4: Summary Condition Assessment, Significance and Recommended Actions (Internal)

ELEMENT	SIGNIFICANCE	CONDITION	PHOTOGRAPH
<b>INTERNAL</b>			
INT 1 Timber Structure	<b>High</b> (original structure) <b>Little</b> (introduced structure)	Not fully inspected. Limited roof access and no subfloor access.	
<p><b>Recommendation:</b>                      Further inspection required by Structural Engineer and appropriately qualified tradespeople. Repairs should be undertaken in accordance with engineer’s recommendations with the objective to retain all sound original fabric and implement augmentation measures to damaged structure wherever possible (new structure placed aside of existing member).</p> <p><b>Roof Structure:</b> Roof structure should be inspected in conjunction with remedial work to roof.</p> <p><b>Priority 1</b></p> <p><b>Floor Structure:</b> Check bearers, joists, clearances and sub floor ventilation of floor structure. Inspection may be facilitated by provision of 600x600mm framed access hatches with recessed brass lifts in timber floors in locations nominated by Architect.</p> <p><b>Priority 1</b></p>			
INT 2 Door Seals	<b>Moderate</b> (reconstructed timber joinery)	Good	
<p><b>Recommendation:</b>                      Provide weatherproof door seals to exposed external doors to prevent ingress of wind driven rain in storm events. (Note: Applies to external doors that are not sheltered i.e. excludes Ground Floor entry doors to tenancies).</p>			

Documentation to address the mould growth within the interior spaces has been addressed in a separate report.

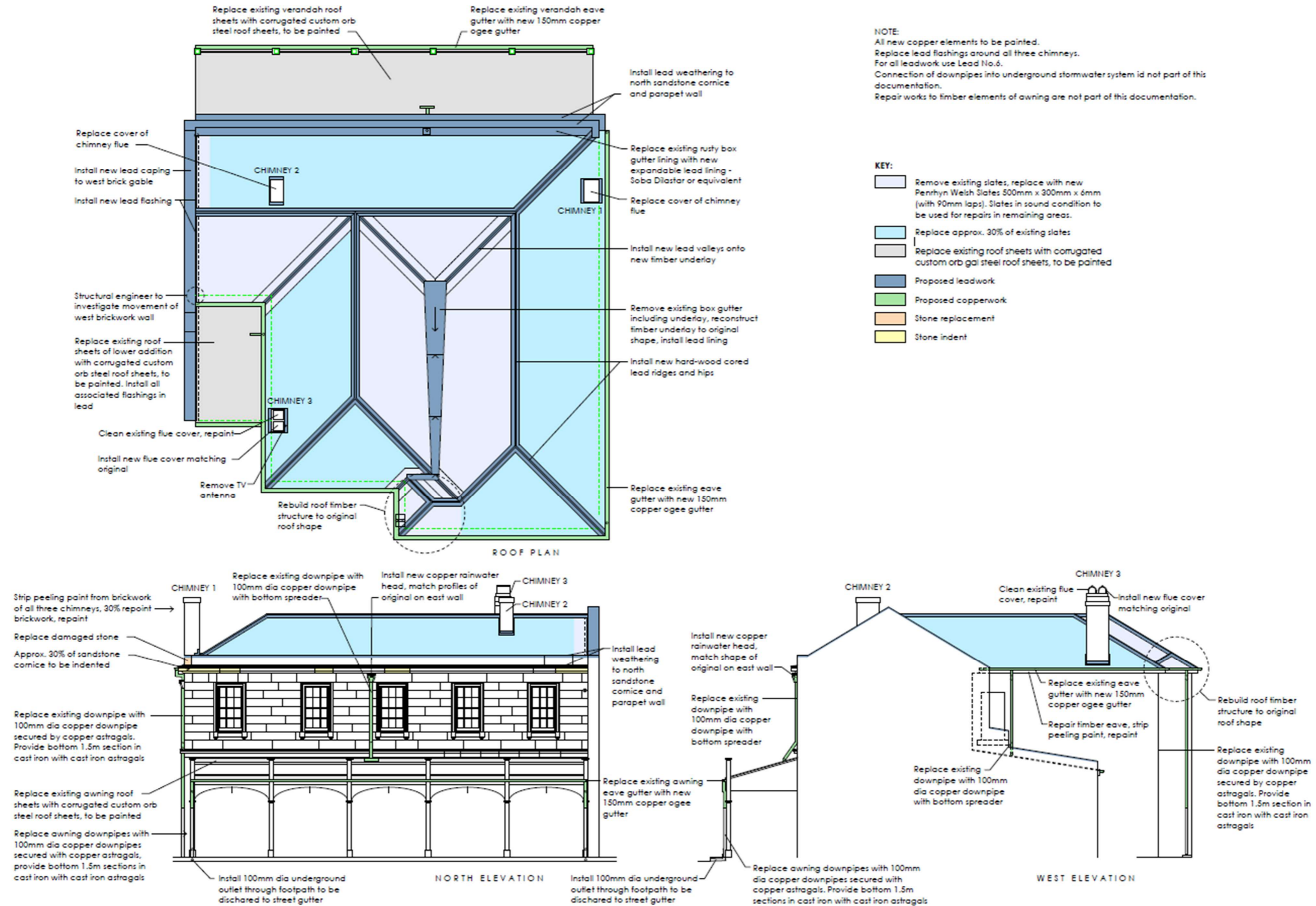


Figure 4-29: Recommended remediation works to the George Street Shops to address condition defects of the building. Remediation works to stormwater and sewer systems, and repair works to timber elements not shown. Source: OCP Architects 2024.

## 5 CONCLUSION AND RECOMMENDATIONS

### 5.1 Recommendations

The below recommendations are made to ensure that the cultural significance of the George Street Shops is appropriately managed:

1. The George Street Shops should be retained and conserved. There is a sufficient amount of original fabric remaining to inform building conservation work, including repair of damaged elements and reconstruction of missing elements.
2. Maintenance and repair works should be undertaken in accordance with the condition assessment in this report, with reference to priority order of works. Priority 1 works are required in the short-term.
3. Generally, implementation of Priority 2 works, while not essential in the short term should regardless occur concurrently with Priority 1 works to achieve the objectives of efficiency, cost-effectiveness and best heritage practice.
4. At the time of tendering for remedial works, provisional amounts may be allocated for costing purposes to account for areas unable to be inspected e.g. timber structures.
5. All work involving heritage fabric should be carried out by tradespeople with experience working on heritage structures.
6. Ensure that archaeological advice is sought prior to ground disturbing work. Seek the advice of an archaeologist to determine if an approval is required under the *Heritage Act 1977* and advise on appropriate archaeological management.
7. Hazardous materials assessment should be carried out prior to intervention, with works conducted in accordance with relevant Australian Standards.
8. Works should not be undertaken to the site and its built elements without the required approvals. It is noted that the recommended works in this report relate to essential maintenance and conservation and may be eligible for internal approval under delegation by Sydney Metro.
9. Regular monitoring of the building should occur during its extended period of vacancy to ensure that it is retained in good condition.

## 5.2 Conclusion

The George Street Shops are an important component of the early development of Parramatta as an example of what is possibly the oldest commercial building typology in Parramatta and Sydney – a row of shops with residences above. The building is worthy of protection in accordance with current best practice. Whilst the condition of some elements of the building are compromised, there is a sufficient amount of original fabric remaining to inform building conservation work, including repair of damaged elements and reconstruction of missing elements.

The investigation of the George Street Shops reveals that works are required to address a range of issues, with the current focus being works to the roof, associated rainwater goods and stormwater system as required by the brief. The identified condition defects are both:

1. allowing water to enter the building, accelerating deterioration of fabric and damp conditions internally; and
2. not allowing rainwater to exit the property as intended owing to the poor condition of the stormwater drainage system.

It is essential that remediation works are carried out to prevent further deterioration and ensure the longevity of the building, and a program of works should be implemented by Sydney Metro to meet its custodianship obligations under Section 170 of the *Heritage Act, 1977*. These works should be informed by this Condition Assessment, as well as analysis by Structural Engineer.



## **APPENDIX A – Franklins Australia (April 2024), Parramatta Heritage Building Hydraulic Investigation Report**

# Parramatta Heritage Building

## Hydraulic Investigation Report



Franklins Australia  
April 2024

## STORMWATER INSPECTION

Franklins Australia was engaged by O.C.P Architects to investigate the existing stormwater and Sewer drainage system located at 43-47 George Street Parramatta for the purpose of a condition report of the stormwater and Sewer assets. CCTV Inspection of stormwater and Sewer lines was carried out where possible and the findings supplied within this report.

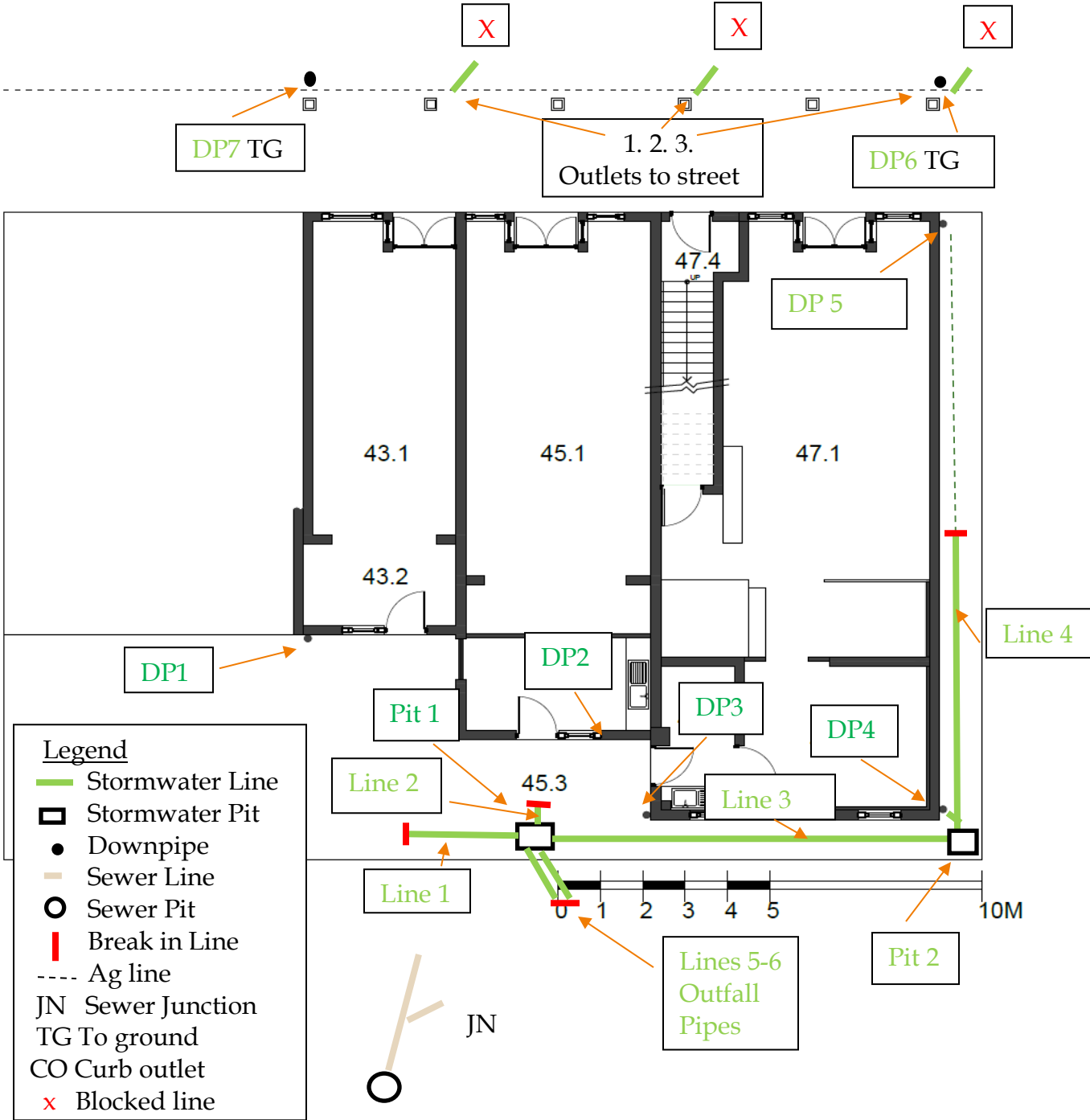
CCTV Inspection was performed at the Heritage building to assess the condition of the existing stormwater and sewer pipework. It was identified that the stormwater assets have sections of the pipework damaged, and a complete inspection of these assets was restricted due to these defects. Inspection of the sewer lines was limited due to no accessible means of inspection from the building to the Sydney Water manhole, however inspection from the Manhole to the service line connection was inspected.

**The asset register relates to the drawing attached in this report.**

### Asset Register

1	Downpipe No.1 is a 90mm PVC downpipe and access was not possible without damaging the downpipe.
2	Downpipe No.2 is no longer attached to the gutter and has been removed from the wall, rainwater exits down the wall to the ground.
3	Downpipe No.3 is a 100mm galvanized downpipe and access was not possible without cutting the downpipe.
4	Downpipe No.4 is a 90mm galvanized steel downpipe and connects to a 100mm PVC pipe. No inspection was possible without cutting the downpipe
5	Downpipe No.5 is a 90mm Galvanized downpipe and goes direct to ground.
6	Downpipe No.6 is a 90mm Colorbond downpipe and goes direct to ground.
Line 1	Line 1. is a 100mm PVC Pipe. The Inspection identified a major Break and 100% soil is visible CCTV Inspection was abandoned at this point.
Line 2	Line 2. is a 100mm PVC Pipe. The Inspection identified a major Break CCTV Inspection was abandoned this point.
Line 3	Line 3. Is a 100mm PVC Pipe. The inspection from pit 2 towards pit 1 was completed and no defects were identified. Water level was high due to no functioning outfall pipework.
Line 4	Line 4. Is a 100mm PVC Pipe. CCTV Inspection was performed but the asset is completely blocked with gravel indicating that there is a major break in the line, and CCTV inspection was abandoned, visual inspection found that the asset is connected to an AG Line. This connection is possibly broken or detached at the join.

Line 5 / 6	Lines 5 & 6. Outfall pipes are a 100mm PVC Pipe. CCTV Inspection was abandoned due to both the pipework broken and smashed at the invert and appear to be removed.
Sewer Pit	Sewer line. The sewer line is 150mm and the inspection was completed from the Manhole upstream to the dead end. The service line connection for the building is a 12 o'clock junction.
Outlets 1.2.3.	Outlets 1.2.3. The outlets to the street are 100% blocked and cleaning was not possible due to traffic control permit requirements.



## DRAINAGE INVESTIGATION

---

Franklins Plumbers have attended the site at Parramatta Heritage building site. The below log is and break down of findings for each downpipe and the internal condition identified through CCTV Inspection of the asset.

### Buildings 1 & 2

---

#### DP 1

- DP 1 is a 90mm PVC Downpipe and no CCTV Inspection was completed due to no access to the asset.

#### DP 2

- DP 2 is no longer attached to the gutter and has been removed from the wall, rainwater exits down the wall to the ground.

#### DP 3

- DP 3 is a 100mm galvanized steel downpipe it has rust sections and access was not possible without cutting the downpipe.

#### DP 4

- DP 4 is a 100mm galvanized steel downpipe and access was not possible without cutting the downpipe. It was identified that the downpipe exits into line 4.

#### DP 5

- DP 5 is a 90mm PVC Downpipe and no CCTV Inspection was completed due to no access to the asset.

#### DP 6

- Downpipe 6 is at the front of the building and the downpipe exits to the ground.

#### DP 7

- Downpipe 7 is at the front of the building and the downpipe exits to the ground.

#### Curb side outlets 1.2.3

- CCTV Inspection or cleaning was not possible due to road occupancy permit restrictions. However, it was identified that when cleaning of pit 1 line 2 was being performed small amounts of water was visible at curb outlet 2.

#### Pit 1 Line 1 to DP 1

- CCTV Inspection was carried out from pit 1 upstream to DP1, the initial inspection found the asset to be blocked with debris, high pressure jetting was performed, and further inspection post cleaning found the line to be completely broken fractured and separated exposing subsoil, the inspection was abandoned, and the location of the break located.

#### Pit 1 Line 2 to DP 2

- CCTV Inspection was carried out from pit 1 upstream to DP 2, the initial inspection found the asset to be blocked with debris, high pressure jetting was performed, and further inspection post cleaning found the line to be completely broken, the inspection was abandoned at this point.

#### Pit 1 Line 3 to Pit 2

- CCTV Inspection was carried out and the initial inspection found to be blocked with gravel, high pressure jetting was performed, and the asset cleared. Cctv Inspection was completed to the stormwater pit 2.

#### Pit 2 Line 4 to DP 5

- CCTV Inspection was carried out from pit 2 upstream to DP 5, the initial inspection found the asset to be blocked with debris and gravel, high pressure jetting was performed but the asset is completely blocked. CCTV Inspection was performed but the asset is completely blocked with gravel indicating that there is major break in the line, CCTV inspection was abandoned, and visual inspection found that the asset is connected to an AG Line. This connection is possibly broken or detached allowing gravel to enter the stormwater asset.

Sewer Pit

- CCTV Inspection of the Sewer line from the Sydney Water Manhole was completed to the dead end with no issues identified. The Inspection identified that there is a 12 o'clock connection and could possibly be the service line to the building, this cannot be confirmed as there is no access to the sewer from upstream.

## DRAINAGE INVESTIGATION

Pit 1 Line 1 – DP 1

CCTV Inspection was carried out from pit 1 upstream to DP1, the initial inspection found the asset to be blocked with debris, high pressure jetting was performed, and further inspection post cleaning found the line to be completely broken fractured and separated exposing subsoil. The inspection was abandoned, and the location of the break located.

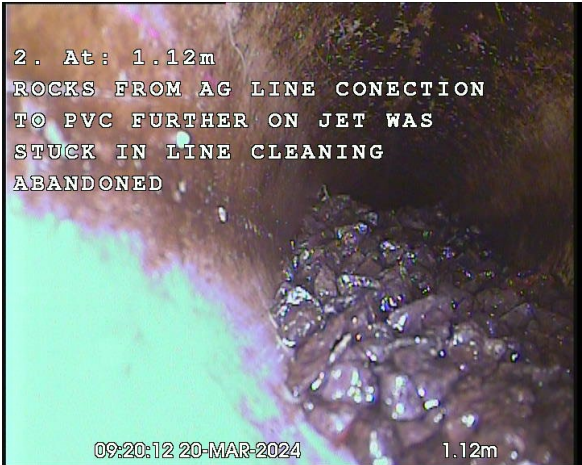


Pit 1 Line 2 to DP 2

CCTV Inspection was carried out from pit 1 upstream to DP 2, the initial inspection found the asset to be blocked with debris, high pressure jetting was performed, and further inspection post cleaning found the line to be completely broken and holding water, the inspection was abandoned at this point.



Pit 2 Line 4 to DP 5  
CCTV Inspection was carried out from pit 2 upstream to DP4, the initial inspection found the asset to be blocked with debris and gravel, high pressure jetting was performed but the asset is completely blocked. CCTV Inspection was performed but the asset is completely blocked with gravel indicating that there is major break in the line, CCTV inspection was abandoned, and visual inspection found that the asset is connected to an AG Line. This connection is possibly broken or detached



DP 1  
Is a 90mm PVC Downpipe and no CCTV Inspection was completed due to no access to the asset



DP 2  
Is no longer attached to the gutter and has been removed from the wall, rainwater exits down the wall to the ground.



## DRAINAGE INVESTIGATION

### DP 3

Is a 100mm galvanized steel downpipe and access was not possible without cutting the downpipe, the condition of the downpipe is heavily rusted.



### DP 4

Is a 100mm galvanized steel downpipe and access was not possible without cutting the downpipe. It was identified that the downpipe exits into line 4.



### DP 5

Is a 90mm PVC Downpipe and no CCTV Inspection was completed due to no access to the asset. Visual inspection found that the downpipe goes into and AG line that is just under the topsoil, flow test confirmed that this DP exits into line 4 pit 2, CCTV Inspection confirmed line is full of rocks.





## DRAINAGE INVESTIGATION

### Pit 1

Has 5 lines in the pit the twin lines 5.6 are completely smashed and no CCTV Inspection was possible. CCTV Inspection of Line 1 goes to towards DP1 but has a major break, line 2 also has a break and cannot be cleared this line appears to be heading towards the building, Line 3 is clear to pit 2 with no defects.



### PIT 2

CCTV Inspection was carried out from pit 2 upstream to DP5, the initial inspection found the asset to be blocked with debris and gravel, high pressure jetting was performed but the asset is completely blocked. CCTV Inspection was performed but the asset is completely blocked with gravel indicating that there is major break in the line, CCTV inspection was abandoned, and visual inspection found that the asset is connected to an AG Line. This connection is possibly broken or detached allowing gravel to enter the stormwater asset.



### Sewer pit 1

CCTV Inspection of the Sewer line from the Sydney Water Manhole was completed to the dead end with no issues identified. The Inspection identified that there is a 12 o'clock connection and could possibly be the service line to the building, this cannot be confirmed as there is no access to the sewer from upstream.



**Curb outlet 2**

CCTV Inspection or cleaning was not possible due to road occupancy permit restrictions. However, it was identified that when cleaning of pit 1 line 2 was being performed small amounts of water was visible at curb outlet 2. line 2 from pit 1 could possibly be an out fall line going under the building to curb.



**Under floor venting**

Visual inspection of the under-floor venting identified that the vent configuration has the potential for water to ingress under the building. It was identified that the vents are lower than the ground level and there was moss and wet soil in the venting pits when the grates were lifted for inspection.



**Out fall pit**

Inspection of the rear of the site identified that the surrounding area has been built up and is higher than the building ground level, the fact that there is no adequate drainage outfall, and that the stormwater pipes have no functioning exit pipes is allowing stormwater to saturate the area, the over supply of water has the potential to build up and enter the venting pits and travel under the building, this would be contributing to issue associated with water damage.



---

## PROJECT CONCLUSION

---

### Stormwater

The overall condition of the stormwater drainage system is in poor condition and not functioning as required. It was identified that the downpipes have sections of rusting and one downpipe have been removed allowing water to exit onto the ground or down the side of the building, in addition some of the pipe work has been replaced with PVC pipe and has poor workmanship when connecting to the existing pipes, it was also noted that the guttering is rusted out and not capturing the roof run off in areas allowing water to saturate the ground surrounding the building.

CCTV Inspections identified that the downpipes that are connected to the main stormwater are not functioning as required due to major breaks in the pipe work restricting the flow of water to the pits. It was also identified that the pits have no functioning outfall lines to the street or to a drainage network due to major breaks or the removal of the original outfall lines, this issue is not allowing rainwater to exit the property as intended and possibly flooding the area in rain events.

Inspection of the under-floor venting grated pits identified that the vent configuration has the potential for water to enter into the pit and then ingress under the building. It was identified that there was moss and wet soil in the venting pits when the grates were lifted for inspection.

Inspection of the rear of the site identified that the surrounding area has been built up and is higher than the building ground level, the fact that there is no adequate drainage outfall, and that the stormwater pipes have no functioning exit outlet pipes, this is allowing stormwater to saturate the area, the over supply of water has the potential to build up and enter the venting pits and travel under the building, this would be contributing to issue associated with water damage.

CCTV Inspection overall found that the internal condition of the stormwater drainage lines are not functioning and will need to be replaced in section or entirely due to the major breaks to the majority of the pipework. The re-establishment of the drainage outfall pipework is critical to the site as the stormwater drainage system has no functioning exit points, rectification works are required and reconnection to the council stormwater easement network would be a high priority.

---

## PROJECT CONCLUSION

---

### Sewer line

The external Inspection of the Sewer line was limited due to access for the sewer on the property to be limited to only a gully at the back of the building, due to the configuration of the gully, inspection was not possible and no other inspection access or location of the sewer on the property was not identified.

CCTV Inspection was performed from the Sydney water sewer manhole upstream to the dead end, the inspection identified a sewer junction at 12 o'clock, this could possibly be the connection for the building service line. The inspection of this line was not possible as this is an incoming vertical junction and the inspection was not possible.

Any further inspection or location of the sewer line will require excavation of the known access points for CCTV Inspection equipment entry to continue the tracing and assessment of the sewer line.

## PROJECT CONCLUSION

---

All recommendations by Franklins Plumbing are related to the condition of the stormwater and sewer drainage only, it would be recommended that structural engineers assess the findings on the issues identified in this report and supply their own findings on the rectification actions to prevent further damage to the building.

All photos and videos taken onsite can also be supplied if requested.

**Michael Breed**  
Operation Manager  
CCTV Inspection & Jetting



☎ (02) 9625 9222 | ☎ +61 0428 548 281

✉ [michael.b@franklinsaustralia.com.au](mailto:michael.b@franklinsaustralia.com.au)

🌐 [www.franklinsaustralia.com.au](http://www.franklinsaustralia.com.au)

## **APPENDIX B –Architectural Leadworks P/L (April 2024), 43-47 George Street, Parramatta, Roof Report**



# ARCHITECTURAL ROOFING SERVICES

## Roof Report

# 43-47 George Street Parramatta



## ARCHITECTURAL ROOFING SERVICES PTY LTD

HERITAGE ROOFING WORKS | COMMERCIAL | RESIDENTIAL | TENDER PROJECTS

LEAD | SLATE | METAL | COPPER | CAST IRON



# ARCHITECTURAL ROOFING SERVICES

## Architectural Roofing Services Pty Ltd

ABN: 22 105 549 344  
50b Waterview Street, Carlton NSW 2218  
PO Box 980, Glebe NSW 2037  
T 02 9550 0498 | F 02 8338 3029  
W [www.arooftingservices.com.au](http://www.arooftingservices.com.au)

22.04.2024

OCP Architects  
Studio 7, Level 1, 35 Buckingham St  
Surry Hills NSW 2010  
Australia

**Dear Karen,**

**Project Name: Roof Report**

Delivery Address: 43-47 George Street Parramatta

### Objective:

Our goal at Architectural Roofing Services is to provide a detailed inspection of heritage buildings identifying any future maintenance issues and future replacements of fabrics back to original heritage design & workmanship

### Contents

1. Observations: Digital photos with comments, describing any defects, damage, potential repairs, or future maintenance works
2. Recommendations: Summary of Inspection and suggested actions to repair or replace any defective Roof areas.

HERITAGE ROOFING WORKS | COMMERCIAL | RESIDENTIAL | TENDER PROJECTS

LEAD | SLATE | METAL | COPPER | CAST IRON



# ARCHITECTURAL ROOFING SERVICES

## Observations:

The visual inspection was taken from, elevated working platform (EWP) inspecting slate roofs, corrugated roofs, lead flashings, box gutters, downpipes and external fascia gutters for future repair or replacement works.

The picture below of 43-47 George Street, Parramatta has been broken down into three individual roof sections for observation and recommendations with digital pictures.

Figure 1: Roof plan



Roof 1: Main slate roof

Roof 2: Front street awning roof

Roof 3: East rear lower metal roof

**HERITAGE ROOFING WORKS | COMMERCIAL | RESIDENTIAL | TENDER PROJECTS**

**LEAD | SLATE | METAL | COPPER | CAST IRON**





# ARCHITECTURAL ROOFING SERVICES

43-47 George street building consists of a main slate roof with a internal box gutter system running from North to South, Internal box gutter to North elevation running west to east behind stone parapet there are three chimney penetrations with front street metal awning roof and a rear lower metal roof to east elevation.

## Roof 1: Main slate roof.

The main slate roof consists of Welsh slate to all elevations with existing lead hip & ridges ( which has been stolen ) in a larger king roll detail, three chimneys are present with poor lead flashing details to slate roof.

There is one Gable end brick wall detail with recent lead flashing works attached to the brick wall to the slate roof. Valleys are galvanized sheet metal and are corroding

The internal front box gutter to the street façade behind the stone parapet is in galvanized sheet metal with one outlet feeding through a stone wall to a new color bond rain head and downpipe discharging to the front street awning roof.

The internal box gutter system running from North to South has been altered and changed into a color bond metal box gutter discharging water through the eaves lining outlet to a downpipe on the East elevation.

The external guttering system fixed to the fascia board is a 100mm half-round galvanized gutter with 75mm outlets to 75mm downpipes

The Wakeflex temporary repairs to the lead ridge and hips will need to be removed and replaced with 30kg/m<sup>2</sup> lead sheeting, Valleys will require total replacement with new 25kg/m<sup>2</sup> lead sheeting.

The slates will need to be removed and salvaged to re-install with new batons and Procter sarking to all external facades with new Welsh slates used for the internal box gutter system when works proceed.

Chimneys need total lead flashing replacement in 30kg & 25kg lead, the front parapet box gutter which is corroded will need to be replaced in 40kg/m<sup>2</sup> lead with expansion joints and a new designed sump box outlet to the external rain head.

The internal box gutter running from north to South will need to be replaced in 40kg/m<sup>2</sup> lead sheeting with stepped detail discharging around the roof to the front fascia gutter.

All external fascia gutters to be enlarged and changed to either galvanized iron or copper were acceptable in half round or OG profile with larger 100mm round downpipes to cast iron downpipes at ground level.

**HERITAGE ROOFING WORKS | COMMERCIAL | RESIDENTIAL | TENDER PROJECTS**

**LEAD | SLATE | METAL | COPPER | CAST IRON**



# ARCHITECTURAL ROOFING SERVICES



Figure 2: Main slate roof

**HERITAGE ROOFING WORKS | COMMERCIAL | RESIDENTIAL | TENDER PROJECTS**

**LEAD | SLATE | METAL | COPPER | CAST IRON**



# ARCHITECTURAL ROOFING SERVICES



Figure 3: Front parapet internal box gutter

**HERITAGE ROOFING WORKS | COMMERCIAL | RESIDENTIAL | TENDER PROJECTS**

**LEAD | SLATE | METAL | COPPER | CAST IRON**



# ARCHITECTURAL ROOFING SERVICES

## Roof 2: Front street awning roof

The front awning to George Street is of corrugated galvanized metal sheeting including rolled barge ends to each end of roofing sheets with lead wall flashings fixed into the stonework, one central downpipe from above parapet box gutter discharges onto this awning, the front gutter is half round galvanized metal with two 100mm round downpipes discharging to ground level kerb outlets.

Lead flashings have been installed around each supporting post to front of the awning which penetrates roof sheeting.

Roof sheeting has some corrosion and wear and should be replaced with new 0.6mm galvanized corrugated roof sheeting and new 25kg/m<sup>2</sup> lead wall flashings fixed into the stone wall façade.

New heritage rain head fitted to front façade with galvanized iron painted 100mm downpipe and spreader

Lead flashings to supporting timber post replaced in 25kg/m<sup>2</sup> then traditionally soldered to new roof sheeting.

External gutter enlarged to 150mm either half round or heritage OG profile with new 100mm round downpipes connecting to cast iron pipe connections at ground level.

**HERITAGE ROOFING WORKS | COMMERCIAL | RESIDENTIAL | TENDER PROJECTS**

**LEAD | SLATE | METAL | COPPER | CAST IRON**



# ARCHITECTURAL ROOFING SERVICES



Figure 4: Front street awning metal roof

HERITAGE ROOFING WORKS | COMMERCIAL | RESIDENTIAL | TENDER PROJECTS

LEAD | SLATE | METAL | COPPER | CAST IRON



# ARCHITECTURAL ROOFING SERVICES

## Roof 3: Rear lower south metal roof.

The lower rear South metal roof is Galvanized corrugated roof sheeting with lead flashings on three sides to wall junctions and a front half-round gutter with a downpipe to ground level.

Roof sheeting should be replaced with new 0.6mm galvanized corrugated roof sheeting with new 25kg/m<sup>2</sup> under and over lead flashings fixed into each wall junction.

External gutter to be enlarged to 150mm either Half round or Heritage OG profile with 100mm round downpipe to cast iron connection at ground level.



Figure 5: Lower South metal roof sheeting

**HERITAGE ROOFING WORKS | COMMERCIAL | RESIDENTIAL | TENDER PROJECTS**

**LEAD | SLATE | METAL | COPPER | CAST IRON**



# ARCHITECTURAL ROOFING SERVICES

## Recommendations:

- Remove all slates from the Main roof and re-salvage with new batons Procter sarking to all external facades
- Install new Welsh Penryn slates to North-South internal box gutter roofs
- Replace all box gutters with 40kg/m2 lead sheeting
- Replace all valleys, Chimneys, ridge & hip details in new lead
- Enlarge all new existing gutters to 150mm in half round or Heritage OG profile
- Replace all down pipes in 100mm round with cast iron pipes at ground level
- Replace all roof sheeting to the front street awning and rear lower South roof in 0.6mm galvanized roof sheeting

## Summary:

- Main slate roof needs total replacement with all new lead flashing works and re-design of internal box gutter systems
- New enlarged sump box to front parapet box gutter
- Roof sheeting replaced to all roofs with new lead flashing works
- New enlarged fascia gutters with larger downpipes were required

Should you have any queries regarding this please do not hesitate to contact me.

Yours faithfully

**Kevin Allan**

Director

Architectural Roofing Services Pty Ltd

**HERITAGE ROOFING WORKS | COMMERCIAL | RESIDENTIAL | TENDER PROJECTS**

**LEAD | SLATE | METAL | COPPER | CAST IRON**



# ARCHITECTURAL ROOFING SERVICES

HERITAGE ROOFING WORKS | COMMERCIAL | RESIDENTIAL | TENDER PROJECTS

LEAD | SLATE | METAL | COPPER | CAST IRON



---

## Appendix B – Heritage Review of Recommendations

# 43-47 GEORGE STREET, PARRAMATTA

(George Street Shops)

Mould Remediation – Heritage Review of Recommendations



For Gamuda Laing O'Rourke Consortium (GLC)

Job No 23065

Issue B – 12 June 2024

### Report Register & Document Status

The following register indicates the development and issue number of this report, undertaken by OCP Architects.

Issue	Date	Purpose	Author
A	17 April 2024	Issue A for Client Review	Karen Urquhart
B	12 June 2024	Updated based on Client review	Karen Urquhart

### Copyright

OCP Architects has, where possible, referenced the historical sources and reference material within this report. Reasonable effort has been made to identify, contact, acknowledge and obtain permission to use material from the relevant copyright holders. Copyright in this report remains with OCP Architects Pty Ltd ('OCP') and in the owners of any pre-existing historic source or reference material.

### Right to Use

OCP Architects grants the right for the client to reproduce or use this report, specific to this project and site, unless the use infringes on other copyright or rights of OCP Architects or third parties.

## CONTENTS

<b>1</b>	<b>INTRODUCTION</b> .....	<b>3</b>
1.1	Scope of Assessment and Limitations.....	3
1.2	Site Identification.....	3
1.3	Methodology and Terminology.....	5
1.4	Authorship.....	5
1.5	Heritage Listings.....	5
1.5.1	Statutory heritage listings.....	5
1.5.2	Non-statutory heritage listings.....	6
<b>2</b>	<b>HISTORICAL CONTEXT</b> .....	<b>7</b>
2.1	Chronology and Sequence of Development, George Street Shops.....	7
<b>3</b>	<b>STATEMENT OF SIGNIFICANCE</b> .....	<b>10</b>
<b>4</b>	<b>PHYSICAL OVERVIEW</b> .....	<b>11</b>
4.1	General Description.....	11
4.1.1	Interiors.....	12
<b>5</b>	<b>PRELIMINARY MOULD ASSESSMENT</b> .....	<b>17</b>
5.1	Mould Remediation Decisions based on Condition – IICRC S520.....	17
5.2	Review of Recommendations (HIBBS 2023).....	18
5.3	Significance Gradings and Fabric Condition Survey.....	19
<b>6</b>	<b>CONCLUSION AND RECOMMENDATIONS</b> .....	<b>27</b>
6.1	Recommendations.....	28
<b>7</b>	<b>Bibliography</b> .....	<b>30</b>
	<b>APPENDIX A – HIBBS (July 2023) <i>Preliminary Mould Assessment, Heritage Building 45 George Street</i></b> .....	<b>31</b>

## 1 INTRODUCTION

This report has been prepared by OCP Architects for Gamuda Laing O'Rourke Consortium (GLC) to comment on the potential heritage impacts of remedial actions recommended to address mould growth in the interiors of the building located at 43-47 George Street, Parramatta, known as George Street Shops. The recommendations being reviewed are contained within the *Preliminary Mould Assessment, Heritage Building 45 George Street Parramatta* prepared by HIBBS and dated 21 July 2023 (HIBBS 2023). The building is currently unoccupied. The objective of this report is to inform decisions about the management of the building and documentation of appropriate rectification works.

### 1.1 Scope of Assessment and Limitations

OCP Architects were engaged by GLC to review the condition of the George Street Shops, specifically in relation to the roof and stormwater drainage system, elements of which are missing, corroded or otherwise not functioning as intended, which is contributing to damp conditions around and within the building. A separate report has been prepared to identify condition defects based on review of the exteriors of the building (OCP June 2024a).<sup>1</sup> Owing to the poor condition of the elements of external fabric, the interiors have been subject to considerable water ingress which has led to mould growth. Environmental consultants HIBBS have assessed the interiors and this report has been prepared to assess potential heritage impacts associated with recommended remedial actions to address the mould conditions.

This report is based upon physical inspection of the site undertaken by OCP Architects on 19 March 2024. The physical inspection involved visual review of the interiors, including a brief visual inspection of the roof space localised in the area of the manhole located near the centre of the building, adjacent to the internal stair. No fabric was removed during the course of investigations.

### 1.2 Site Identification

The George Street Shops are part of a larger site known as 41-59 George Street, the whole site of which is subject to statutory heritage listing at a local level. This site is legally known as Lot 10, Deposited Plan 858392, located within the City of Parramatta Council. The cadastral register comprises the following land parcels:

- 41 George Street, Parramatta.
- 43-47 George Street, Parramatta (George Street Shops), a locally listed heritage item.
- 49-59 George Street, Parramatta.

The study area for this report to review heritage impacts of preliminary mould remediation recommendations is the shops building at 43-47 George Street, Parramatta (George Street Shops). It does not include the additional parcels of land comprising the full extent of the lot boundary for 41-59 George Street or the amalgamated site area of the Parramatta Metro Precinct.

Refer Figure 1-1 and Figure 1-2.

---

<sup>1</sup> OCP Architects, June 2024, *43-47 George Street, Parramatta, Condition Assessment Report (Roof & Stormwater Drainage)*.



Figure 1-1: Lot plan for 41-59 George Street, Parramatta. Source: NSW ePlanning Spatial Viewer.

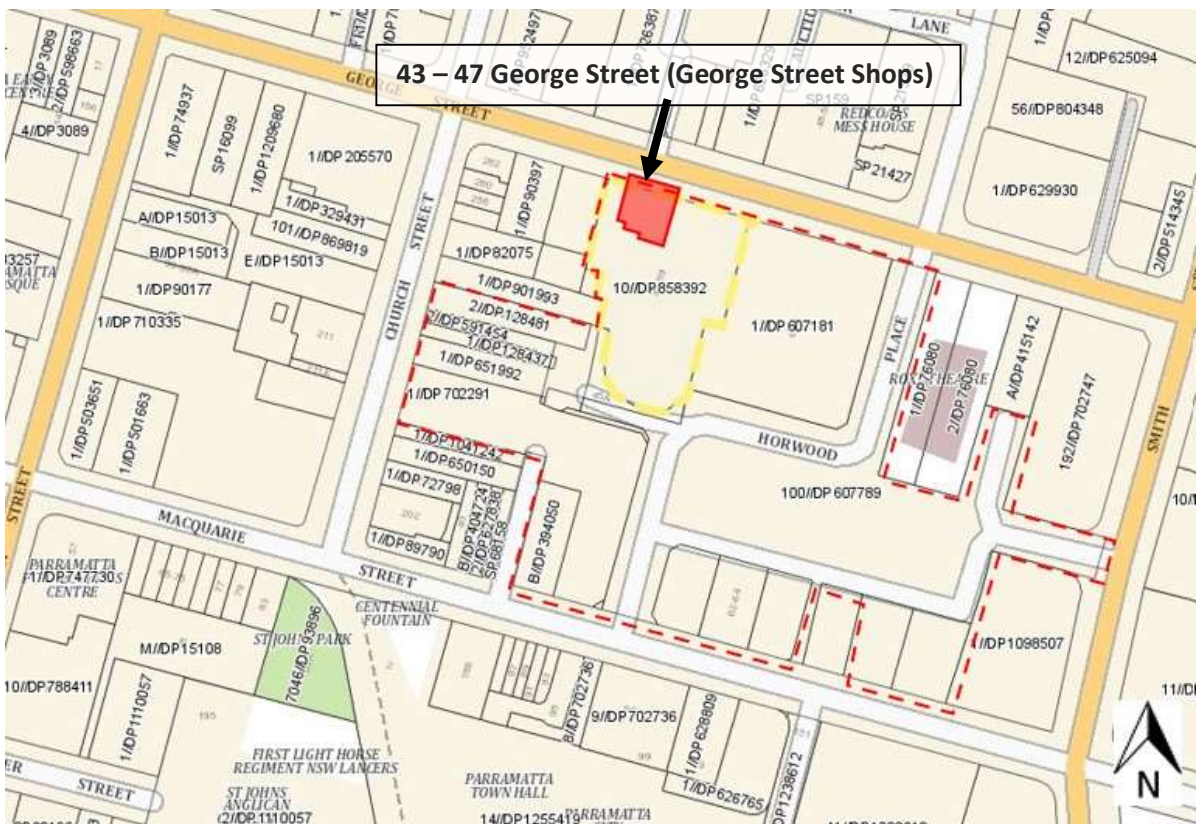


Figure 1-2: Cadastral plan showing the subject site at 43-47 George Street shaded in red with a continuous red outline. The extent of Parramatta Metro Precinct is indicated by a dashed red line; the lot boundary for 41-59 George Street is indicated by a dashed yellow line. Source: NSW ePlanning Spatial Viewer.

## 1.3 Methodology and Terminology

The principles contained in the Australian ICOMOS *Charter for the Conservation of Places of Cultural Significance (The Burra Charter) 2013* are used as a methodology for undertaking the physical assessment and providing recommendations, which are based on the assessed heritage significance and physical condition of the George Street Shops.

## 1.4 Authorship

The report was prepared by OCP Architects Pty Ltd, written by Karen Urquhart (Associate - Architect & Heritage Specialist).

## 1.5 Heritage Listings

### 1.5.1 Statutory heritage listings

Statutory heritage listings for the subject site are presented in Table 1-1 below. The George Street Shops are currently a local heritage item listed with Parramatta City Council, in Parramatta Local Environmental Plan 2011. The site is also included in Sydney Metro's draft Section 170 heritage register in accordance with requirements for State agencies under the NSW Heritage Act.

Statutory listings carry legal obligations that must be met in accordance with the proper management of the place.

Table 1-1: Statutory heritage listings for the George Street Shops

Register / listing	Item listed (Y / N)	Item name	Item no.	Type of listing
National Heritage List	N	-	-	-
Commonwealth Heritage List	N	-	-	-
Heritage Act State Heritage Register	N			
Sydney Metro NSW Heritage Act Draft Section 170 Heritage and Conservation Register	Y	George Street Shops, 43-47 George Street	TBC	Local / State
Parramatta Local Environmental Plan 2011	Y	Shops (& potential archaeological site) 41-59 George Street	I 1766	Local

### 1.5.2 Non-statutory heritage listings

Non-statutory heritage listings for the subject site are presented in Table 1-2 below. While these listings do not carry any legal obligations towards the management of a place, they are indicative of its importance to advocacy groups, or its significance under former heritage systems.

Table 1-2: Non-statutory heritage listings for the George Street Shops

Register / listing	Item listed (Y / N)	Item name	Item no.	Date of listing
<b>National Trust of Australia (NSW) Heritage Register</b>	Y	Shops 43-47 George St	-	23 July 1984
<b>Register of the National Estate</b>	N			
<b>Institute of Architects (NSW) Register of Significant Buildings</b>	N	-	-	-
<b>Engineers Australia Australian Engineering Heritage Register</b>	N	-	-	-
<b>Docomomo Australia Buildings Register</b>	N	-	-	-



## 2 HISTORICAL CONTEXT

The following brief historical chronology comprises information sourced from the Conservation Management Plan (CMP) prepared for the George Street Shops.<sup>2</sup> Refer to the CMP for additional historical information.

### 2.1 Chronology and Sequence of Development, George Street Shops

Year	Development / Event
1790	The allotment encompassing George Street Shops is known to have had two convict huts.
1801	Weatherboard repairs to huts.
1820s	Convict huts replaced.
1822-1844	'St Patrick's Inn' operates on the site; most likely located of between the two convict huts, as per 1823 map (on Allotment 14).
1823	George Street lots move further north, most likely to the current configuration, where width of George Street altered.
1823	John Montgomery is lessee of the site.
1839-1844	Construction of 'two attached sandstone shops and dwellings' (today known as 45 & 47 George Street).
1841	Montgomery died, leaving his wife, Elizabeth Andrews, a life interest in Allotment 14 and bequeathing it to the Roman Catholic Church after her death.
1845	Elizabeth Andrews relinquished her life interest in Allotment 14 to Rev. John Bede of the Roman Catholic Church.
1848	Allotment 14 (subject site) was subdivided into three lots and advertised for auction. The subject site is now located on Lot 1 of Allotment 14; described as cottage with verandah and outbuildings of stables, kitchen and blacksmith.
1848	Lot 1 purchased by Frederick Beale for £250, who operated a bakery on site.
By 1854	Substantial improvements may have been made to the property, noting significant increase in its value in sale to publican Peter Miller for £1000.

<sup>2</sup> OCP Architects, July 2023, *43-47 George Street, Parramatta (George Street Shops) Conservation Management Plan*.

Year	Development / Event
	Council rate book describes Lot 1 as comprising 2 stone houses, each having a rateable value of 78 pounds and 65 pounds for the western and eastern halves respectively, indicating that the houses were attached dwellings.
1854	Wholesale wine and spirits store operates on site; potential site of 'Miller & Co.'s Cordial Factory.'
1860	General drapery shop operates on site prior to sale of their goods advertised owing to impending extensive renovations of the premises.
1876	Miller sold the property to Henry Charles Woolcott for £2000. 'Woolcott Chemist' Chemist / druggist / dispensary shop operates on site.
1876	Chemist owned by Samuel Harris operates on the site until 1883.
1882	Council Rate Book describes the property as containing brick houses.
1883	Interest in the property conveyed to Joseph Whitworth.
1891	Council Rate Book describes the western half as a brick house and dwelling and the eastern half as a brick shop and dwelling.
1895	Various outbuildings to rear, including large outbuilding on the western boundary. Cartway to the west of the building appears on plan with a structure overhead, suggesting that the first floor of 43 George Street had been constructed by this time.
Around turn of the century	Cartway converted into third shop - No. 43. George Street.
Early 1900s	Bank operates on site.
1921	'Victoria Theatre' Cinema music house operates at No. 45 George Street.
1923	Finalisation of the Whitworth estate sees the property advertised for auction.
1926	The buildings on the front of the lot were described as brick shops. There were extensions to the rear, the eastern one of which was called a brick dwelling. There was also a detached brick outbuilding to the rear, on the eastern boundary of the lot.
1926-1950s	Warehouse for furrier and dyer operates on site (Lot 1).
1927	Booth & McCallum' home furnishers operates at No. 47 George Street.
By 1930s	Post supported timber awning replaced by a suspended awning.

Year	Development / Event
1931	'Maples Furnishings' operates at No. 45 and No. 47 George Street.
1933	'Sterling Furniture Co.' operates at (No. 45 and) No. 47 George Street.
1936	'Wilks Piano' operates at No. 47 George Street.
1939	Fire destroys the Old Victoria Theatre to the east of the site. The contents of shops fronting George Street were badly damaged by smoke and water, although no structural damage was reported.
1939-1970s	Fruit and grocery shop operates at the site (Lot 1).
1947	Leather goods by Arthur Hertford operates at the site.
1970s	Building photographed with suspended awning still extant and chimney missing from the front north eastern corner.
1984	El Cheapo Book Warehouse' operates at 47 George Street.
1994	Extensions to the rear included two one-storey brick-and-fibro shops, a two-storey brick building with an aluminium roof, a brick-and-fibro shed with a galvanised iron roof, and a galvanised iron lean-to.
1990s	Major conservation works that included reconstruction of missing chimney, timber-post supported awning and timber joinery within the building. Rear additions of original building demolished.
2020	Accountant, 'Max Tax' at No. 43 George Street, 'Barber Salon' at No. 45 George Street, Hairdresser, 'High Cut' at No. 47 George St and adult English coaching in first-floor level offices, named 'PTE Institute.' Property was vacated subsequent to acquisition by Sydney Metro.
2022	Demolition works within the Parramatta Metro Precinct in accordance with State Significant Infrastructure approval (SSI-10038 <i>Sydney Metro West - Concept and Stage 1 (major civil construction between Westmead and The Bays)</i> ). Demolition works included: <ul style="list-style-type: none"> <li>• Other development within the lot boundary for 41-59 George Street, including buildings on George Street to the east and the west.</li> <li>• Rear two storey C20th addition and rear balcony of the George Street Shops.</li> </ul> The western wall of the subject site was revealed to be in part shared with the previous building at 41 George Street.

### 3 STATEMENT OF SIGNIFICANCE

The CMP established the heritage significance of the George Street Shops and provided the following statement of significance:

*The George Street Shops at 43-47 George Street, Parramatta, are of is of State significance in terms of their historical, rarity and representativeness values; and of local significance in terms of their aesthetic and technical values. Sited on the major historic thoroughfare of George Street within the planned city grid alongside the Parramatta River and part of the first major development cycle in the nineteenth century, the place directly contributes to the cultural significance of Parramatta as the first planned town landscape among Australian cities, subject only to two major development cycles over two centuries of its history.*

*The site of the George Street Shops are significant for its ability to provide material evidence of European settlement, including land tenure, subdivision, urban planning and land use in pre-1850s Parramatta. It is significant for its association with late eighteenth century convict huts; with the historical realignment of George Street; and for its connection with the early growth of Parramatta as a major regional centre, which in itself is recognised for its high contribution to NSW's cultural heritage. These latter associations are embodied in the construction of the building in the 1840s, which occurred at a time when the focus of land use was evolving to commercial activity rather than the agricultural premise on which Parramatta was founded. The building demonstrates continuity of historical use as commercial premises from its construction until recently, a period exceeding 170 years.*

*The George Street Shops constitute an archetypal example of a nineteenth century commercial tenement consisting of shopfronts at ground floor level with (former) residences above – built in the early Victorian Regency style. It is a rare example of the style within this context, the only surviving example of its type and style in Parramatta and one of only a limited number of like surviving examples located in the vicinity of the first settlement at Sydney. While the building has been affected by alterations and additions, sufficient evidence remains to demonstrate the typology in accordance with the original design intent, which in conjunction with conservation works implemented in the 1990s provides evidence of the traditional character of the building. The building remains as a good example of a Victorian Regency commercial development.*

*As one of the few surviving examples of its kind, the George Street Shops serve as an important physical reminder of the nineteenth century streetscape character of George Street, Parramatta's original High Street. Aesthetically, it is comprised of clearly defined rectangular forms arranged symmetrically with sparing detail including shallow projecting stone window surrounds, string line and parapeted roof which characterise the style in conjunction with the shopfront joinery and ground floor post-supported awning with shaped timber joinery. As the original and early planning layout is relatively intact, it provides a resource for understanding spatial planning and room layout in a nineteenth century residential and commercial tenement.*

*The George Street Shops constitute a potential resource for investigation and public interpretation through archaeological investigation. Future archaeological investigations within the footprint of the building have the potential to yield new or further scientific and / or archaeological information associated with the building as an important benchmark of its type and aspects of commercial activity in the nineteenth century Parramatta. The value of the potential archaeological resource would likely be enhanced by broader archaeological investigation of immediately surrounding sites considering the nature of changes that have occurred across the site over time, not least being the narrowing and realignment of George Street.*

## 4 PHYSICAL OVERVIEW

### 4.1 General Description

The George Street Shops consist of three ground floor shops with first floor level. The first floor of the building is accessed via internal stairs located behind an entrance between No. 45 and No. 47 George Street. A timber post-supported awning provides a protected pedestrian walkway to the footpath on George Street in front of the three shops.



Figure 4-1: George Street elevation of the Shops. Source: OCP Architects (2020).

The shopfronts facing onto George Street are in the early Victorian Regency style with a plain Ashlar sandstone façade above a reconstructed timber awning. The first-floor level has a simple classic style sandstone parapet, architrave mouldings, sills, and stringline between floor levels, while each shopfront to the ground floor level presents typical Victorian shopfront features, including engraved sandstone decorative pilasters between the recessed entrances of the shopfronts.

The rear and side walls of the building are brick laid in English bond. Notably along the rear elevation, the floor plate of each shop becomes progressively deeper from east to west, which is reflected in the stepping of walls, and also roof form.

The primary roof is slate, with cross hip slate roofs are situated over each of 45 and 47 George Street. The roof comprises reconstructed fabric (c.1990s) that retains the original form. The metal ridge cappings to these roofs were installed in May 2023 as a temporary measure to prevent ingress of water to the building, which was occurring as a result of missing ridge cappings and deterioration of remaining fabric.

Refer to the *Condition Assessment* (OCP June 2024a) for additional information about the external condition of the building.

### 4.1.1 Interiors

The interiors of the George Street Shops have been altered over time, as a result of changes in occupation and other circumstances. While much of the original fabric is no longer extant and substantial reconstruction works have occurred, the remaining fabric provides evidence of the original configuration, in particular the arrangement of separate ground floor shops, and development of the site over time.

The ground floor interiors have typically been used for commercial retail purposes since their original construction. The typical plan layout comprises a main front room (the shop) and a smaller room at the rear for use by the tenant, with each including bench and sink and space for storage. The intertenancy walls between No. 43, No. 45 and No. 47 are of rendered and painted masonry. There are also examples of timber stud partition walls with plasterboard sheeting, including enclosure around the stair and partitions separating the shop floor from the tenant areas, although for the latter examples it is noted that there is evidence of masonry walls and/or nibs in each of the rooms suggesting that the configuration of main shop floor with rear tenant area accords with the traditional arrangement.

The first floor spaces are interconnected. There are masonry walls running north-south that align with the ground floor intertenancy walls, with doorways providing access between spaces. The north-south hallway has been formed by the introduction of lightweight partitions. Where the hall intersects with early masonry wall, a narrow arched opening has been formed, complete with scrolled console brackets. The arch is not symmetrical and the general detailing indicates it to be a later introduction. Another arched opening, this one wide and plainly detailed, forms the opening to rear kitchenette. There are two kitchenettes located in the central space of 43 George Street and at the rear of 47 George Street. The fitout is contemporary and comprises a bench with sink in each and vinyl sheet flooring. Carpet covers the timber floors in the other rooms.

As is typical in the building, much of the interior fabric at first-floor level has been introduced to the building over time. The interiors on each level incorporate reconstructed timber joinery, including shopfronts (ground floor), mantelpieces (first floor), suspended timber floors, skirtings, architraves and doors. Ground floor ceilings in 43 George Street are set plaster ceilings of relatively recent origin with reconstructed Georgian style cornices; suspended grid ceilings are present in 45 and 47. Destructive investigations would be required to confirm whether any original plasterwork remains on the ground floor. On the first floor, original ceilings have been removed, with ceilings reconstructed and a ducted air conditioning system constructed in the roof space. Vertical services have been accommodated by the introduction of several small risers, typically located in the corners of the front rooms. There are no toilets within the interiors, either on the ground or first floor, with these facilities previously being located in the rear two storey wing recently demolished.

Overall, the interiors of the shops are in fair to poor condition. While it is evident that care has been employed in the reconstruction and fitout work, there are issues associated with water ingress that are adversely affecting the fabric. There are significant issue of damp both at high and low levels resulting in mould growing on both ceilings and walls. Damp at ceiling level is generally associated with water ingress arising from missing or defective flashings and rainwater goods externally. Rising damp on the ground floor indicates that the subfloor areas – not currently accessible – are damp. This is further evidenced by the lifting of timber floorboards in 47 George Street and deterioration of the sandstone skirting in 43 George Street. Investigation of the subfloor is warranted, including an assessment of subfloor ventilation.



Figure 4-2: General view into rear of shop at 43 George Street (ground floor) in 2022.



Figure 4-3: Detail view of mould affected ceiling at rear of shop at 43 George Street. Note set lines in plaster, indicating that the ceilings, and consequently cornices, are modern.



Figure 4-4: Efflorescing stone at base of walls, shop at 43 George Street.



Figure 4-5: General view north in shop at 47 George Street (ground floor) in 2022. Note buckling floor, evidencing high moisture levels.



Figure 4-6: Detail view of floor in 47 George Street in 2024, showing damage associated with high moisture levels.

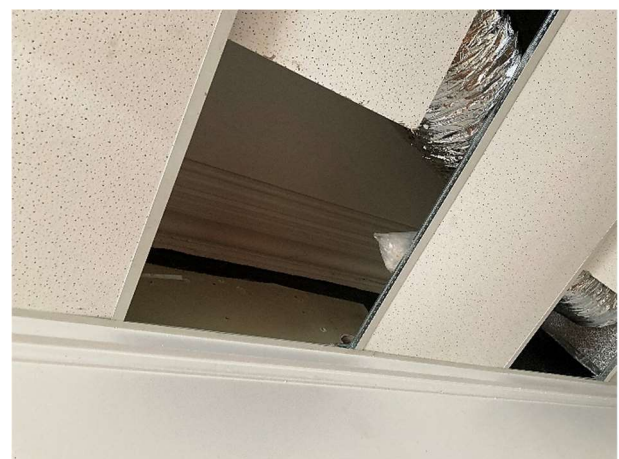


Figure 4-7: Evidence of plaster ceiling above suspended ceiling in shop at 47 George Street. Closer, destructive investigation would be required to determine fabric





Figure 4-8: General view north at first floor, 47 George Street.



Figure 4-9: Detail view of water damage affecting north cornice and wall, 47 George Street.



Figure 4-10: Evidence of moisture adversely affecting rendered masonry walls in 47 George Street.



Figure 4-11: General view of first floor hallway looking to kitchenette at rear.



Figure 4-12: Water damage and mould affecting ceiling in first floor hallway.



Figure 4-13: Water damage and mould affecting ceiling in first floor hallway.

## 5 PRELIMINARY MOULD ASSESSMENT

The Preliminary Mould Assessment (HIBBS 2023) addressed accessible areas of the building interior and excluded subfloor areas, ceiling spaces, walls and floors concealed by applied finishes and furniture. The following conditions were recorded:

- *There was a transient musty odour in ground floor shops and strong musty odour was present within the first floor.*
- *There were evidences or signs of water damage throughout the building surfaces, such as timber floor buckling, stains on ceilings and walls, flaking and bubbling paint system, and excessive moisture content were detected within 3 ground floor shop walls and timber floors as well as soil dampness under the building.<sup>3</sup>*

The assessment included testing for both airborne mould spore and surface mould, wherein it was found that:

*The airborne mould spore found in the building were at least 2x the magnitude of what was present in the reference outside air and the highest concentration of 30x was within the ground floor shop 47...*

*The levels of surfaces mould samples were low to very high and are mostly very common and ubiquitous to the environment.*

*Based on the IICRC R520 Mould Remediation handbook, the mould in the building should be treated as “Condition 3” (Actual Growth) and “Condition 2” (settled spore from “Condition 3” area).<sup>4</sup>*

The definition of these conditions is provided in Section 5.1 below.

### 5.1 Mould Remediation Decisions based on Condition – IICRC S520

The Institute of Inspection, Cleaning and Restoration Certification (IICRC) Consensus Body Standard Committee has determined that the presence of visible mould alone is not a suitable ‘action level decision criterion’. Rather, IICRC S520 (supported by IICRC R520 Reference Guide) classifies indoor areas into several conditions, based on the rationale that evaluating the area of visible mould does not factor in hidden mould, nor does it take into consideration any contamination from settled spores that have dispersed from areas of active mould growth. The conditions are described as follows:<sup>5</sup>

**Condition 1 (normal fungal ecology):** an indoor environment that may have settled spores, mould fragments or traces of actual growth whose identity, location and quantity are reflective of a normal fungal ecology for a similar indoor environment. No remediation is required for Condition 1 environments.

**Condition 2 (settled spores):** an indoor environment that is primarily contaminated with settled spores and which may have traces of actual growth. Although the IICRC assumes that the settled spores are dispersed directly or indirectly from a Condition 3 area, they may also come from surrounding ambient air or dust brought indoors from outdoors and accumulated over time with

---

<sup>3</sup> HIBBS 2023, p.3.

<sup>4</sup> Ibid.

<sup>5</sup> Metaphase Health Research Consulting Inc (MHRCI), May 2010, *Mould Remediation in Indoor Environments – Review of Guidelines and Evidence*.

poor cleaning practices. Remediation/cleaning may be required for Condition 2 environments if it is established that the identified settled spores originate directly or indirectly from a Condition 3 area as described below.

**Condition 3 (actual growth):** an indoor environment contaminated with the presence of actual mould growth and associated spores. Actual growth includes growth that is active or dormant, visible or hidden. Remediation is required for all Condition 3 environments where a significant risk of exposure for the building occupants to the identified source of mould growth has been established by a skilled and recognised environmental assessment professional.

The main point emphasised by the IICRC S520 standard, is that mould growth and spores need to be removed from indoor environments. As the IICRC S520 standard is an industry document, it assumes that all evaluation and cleaning of Condition 2 and Condition 3 spaces are to be conducted by professionals.

## 5.2 Review of Recommendations (HIBBS 2023)

It is evident based on the findings of the *Preliminary Mould Assessment* (HIBBS 2023) that excessive damp conditions within the building have resulted in mould growth on interior building material surfaces as well as the presence of elevated levels of airborne mould spores. This can pose health risks to occupants and individuals entering the building, and while the building is currently vacant, SafeWork NSW indicates that mould absorbs substances (organic material) from building surfaces, eventually destroying them in the process. Left unchecked mould erodes building materials, furnishings and can cause structural damage to buildings.<sup>6</sup>

The *Preliminary Mould Assessment* (HIBBS 2023) recommended that the mould be treated as “Condition 3” (Actual Growth) and “Condition 2” (settled spore from “Condition 3” area), for which a range of remediation measures are recommended. The following key points associated with mould remediation in indoor environments are noted based on Metaphase Health Research Consulting Inc (MHRCI 2010):

- The main objective of remediation is to reduce the risk of exposure to mould and to prevent structural damage.
- The underlying cause of dampness must be identified and eliminated, or mould will reappear.
- Effective mould remediation requires the physical removal of mould growth and spores. Even dead mould can cause negative health effects.
- Strategies must be employed to reduce the risk to workers and occupants during remediation.
- Ongoing prevention is the most important concept in mould intervention. Keep all surfaces clean and as dry to prevent mould from growing.

---

<sup>6</sup> SafeWork NSW, Mould at Work <https://www.safework.nsw.gov.au/hazards-a-z/mould> (accessed April 2024)

Recommendations from HIBBS 2023 are reviewed in Table 5-1 below for potential impacts on the heritage values of the building, based on consideration for the location of samples and corresponding affected fabric.

### 5.3 Significance Gradings and Fabric Condition Survey

A grading of contributory significance is provided in Table 5-1 along with an assessment of potential heritage impacts associated with preliminary mould remediation measures proposed in HIBBS 2023 for the George Street Shops, subject of this report.

The significance the building's elements has been provided in order to inform future decisions about the management of the building. The grading of significance levels provided in this section is consistent with the Heritage NSW publication *Assessing Heritage Significance* (June 2023), utilising categories of Exceptional / High / Moderate / Little / Intrusive which are explained in Figure 5-1 below.

Grading	Justification
<b>Exceptional</b>	Rare or outstanding element directly contributing to a place or object's significance.
<b>High</b>	High degree of original fabric.  Demonstrates a key element of the place or object's significance.  Alterations do not detract from its significance.
<b>Moderate</b>	Altered or modified elements.  Elements with little heritage value, but which contribute to the overall significance of the place or object.
<b>Little</b>	Alterations detract from its significance.  Difficult to interpret.
<b>Intrusive</b>	Damaging to the place or object's significance.

Figure 5-1: Table excerpt from Heritage NSW guidelines *Assessing Heritage Significance*, outlining the categories for the grading of heritage significance.

Source: Heritage NSW *Assessing Heritage Significance* (June 2023).

Table 5-1: Review of preliminary recommendations for mould remediation (HIBBS 2023) for potential impacts on the heritage values of the George Street Shops.

RECOMMENDATION (HIBBS 2023)	AFFECTED FABRIC	ASSESSED SIGNIFICANCE	POTENTIAL HERITAGE IMPACTS / COMMENTS
Access into the building should be restricted and all personnel entering the building should at least wear a P2 respirator.	N/A	N/A	N/A
From a health perspective, restricted access should be enforced for entering building, especially for individuals with immune deficiency or predisposed to and or suffer from a respiratory ailment	N/A	N/A	N/A
Mould remediation should be conducted by an accredited IICRC mould remediation contractor	N/A	N/A	Specific remediation strategies to be advised by accredited IICRC mould remediation contractor.
Prior to mould remediation, water ingress into the building should be contained and rectified.	N/A	N/A	<p>This recommendation is consistent with mould remediation best practice wherein the underlying cause of dampness must be identified and eliminated, or mould will reappear. Actions to prevent water ingress to the building would have a <b>positive</b> heritage impact (i.e. would not impact heritage significance) and are consistent with the minimum standards of maintenance and repair under Section 118 of the the <i>Heritage Act 1977</i> which apply to heritage items managed by NSW State agencies, in particular the following requirements for owners to:</p> <ul style="list-style-type: none"> <li>ensure protection against damage or deterioration due to weather; and</li> <li>do essential maintenance and repairs to prevent serious or irreparable damage or deterioration.</li> </ul> <p>The <i>Condition Assessment</i> (OCP June 2024a) has identified a range of preliminary recommended actions, which apply to the roof, rainwater goods, subfloor ventilation and stormwater system. It is imperative for conservation repair and maintenance works to be implemented to prevent further water ingress to the building. Potential heritage impacts will be assessed in detail in conjunction with development of a Schedule of Works, however it is noted that overall, repair and maintenance works to prevent water ingress are essential to the long-term conservation of the building.</p>
Remove and replace wooden floor cover, remediate if feasible as well as to provide access for water proofing to the wall and floor joist remediation if required.	Timber floorboards (Ground Floor & First Floor)	Moderate (reconstruction 1990s)	<p>Affected fabric generally is recommended to be <i>‘completely cleaned, removed from the present location and then either cleaned with a fungicide and thoroughly dried before being reinstated, or else disposed of and replaced with new materials’</i> as a ‘precautionary measure’.</p> <p>HIBBS 2023 identified ‘too high moisture condition’ in floorboards and exposed floor joist in Shop 47 indicating a ‘risk for mould growth’. It did not, however expressly state that there was mould growth and there are no surface samples specifically associated with floorboards, or other timber joinery elements in the building. It is therefore inferred that the recommendation to ‘remove and replace wooden floor cover’ has been made owing to assessment as Category 2 mould (settled spore), or otherwise as a precautionary measure as noted above.</p> <p>It is understood that this recommendation is to take up the floorboards to enable remediation off-site, given moisture readings being excessively high at ground floor. While only ground floor floorboards were accessible at the time of inspection, it may be assumed that first floor timber floorboards are included in the recommendation considering cycles of excessive water ingress onto carpet, which would hold water. This may be confirmed upon taking up carpet and seeking confirmation from the environmental consultant, but regardless may be considered as a suitable ‘precautionary measure’.</p> <p>The approach of taking up floorboards to enable off-site remediation would have the multiple benefits of:</p> <ol style="list-style-type: none"> <li>enabling thorough cleaning and treatment to all faces of the timbers;</li> <li>enabling inspection, and if required treatment, of the exposed timber floor structure; and</li> <li>on the ground floor, enabling proper inspection of the sub-floor space with a view to addressing sub-floor ventilation, including cross ventilation between load-bearing walls.</li> </ol>

RECOMMENDATION (HIBBS 2023)	AFFECTED FABRIC	ASSESSED SIGNIFICANCE	POTENTIAL HERITAGE IMPACTS / COMMENTS
			<p>In heritage terms, the floorboards have been assessed to be of moderate significance as reconstructed fabric that demonstrates the original presentation. Temporary removal of the floorboards for later reinstatement would have a <b>neutral effect on the heritage significance of the building overall and a positive impact on the fabric</b>. This would be the preferred conservation approach with consideration for the policies and guidelines in the Conservation Management Plan for the George Street Shops (OCP July 2023). Representative policies supporting this approach are:</p> <p><b>CMP Policy 19 Elements of moderate significance</b> <i>Elements of moderate significance contribute to the place’s overall heritage significance and may have been altered or modified. Minor change is acceptable so long as it does not adversely affect the overall significance of the place and values of exceptional and high significance.</i></p> <p><b>CMP Policy 22 Changes to fabric</b> <i>Where change or removal of fabric is necessary, for example to facilitate repair, maintenance or introduction of a compatible use, it should preferably be undertaken to fabric of moderate or less significance.</i></p> <p><b>CMP Policy 23 Modification of significant fabric</b> <i>Removal of significant fabric should only occur where it allows for conservation of fabric of greater cultural significance or is essential for conservation and/or ongoing use of the place. Modification of original and early fabric assessed to be of exceptional or high significance is only acceptable when determined in consultation with an experienced heritage architect.</i></p> <p>Other benefits of this approach, not strictly relating to heritage significance, would include:</p> <ol style="list-style-type: none"> <li>1. Remediation and reuse of existing fabric would support sustainability objectives.</li> <li>2. The timber fabric is valuable in and of itself; it appears to be Brush Box (North Coast) and likely is old growth timber.</li> <li>3. The existing timber is seasoned and upon treatment and drying, should be suitable for reinstatement, and should maintain its size and shape if dried appropriately.</li> </ol> <p>Replacement of the timber floorboards is a possible consideration, which course of action may be determined under a range of considerations, including:</p> <ul style="list-style-type: none"> <li>• feasibility of satisfactory remediation, noting timber to be a porous material (feasibility for remediation to be determined by an accredited IICRC mould remediation contractor);</li> <li>• expected salvage rate;</li> <li>• economic factors.</li> </ul> <p>As fabric dating to the 1990s, it would be feasible to replace the timber floorboards in a like-for-like manner without major impacts on the heritage values of the building. In accordance with the requirements of the CMP, a supporting assessment for change to this fabric must be rigorous and well justified. Support for this approach would be given in the event that remediation of the fabric to a satisfactory standard was not achievable as WHS considerations would take priority over retention of non-original fabric.</p> <p>It is worth noting that appropriately seasoned replacement hardwood timbers are generally not available, with new fabric therefore prone to shrinkage. This is another factor in support of remediating and retaining the existing if this is possible in accordance with health and safety requirements, which must be considered on balance with other factors identified.</p>

RECOMMENDATION (HIBBS 2023)	AFFECTED FABRIC	ASSESSED SIGNIFICANCE	POTENTIAL HERITAGE IMPACTS / COMMENTS
<p>Wall damp course membrane should be inspected and replaced or repaired if damaged.</p>	<p>Plain dressed ashlar sandstone wall</p>	<p>Exceptional</p>	<p>There is no evidence of a damp proof course in the existing masonry walls and it is the case that many nineteenth century buildings in Australia were constructed without them.</p> <p>Rising damp causes wet walls and musty smells but limited decay of masonry; it is when salt is present in the soil that salt attack combines with rising damp to cause masonry decay. Some salt is likely to be associated with rising damp in the majority of instances and once enough salt is drawn to the point where the concentration of salt in the masonry is higher than in the soil below, the presence of the salts sustains the damp problem.</p>
	<p>Painted English bond brick walls generally</p>	<p>High</p>	<p>There is evidence of salt attack impacting sandstone plinths (internal and external), sandstock brick walls and internal render, which is bowing and drummy in some areas. In order to maintain the building, it is necessary to address both the salt and the damp. A remedial treatment to insert a new damp proof course may therefore not be sufficient on its own, as salts will remain in the walls above the new DPC i.e. while the main source of moisture, and consequent supply of salt, is removed, decay may continue (Young 2008).<sup>7</sup></p> <p>Young (2008) recommends seven key steps to dealing with salt damp:</p> <ul style="list-style-type: none"> <li>• Key Step 1 Diagnosing the cause</li> <li>• Key Step 2 Good housekeeping — to minimise the damp ‘stress’ on walls</li> <li>• Key Step 3 Treating mild damp sacrificially — to control salt attack</li> <li>• Key Step 4 Removing excessive salts — when normal methods are not enough</li> <li>• Key Step 5 Reviewing results before proceeding</li> <li>• Key Step 6 Inserting DPCs</li> <li>• Key Step 7 Desalinating walls — as DPC insertion alone is not enough</li> </ul> <p>While taking the process step by step is often appropriate, the extent of damp in the walls of the George Street Shops, specifically the height to which it has risen, is considered to be acute and therefore implementing Steps 6 and 7 is appropriate, noting that Steps 1 and 2 have been considered in the <i>Condition Assessment</i> (OCP June 2024a), to address:</p> <ul style="list-style-type: none"> <li>• maintaining ground levels around the building;</li> <li>• repairs to roof and rainwater goods;</li> <li>• site drainage; and</li> <li>• sub-floor ventilation (also further addressed below).</li> </ul>
	<p>Brick masonry wall (west elevation), including brick masonry parapet formed in 2022</p>	<p>Moderate</p>	<p>Therefore, in conjunction with retrospective insertion of a damp proof course, desalination of the masonry fabric should occur.</p>



No visible DPC in external masonry walls



Evidence of salt attack on base course and also loss of mortar

<sup>7</sup> Young, David, November 2008, *Salt Attack and Rising Damp*, prepared for Heritage Council of NSW, Heritage Victoria, South Australian Department for Environment and Heritage & Adelaide City Council.



RECOMMENDATION (HIBBS 2023)	AFFECTED FABRIC	ASSESSED SIGNIFICANCE	POTENTIAL HERITAGE IMPACTS / COMMENTS
			<p><b>Damp Proof Course</b></p> <p>Options for inserting a damp proof course to full width of loadbearing masonry walls are:</p> <ul style="list-style-type: none"> <li>• proprietary chemical injection damp proof course system; or</li> <li>• undersetting to install 0.75mm heavy duty grade polyethylene sheeting.</li> </ul> <p>Overall, either method would support the objective to control the significant salt damp problem to <b>positively</b> support the conservation of the building (i.e. not impact heritage significance overall). Each method would, however, require physical intervention to the masonry fabric: chemical injection via regular drilling of holes into the masonry (externally and internally) and undersetting where sections of the base of a wall are progressively rebuilt to allow for insertion of a mechanical DPC. The degree of impact would depend on methodology and manner of installation for either method, however suitable mitigation strategies are available for each.</p> <p>There are a range of advantages and disadvantages associated with each method, however it is noted that undersetting would provide the most effective and long-lasting solution. The initial cost would likely be higher, however owing to longevity, this method would be more cost effective over time.</p> <p><b>Desalination</b></p> <p>Desalination would need to occur in two stages, initially after insertion of the DPC and then after a period of time (1 to 2 years) to monitor salt content. For quick effective results, initial desalination to lower salt content in masonry could occur via dry and wet vacuum salt extraction process (ground floor walls to a height nominally 1.5 metres above ground level). Similar to installation of a DPC, this work supports the objective to control the significant salt damp problem to <b>positively</b> support the conservation of the building.</p> <p>Desalination would require physical intervention via removal of paint externally and removal of render internally from masonry walls to a height nominally 1.5 metres above ground level. The impact of this work would be negated by:</p> <ol style="list-style-type: none"> <li>1. the positive impact of reducing salt content in original masonry fabric;</li> <li>2. the fact that the paint coating is a later addition; and</li> <li>3. the render has been adversely affected by salt, evidenced by dampness and drumminess and regardless of desalination requires conservation repair work.</li> </ol> <p>Note that within the initial stage of desalination, it is necessary to repeat the vacuum extraction process in several rounds until salt content is reduced to an acceptable level.</p> <p>For the second stage of desalination, it is feasible to consider sacrificial render (lime plaster) given the medium to long-term vacancy anticipated for the building. Again, this work would specifically support conservation objectives and would be viewed as a <b>positive</b> measure. CMP policy supporting this work is as follows:</p> <p><b>CMP Policy 29 Desalination of masonry</b></p> <p><i>Implement desalination of masonry fabric in the short to medium term (5 years) to ensure the ongoing conservation of the significant fabric.</i></p> <div data-bbox="2427 243 2786 506" data-label="Image"> </div> <p data-bbox="2427 520 2786 583">Bowed and drummy render on internal wall (Shop 43)</p>

RECOMMENDATION (HIBBS 2023)	AFFECTED FABRIC	ASSESSED SIGNIFICANCE	POTENTIAL HERITAGE IMPACTS / COMMENTS
<p>To ensure a quick drying of the subfloor soil, provision should be made to repair and provide the subfloor ventilation by natural ventilation or mechanical ventilation as per the current Australian Building Code.</p>	<p>Painted English bond brick walls generally</p>	<p>High</p>	<p>The <i>Condition Assessment</i> noted that the current sub-floor vents are positioned lower than the ground level, with adjacent horizontal grated pits forming a source of water ingress to the sub-floor area. The sub-floor dampness is currently exacerbated by failures of the stormwater system for which replacement is recommended.</p> <p>HIBBS 2023 do not identify a methodology for increasing the sub-floor ventilation however in principle this action would have a <b>positive</b> heritage impact consistent with the minimum standards of maintenance and repair under Section 118 of the <i>the Heritage Act 1977</i> to do essential maintenance and repairs to prevent serious or irreparable damage or deterioration. Improving sub-floor ventilation is also an important WHS consideration given that poorly ventilated sub-floors can develop mould on the soil.</p>
	<p>Brick masonry wall (west elevation), including brick masonry parapet formed in 2022</p>	<p>Moderate</p>	<p>The <i>Condition Assessment</i> (OCP June 2024a) makes a preliminary recommendation to remove the existing vents and grilles and provide vertical copper air vents extending between the sub-floor area and the underside of the eaves to create a stack effect. The impacts of this work overall would be <b>positive</b>, as increasing the sub-floor ventilation to recommended standards would contribute to moisture control, which is the first step to preventing mould growth. The preliminary methodology recommended would appear similar to downpipes on a building and the installation would therefore have only minor physical and visual impacts, which are assessed separately.</p>
	<p>Potential subfloor archaeological resource</p>	<p>Refer ARD</p>	<p>Further measures may be required, for example to address cross flow ventilation through internal loadbearing walls, and the previous recommendation to remove floorboards (temporarily or otherwise) would provide opportunity to fully assess the subfloor area, both for ventilation and for condition e.g. signs of fungal rot, structural adequacy.</p> <p>It is recommended that provision be made for ongoing subfloor access through the introduction of floor access hatches. Noting the shallow depth of the subfloor area presently (as measured below Shop 43), excavation of the sub-floor would be required to establish a crawl space, which would in turn assist with increasing sub-floor ventilation. It is noted that AS 3660.1 (2014) Termite Management recommends achieving a minimum 400mm clearance beneath bearers. The current clearance below joists is in the order of 300mm where accessible, so clearance between bearers would be much lower (i.e. 300mm minus the depth of the bearer).</p> <p>CMP policy supporting this work is as follows:</p> <p><b>CMP Policy 67 Sub-floor investigation</b></p> <p><i>A suitably qualified and experienced architect and hydraulic engineer should be engaged to investigate sub-floor areas and recommend any remedial action. Undertake investigation into:</i></p> <ul style="list-style-type: none"> <li>- rising damp, including salt testing of whole building (laboratory testing);</li> <li>- whether damp proof courses and flashings have been breached or are simply non-existent must be confirmed;</li> <li>- subfloor ventilation;</li> <li>- stormwater system and associated condition / connections of rainwater goods.</li> </ul> <p>It is noted that hydraulic engineering assessment has already occurred, with recommended actions captured in the <i>Condition Assessment</i> (OCP June 2024a).</p>



Existing sub floor wall vent; positioned below ground level



Clearance beneath joist is currently in the order of 300mm (Shop 47)

RECOMMENDATION (HIBBS 2023)	AFFECTED FABRIC	ASSESSED SIGNIFICANCE	POTENTIAL HERITAGE IMPACTS / COMMENTS
			<p>Work to assess and increase sub-floor ventilation would require the input of a specialist BCA consultant to advise on compliant ventilation rates and the achievable rate of a detailed proposal.</p> <p>Opportunity for inspection of the sub-floor timbers by a Structural Engineer is also recommended.</p> <p>CMP policy supporting this work is as follows:  <b>CMP Policy 27 Review by structural engineer</b>  <i>The building, including chimneys and foundations, should be reviewed by a structural engineer with experience working on heritage buildings for any structural distress, and compliance with current statutory requirements, including seismic strengthening. Where required, any upgrading work recommended by structural engineer should be implemented in consultation with advice of a heritage architect.</i></p>
<p>Remove the plaster board wall covering within the ground floor shops, dry the brick wall and render before reinstating the new wall covering.</p>	<p>Plasterboard Wall Lining (over rendered masonry walls)</p>	<p>Intrusive</p>	<p>Removal of the introduced lightweight lining would support objectives for mould remediation and general conservation of the building and would be in accordance with the CMP (OCP July 2023). It is noted that in addition to plasterboard, there are synthetic linings on the walls of Shop 45 which are adversely affecting performance of the masonry fabric, which should also be removed. This work would not impact heritage significance of the building or its elements.</p> <p>CMP policy supporting this work is as follows:  <b>CMP Policy 21</b>  <i>Opportunities should be taken to remove fabric that has been identified as being Intrusive as this fabric detracts from the heritage significance of the place.</i></p> <div data-bbox="2427 730 2783 995" data-label="Image"> </div> <p data-bbox="2427 1003 2724 1035">Synthetic linings, Shop 45.</p>
<p>Remove affected ceiling and remediate roof trusses and joist.</p>	<p>Plaster ceilings and cornices</p>	<p>Various (refer detail in CMP)                      Little: plasterboard ceilings (typical)                      Plaster ceilings (Shop 47): Further investigation required                      Moderate: moulded cornices (typical; reconstructed fabric)                      High: Suspected fibrous plaster cornices (Shop 47).</p>	<p>The extent of ‘affected ceilings’ to be removed and specific remediation strategies, including to remediate timber structure, are to be advised by accredited IICRC mould remediation contractor.</p> <p>The significance of the ceilings and associated cornices varies, and in some instances in unknown e.g. plaster ceilings and cornices above suspended grid ceilings. The nature and extent of impact is relative to which ceilings/cornices are identified as being ‘affected’ and the extent of removal recommended.</p> <p>In instances where affected fabric is identified in the CMP to be of little and intrusive significance (e.g. modern grid ceilings and set plaster ceilings), no adverse heritage impacts are anticipated, although reinstatement of sympathetic ceilings/cornices would be required in the medium to long term. Even for fabric of moderate significance, which typically applies to reconstructed fabric in appropriate period style, the <b>impacts would be considered relatively minor</b> and on balance, essential works to facilitate health and safety and future reuse opportunities.</p> <p>Further investigation to confirm the presence or otherwise of early fibrous plaster ceilings would be required. If confirmed, and this fabric is mould affected, there would be a <b>moderate impact on heritage fabric</b> and it would be necessary to mitigate the impact through a range of strategies e.g. retaining original fabric as far as possible, reconstruction of fabric to traditional detail. Similar to affected fabric of moderate significance, on balance the work would be to facilitate health and safety and future reuse opportunities.</p> <p>Where fabric of moderate or higher significance requiring removal for health and safety reasons is not capable of remediation and reinstatement and no matching examples are able to be retained in situ e.g. plasterwork, a detailed record including size, material and profiles must be made with sufficient detail to inform future reconstruction.</p>

RECOMMENDATION (HIBBS 2023)	AFFECTED FABRIC	ASSESSED SIGNIFICANCE	POTENTIAL HERITAGE IMPACTS / COMMENTS
Remove and replace all mould effected porous building material e.g. carpet, gypsum, insulation.	As stated in the recommendation (and other not specifically identified)  Possible lath & plaster walls on first floor (refer CMP for possible extent)	Typically little to intrusive  Moderate	HIBBS 2023 provide examples of 'porous building materials' and the extent of affected fabric to be removed is to be advised by accredited IICRC mould remediation contractor. In particular, it is noted that gypsum is used in a wide range of building materials and clarification of the specific fabric recommended for removal would be required to assess the heritage impacts. Noting the susceptibility of gypsum plaster to mould effects in adverse conditions, it may be interpreted that the recommendation applies to all plaster and plasterboard ceilings and walls, inter alia, which would differ from the previous recommendation above to remove 'affected ceiling' only.  There would be <b>no adverse heritage impact</b> associated with removal of: <ul style="list-style-type: none"> <li>• carpet (first floor)</li> <li>• insulation</li> <li>• plasterboard walls of little significance (as identified in the CMP)</li> <li>• air conditioning ducts and risers</li> <li>• electronic installations</li> </ul> Further destructive investigation would be required to confirm the presence of lath and plaster walls in the east-west corridor above Shop 45 and also further specialist advice to confirm whether these would be constitute affected 'gypsum' fabric.
Keep the indoor humidity below 60 % RH with proper building ventilation and good housekeeping should minimise the possibility for mould regrowth.	N/A	N/A	N/A

## 6 CONCLUSION AND RECOMMENDATIONS

The purpose of mould remediation is to correct the moisture problem and to remove mould and contaminated materials to prevent human exposure and further damage to building materials and contents. The *Preliminary Mould Assessment* (HIBBS 2023) proposes a range of recommendations to address significant mould growth that is present within the interiors of the George Street Shops. Given the presence of mould and the associated health and safety risks, treatment is necessary and the assessment of the recommendations in regard to heritage impacts is made with this consideration in mind. The overriding position is that the recommended works are proposed:

- to control the significant moisture and ventilation problems affecting the building; and
- to treat mould affected areas so that the building is safe to enter.

As such, the recommended works constitute essential works both in terms of maintaining the building and/or preventing further damage in accordance with the objectives of Section 118 of the *NSW Heritage Act 1977* and in terms of human health and safety.

Consideration is given for the following conditions of consent for SSI 10038:

**D13:** *The Proponent must not destroy, modify or otherwise affect any Heritage item not identified in documents referred to in Condition A1 of this schedule. Unexpected heritage finds identified by Stage 1 of the CSSI must be managed in accordance with the Unexpected Finds Protocol outlined in Conditions D31 to D33 of this schedule. Consideration of avoidance and redesign to protect state significant unexpected finds must be addressed where this condition applies.*

The preliminary remediation works identified in HIBBS 2023 are required to remediate affected fabric and make the building safe for occupation. While proposals for remediation must be developed further in consultation with an accredited IICRC contractor, the potential to remove some affected porous elements has been identified. Much of the affected fabric, such as plasterboard, is reconstructed fabric which in principle can be removed and replaced as necessary without impacting on the overall heritage significance of the building in conjunction with mitigation strategies.

Preliminary recommendations are identified in Section 6.1 below.

**D16:** *During construction, the Proponent must implement protective measures to prevent adverse impacts on the heritage significance of the Victorian Regency terraced shops at 41-45 George Street, Parramatta and Kia Ora Georgian House at 64 Macquarie Street, Parramatta. Before installing such measures, the advice of a suitably qualified and experienced built heritage expert must be obtained and implemented to ensure any such work does not have an adverse impact on the heritage significance of the item.*

Proposals to remediate mould affected surfaces are protective measures in and of themselves as left untreated, the mould has the potential to cause decay to the built fabric. As such, measures to treat mould in principle would have a positive impact that supports retention of the building overall and its heritage significance through prevention of mould-induced decay. The preliminary recommendations have been reviewed in this report and are broadly appropriate to meet objectives for both protection of fabric (through remediation of mould) and protection of human safety. Preliminary recommendations to mitigate against potential adverse impacts are identified in Section 6.1 below.

## 6.1 Recommendations

The below recommendations are made to ensure that the cultural significance of the George Street Shops is appropriately managed:

1. IICRC S520 standard is an industry standard document (supported by IICRC R520 Reference Guide) and it assumes that all evaluation and cleaning of Condition 2 and Condition 3 spaces are to be conducted by professionals. Therefore an accredited IICRC mould remediation contractor should:
  - a) define the extent of affected fabric that is recommended to be *‘completely cleaned, removed from the present location and then either cleaned with a fungicide and thoroughly dried before being reinstated, or else disposed of and replaced with new materials’*. This includes:
    - extent of porous fabric proposed for removal, including ‘gypsum’ fabric;
    - following on from the previous point and noting timber to be a porous material, extent of timber fabric to be removed and/or remediated (HIBBS 2023 refer to ‘wooden floor cover’ but does not specifically address other timber joinery elements in the building, such as skirtings and architraves).
  - b) advise proposed remedial treatment measures for the various different types of fabric to be retained such as in situ timber structure, rendered masonry, e.g. HEPA filtration/vacuuming, fungicide, scraping/scrubbing.
  - c) advise proposed remedial treatment measures for ‘hidden mould’ (non-visible).
  - d) be engaged to implement remediation work, with the objective to both remove mould and prevent contamination of clean areas, as remediation has the potential to disturb mould, releasing both mould and mould byproducts into the air.
2. Where fabric of moderate or higher significance requiring removal for health and safety reasons is not capable of reinstatement and no matching examples are able to be retained in situ e.g. plasterwork, a detailed record including size, material and profiles must be made with sufficient detail to inform future reconstruction.
3. A process of soft-strip demolition to remove mould affected carpet, insulation, ducted air conditioning including risers, and other fabric assessed in the CMP (OCP July 2023) to be of little or intrusive significance such as nominated plasterboard walls and ceilings and fitout should occur. This would satisfy objectives for mould remediation and heritage conservation.
4. Undertake localised destructive investigation to walls identified to be potential lath and plaster construction prior to remediation if intervention to this fabric is recommended to implement mould remediation work.
5. All contaminated materials removed from the building should be wrapped and sealed in accordance with SafeWork NSW recommendations into plastic bags or sheets to reduce the spread of mould spores.
6. Temporary removal of timber floorboards (ground and first floor levels) for remediation off site is appropriate in principle and will facilitate Investigation of the sub-floor, including an assessment of sub-floor ventilation. It is the preferred approach to reinstate the existing timbers if satisfactory remediation is achievable.

7. Provision be made for ongoing subfloor access in the future through the introduction of floor access hatches. This work would need to occur in conjunction with excavation to establish a crawl space.
8. In conjunction with retrospective insertion of a damp proof course to masonry loadbearing walls, desalination of the masonry fabric should occur in stages, in conjunction with monitoring over time for the effects of salt attack.
9. Sub-floor ventilation should be increased to comply with the National Construction Code (NCC 2019, Volume 2, Amendment 1). The input of a specialist BCA consultant is recommended to advise on compliant ventilation rates and the achievable rate of a detailed proposal.
10. The input of a heritage specialist Structural Engineer is recommended to inspect structural timbers (floor and roof structure) once fabric is opened up.
11. Post remediation evaluation should be implemented by a qualified environmental consultant, including surface and air sampling, to determine if conditions are satisfactory e.g. IICRC S520 Condition 1. The objective is to ensure that all surfaces (hard and soft) are clean, with no remaining debris or micro-biological vegetative matter remaining.
12. The building should continue to be monitored throughout its period of vacancy to ensure that mould remediation treatment has been effective and that salt damp effects are not generating adverse impacts on the building fabric. Key indicators for inspection are:
  - no evidence of water ingress or leaks e.g. staining, dampness;
  - there is no evidence of mould-damaged materials or mouldy odours in the interiors.
13. All work involving heritage fabric should be carried out by tradespeople with experience working on heritage structures.
14. Ensure that archaeological advice is sought prior to ground disturbing work. Seek the advice of an archaeologist to determine if an approval is required under the Heritage Act 1977 and advise on appropriate archaeological management.
15. Hazardous materials assessment should be carried out prior to intervention, with works conducted in accordance with relevant Australian Standards.
16. Works should not be undertaken to the site and its built elements without the required approvals. It is noted that the recommended works in this report relate to essential maintenance and conservation and may be eligible for internal approval by Sydney Metro.

## 7 Bibliography

ABCB (Australian Building Codes Board) (2019) NCC 2019 Volume one, National Construction Code, ABCB. <https://ncc.abcb.gov.au/>.

Australia ICOMOS (2013) [\*The Burra Charter: the Australia ICOMOS charter for places of cultural significance 2013\*](#), Australia ICOMOS Incorporated, Burwood.

Metaphase Health Research Consulting Inc (MHRCI), May 2010, *Mould Remediation in Indoor Environments – Review of Guidelines and Evidence* [Mould remediation in indoor environments](#)

Young, David (November 2008), *Salt Attack and Rising Damp*, prepared for Heritage Council of NSW, Heritage Victoria, South Australian Department for Environment and Heritage & Adelaide City Council [salt-attack-and-rising-damp-guide.pdf](#)

### Unpublished Reports

HIBBS (July 2023) *Preliminary Mould Assessment, Heritage Building 45 George Street Parramatta*.

OCP Architects (July 2023), *43-47 George Street, Parramatta (George Street Shops) Conservation Management Plan*.

OCP Architects (June 2024) *43-47 George Street, Parramatta, Condition Assessment Report (Roof & Stormwater Drainage)* (OCP June 2024a).



**APPENDIX A – HIBBS (July 2023) *Preliminary Mould Assessment, Heritage Building 45 George Street.***



# HIBBS

Excellence in Risk Management



## | GAMUDA AUSTRALIA AND LAING O'ROURKE CONSORTIUM |

### PRELIMINARY MOULD ASSESSMENT

REFERENCE NO. S12772 R01

HERITAGE BUILDING, 45 GEORGE STREET PARRAMATTA | 21 JULY 2023

## Preliminary Mould Assessment

Heritage Building, 45 George Street, Parramatta

Prepared for

### **Gamuda Australia and Laing O'Rourke Consortium**

Level 8, 60 Station Street, Parramatta, NSW 2150

by

### **HIBBS & ASSOCIATES PTY LTD**

**Suite B, 255 Rawson Street, Auburn NSW 2144**

P.O. Box 4266, Homebush NSW 2140

www.hibbs.com.au

Telephone: (02) 9746 3244

Copyright © Hibbs & Associates Pty Ltd 2023

Our Reference: S12772 R01

Prepared by:

**Ide Onggo**  
**IAQ Specialist**

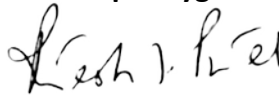


**Jessica Waller**  
**Occupational Hygienist**

---

Reviewed by:

**Ritesh Patel**  
**Principal Hygienist**



Issue date: 18 August 2023

## Executive Summary

This report presents the results and findings of a Preliminary Mould Assessment undertaken at Heritage Building, 45 George Street Parramatta.

During the site visit, the following were noted:

- There was transient musty odour in ground floor shops and strong musty odour was present within the first floor.
- There was a ducted split air conditioning unit in level 1 dwelling.
- There were evidences or signs of water damage throughout the building surfaces such as timber floor buckling, stains on ceiling and walls, flaking and bubbling paint system, and excessive moisture content were detected within the 3 ground floor shops walls and timber floors as well as soil dampness under the building sub floor.
- Only accessible areas were inspected, areas that were not inspected are: subfloor, ceiling space, walls and floors covered with carpet, tiles and vinyl and furniture.

The airborne mould spore found in the building were at least 2x the magnitude of what was present in reference outside air and the highest concentration level of 30 x was within the ground floor shop 47.

The main genus of airborne mould spores identified within the locations tested are Aspergillus/Penicillium-Like sp and Lomentospora/Scedosporium-like, which is different than the reference outside air (Cladosporium sp). Aspergillus/Penicillium sp is generally classified as potential allergens (See AEML Laboratory Report Glossary in Appendix 1). Lomentospora/Scedosporium-like sp moulds were present within level 1, mainly in the common room after the stair well.

Aspergillus/Penicillium sp is very common and ubiquitous to the environment, however Lomentospora/Scedosporium-like sp are considered opportunistic emerging pathogens which may cause infection to immunocompromised individual.

The levels of surfaces mould samples were low to very high and mostly are very common and ubiquitous to the environment.

Based on the IICRC R520 for Mould Remediation handbook, the mould in the building should be treated as "Condition 3" (Actual Growth) and "Condition 2" (settled spore from "Condition 3" area)

Based on our visual observations, the survey tests and the laboratory analysis results, the following is recommended:

- Access into the building should be restricted and all personnel entering the building should at least wear a P2 respirator.
- From a health perspective, restricted access should be enforced for entering building, especially for individuals with immune deficiency or predisposed to and or suffer from a respiratory ailment.
- Mould remediation should be conducted by an accredited IICRC mould remediation contractor.
- Prior to mould remediation, water ingress into the building should be contained and rectified.
- Remove and replace wooden floor cover, remediate if feasible as well as to provide access for water proofing to the wall and floor joist remediation if required.
- Wall damp course membrane should be inspected and replaced or repaired if damaged,

- To ensure a quick drying of the subfloor soil, provision should be made to repair and provide the subfloor ventilation by natural ventilation or mechanical ventilation as per the current Australian Building Code.
- Remove the plaster board wall covering within the ground floor shops, dry the brick wall and render before reinstating the new wall covering.
- Remove affected ceiling and remediate roof trusses and joist.
- Remove and replace all mould effected porous building material e.g. carpet, gypsum, insulation.
- Keep the indoor humidity below 60 % RH with proper building ventilation and good housekeeping should minimise the possibility for mould regrowth.

## TABLE OF CONTENTS

<b>Executive Summary</b>	<b>3</b>
<b>1. Introduction</b>	<b>7</b>
1.1 Scope of Works	7
1.2 Acknowledgement	7
1.3 Report Limitation and Disclaimer	7
<b>2. Assessment Methodology</b>	<b>9</b>
2.1 Inspection	9
2.2 Thermal Imaging Camera and Moisture Meters	9
2.3 Airborne and Surface Mould Spore	10
<b>3. Air and Surface Testing Locations</b>	<b>11</b>
<b>4. Results, Observation and Discussion</b>	<b>12</b>
4.1 Inspection Results	12
<b>5. Conclusion and Recommendations</b>	<b>18</b>
<b>6. Reference Standard and Guidelines</b>	<b>20</b>
<b>Appendix A Photograph</b>	<b>21</b>
<b>Appendix B Sampling Site Diagram</b>	<b>27</b>
<b>Appendix C Laboratory Analysis</b>	<b>29</b>

## LIST OF FIGURES

Figure B.1: Diagram of Sampling Location	28
--	----

## LIST OF PHOTOGRAPHS

Photograph A.1: Shop 47, Sample S-1	22
Photograph A.2: Shop 47, Sample S-2	22
Photograph A.3: Shop 47, Sample S-3	22
Photograph A.4: Shop 47 Sample S-4	22
Photograph A.5: Shop 47 Sample S-5	23
Photograph A.6: Shop 45, Sample S-6	23
Photograph A.7: Shop 45, Sample S-7	23
Photograph A.8: Shop 43, Sample S8	23
Photograph A.9: Shop 43 Sample S-9	24

Photograph A.10: Shop 43, Sample S-10	24
Photograph A.11: Level 1, Room 1, Sample S-11	24
Photograph A.12: Level 1, Stair, Sample S-12	24
Photograph A.13: Level 1, Room 2, Sample S-13	25
Photograph A.14: Level 1, Room 3, Sample S-14	25
Photograph A.15: Level 1, Room 3, Sample S-15	25
Photograph A.16: Level 1, Room 4, Sample S-16	25
Photograph A.17: Level 1, Room 5	26
Photograph A.18: Level 1, Room 7 North	26
Photograph A.19: Level 1, Room 7 West	26
Photograph A.20: Level1, Room 3, AC Return Air	26

## LIST OF TABLES

Table 3.1: Testing Locations	11
------------------------------	----

## 1. Introduction

This report presents the results and findings of a Preliminary Mould Assessment undertaken at Heritage Building, 45 George Street Parramatta. The assessment was requested by Mr Hwong Yie Yang, site engineer of Gamuda Australia and Laing O'Rourke Consortium due to visible signs of mould growth following water ingress from the roof leakages. The assessment]was conducted by Ms Jessica Waller and Mr Ide Onggo of Hibbs & Associates Pty Ltd (Hibbs) on 21st July 2023.

The subject building is an early 19 century 2-storey brick veneer construction with sandstone frontage. It consists of 3 shops at the ground floor level and a single dwelling at the first level.

### 1.1 Scope of Works

The scope of works included:

- Undertake an inspection of the relevant areas of the building for the presence of mould and moisture/dampness
- Conduct air and surface sampling for mould spore at strategic locations within the building
- Perform inspection of the area using a thermal imaging camera and moisture meters.
- Facilitate laboratory analysis of the samples collected
- Evaluate the data collected and compare the results with relevant guidelines
- Prepare a report including observations, findings and conclusions, and recommendations, as necessary.

### 1.2 Acknowledgement

We wish to acknowledge, and express our gratitude, for the assistance provided by Mr Hwong Yie Yang of Gamuda Australia and Laing O'Rourke Consortium, with conducting the inspections and assessments from which this report was prepared.

### 1.3 Report Limitation and Disclaimer

Hibbs and Associates Pty Ltd prepared this report for Gamuda Australia and Laing O'Rourke Consortium Ltd solely for the purposes set out herein and we do not intend that any other person use or rely on the contents of the Report. The information contained in this report is based on discussion with relevant personnel and review of documentation provided to Hibbs & Associates Pty Ltd at the time of the survey. Whilst the information contained in the Report is accurate to the best of our knowledge and belief, conditions can change within limited periods of time, and this should be considered if the Report is to be used after any elapsed period after its issue.



Hibbs & Associates Pty Ltd has exercised reasonable care, skill and diligence in preparation of the Report. However, except for any non-excludable statutory provision, Hibbs & Associates Pty Ltd gives no warranty in relation to its services or the Report, and is not liable for any loss, damage, injury or death suffered by any party (whether caused by negligence or otherwise) arising from or relating to the services or the use or otherwise of this Report. Where Gamuda Australia and Laing O'Rourke Consortium has the benefit of any non-excludable condition or warranty, the liability of Hibbs & Associates Pty Ltd is, to the extent permitted by law, limited to re-performing the services or refunding the fees paid in relation to the services or sections of the Report not complying with the conditions or warranty.

The data collected is representative of the environmental and operating conditions on the day of monitoring. Operator and process variability and the prevailing environmental conditions can significantly affect the results. As such, it is generally recommended that the number of samples taken should be statistically significant. In this case, conclusions and recommendations are based upon a limited data set.

This Report must be read in its entirety and must not be copied, distributed or referred to in part only.

## 2. Assessment Methodology

### 2.1 Inspection

Inspection of buildings is undertaken during assessments to determine presence of visible mould or mouldy areas. Typical areas include where water has made ingress into the building or any other areas of concern.

Where remediation has occurred, the focus of inspections is to ensure that all surfaces (hard and soft) are clean, with no remaining debris or micro-biological vegetative matter remaining.

Inspections also include an olfactory assessment to identify if the odour of mould or off-gassing components are present. Whilst this is a subjective test, it can offer additional information to support the inspection and assessment.

### 2.2 Thermal Imaging Camera and Moisture Meters

Beyond the visual evidence (i.e. tide marks, pooling, stains, and corrosion) of possible water ingress in specified areas, other potential areas where water may be present or wet materials may exist within the building, surface scanning was conducted from representative areas and/or surfaces by the following methodologies:

- A Thermal Imaging Camera was used to identify the presence of moisture in the walls by comparing (in real time) the surface temperature differences of the same building materials under the same atmospheric conditions. Infrared Thermography senses invisible heat radiation to produce a thermal image, the specific heat of water is much greater than other common building materials; therefore, wet materials heat up and cool down slower than the same dry material. This provides a thermal contrast that can be detected by thermal imaging.
- Delmhorst Instrument® TotalCheck Moisture Meter (S/N 12234) was used to assess the presence of moisture within the building material such as, gyprock walls. The results are expressed as Wood Moisture Equivalent (WME) as percentage (%) moisture content of wood. WME may also be expressed as Equilibrium Moisture Content. EMC of wood (or other construction materials) is when the amount of bound water in the material is in equilibrium with the moisture in the surrounding air (i.e. the material is neither gaining nor losing moisture). The equilibrium moisture content is a dynamic equilibrium that depends mainly on the relative humidity (RH) of the surrounding air and, to a lesser extent, on its temperature. For gyprock, readings between 0.1% and 0.6% indicate a sufficiently dry level. Readings above 0.7% indicate a relatively toward the damp and wet level. Readings greater than 0.9% indicate materials that are too wet for painting or wallpapering. A reading above 0.9% also indicates sufficient moisture content to allow for mould growth with the addition of other factors such as a high relative humidity.
- Concrete moisture testing was conducted using a Tramex CMEX II (Serial No. CMEX06178397). The device measures concrete moisture content from 0.0 up to 6.9%. AS/NZS 245513 states that textile floor coverings shall not be laid until the moisture content is not more than 5.5%. Moisture reading on dry rendered wall normally is 0%, however value over 3.5% would be considered as unusually high moisture content.

### **2.3 Airborne and Surface Mould Spore**

Air testing for mould spores was conducted using the Zefon® Air-O-Cell spore trap cassette technique. Sampling was conducted in accordance with the Zefon® Air-O-Cell methodology, using a Zefon® bio sampling pump or "Quick Take 30"® pump running at a flow rate of 15 L/Min for 5 minutes. A total of 75 L of air was sampled at each location.

The assessment of surface mould is conducted using tape lift off (Biotape®) slides. Samples are analysed using high power microscope for determination of viable and nonviable fungal spore densities on surfaces, with results expressed as spores/cm<sup>2</sup>. Both Air O Cell® and Biotape® samples were analysed by Eurofins AEML Laboratory in Melbourne to determine the spore counts concentration with identification of the predominant mould genera in the samples.

### 3. Air and Surface Testing Locations

Air and surfaces samples were collected in the locations as presented in Table 3.1 and refer to Figure B.1 at Appendix B, The sampling also included two reference air samples collected from an outside the building.

**Table 3.1: Testing Locations**

Location	Description / Notes	Air Sample ID	Surface Sample ID	Surface Locations	Appendix A
Shop 47	Main Shop Area	A1	S1	South east wall	Photograph A.1
	Store Room below Stair	A2	S5	West wall	Photograph A.5
	Back of Shop Storage area	A3	S2	East wall	Photograph A.2
	Back of Shop Kitchenette	A4	S3	North west wall	Photograph A.3
			S4	West wall	Photograph A.4
Shop 45	Main Shop Area	A5	S7	South west ceiling	Photograph A.7
	Back of Shop Storage area	A6	S6	North wall partition	Photograph A.6
Shop 43	Main Shop Area	A16	S8	South centre ceiling	Photograph A.8
			S9	South east ceiling	Photograph A.9
			S10	Low part of the East wall	Photograph A.10
Outside 1	<b>Back of Building (Ref 1)</b>	A7			
Level 1	Main Living Room 1	A8	S11	North ceiling cornice	Photograph A.11
	Living Room 2	A9	S13	North ceiling cornice	Photograph A.13 Photograph A.12
	Common area above stair	A10	S12	Ceiling above the top stair	Photograph A.12
	Room 3		S14	West ceiling	Photograph A.14
			S15	South Ceiling	Photograph A.15
			S20	Inside AC return air duct	Photograph A.20
	Room 4	A11	S16	West ceiling	Photograph A.16
	Room 5	A12	S17	West wall adjacent to window	Photograph A.17
	Room 6	A13			
	Room 7	A14	S18	North ceiling cornice	Photograph A.18
		S19	West ceiling Cornice	Photograph A.19	
Outside 2	<b>Front of Building (Ref 2)</b>	A15			
<b>Total</b>		16 Air	20 Tapes		

## 4. Results, Observations and Discussion

### 4.1 Inspection Results

A brief walk-through was conducted of all accessible areas within the building. The focus of the inspection was to identify presence of any visible mould on surfaces, and to detect any mould or musty odours during the inspection.

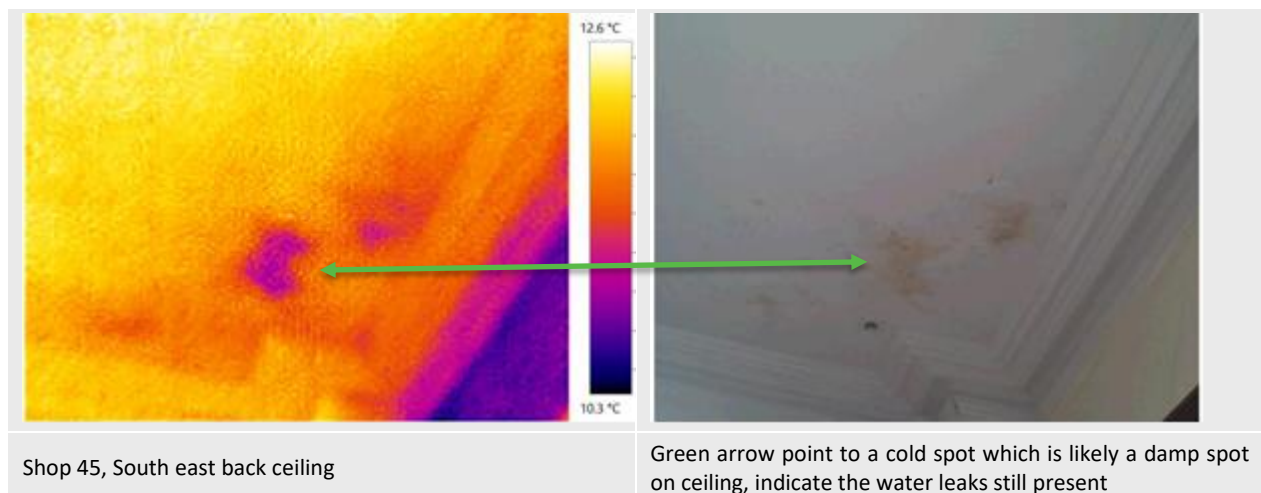
The areas inspected included the ground floor Shop 43, 45 and 47 and multiple rooms at Level 1

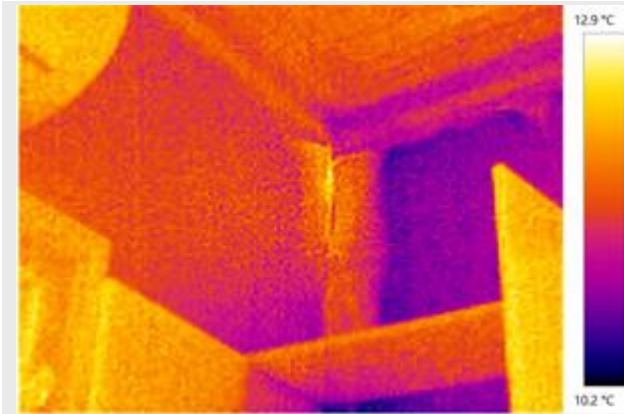
During the site visit, the following were noted:

- There was transient musty odour in ground floor shops and strong musty odour was present within the first floor.
- There was a ducted split air conditioning unit in level 1 dwelling.
- There were evidences or signs of water damage throughout the building surfaces such as timber floor buckling, stains on ceiling and walls, flaking and bubbling paint system, and excessive moisture content were detected within the 3 ground floor shops walls and timber floors as well as soil dampness under the building sub floor.
- Only accessible areas were inspected, areas that were not inspected are: subfloor, ceiling space, walls and floors covered with carpet, tiles and vinyl and furniture.

The following photographs depict the internal building conditions together with the thermal image of the area taken using the thermal imaging camera.

**Figure 4.1 Thermal Image survey and Photographs of the Moisture Test**

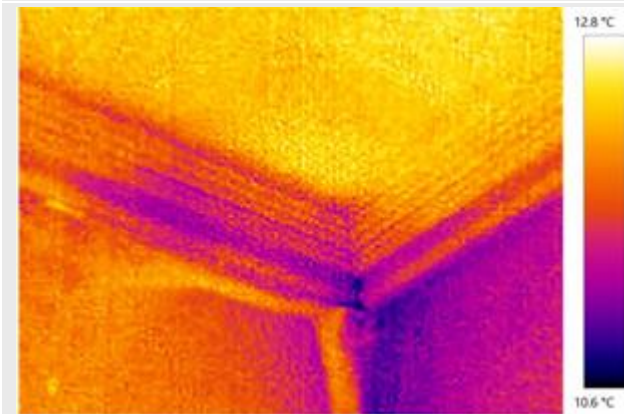




Shop 43, south west back wall



Dark blue at thermal image indicate of possible damp surface on west wall



Shop 43 south east back wall



Dark blue shades indicate possible damp wall surface on corner cornice and the west wall



Shop 47 west wall at low height, gypsum wall 1.6% indicate of wall too wet for painting which also have the potential for mould growth



Shop 47 west wall at mid height, gypsum wall 0.9% indicate of wall too wet for painting which also have the potential for mould growth



Shop 47 floor joist, 16.4% indicate at risk for mould growth



Shop 47 floorboard of 17.1% indicate high moisture condition



Shop 47 south floorboard of 21.8.1% indicate too high moisture condition



Shop 47 south floorboard of 23.5% indicate too high moisture condition



Shop 47, east wall, rendered brick wall - very high (6.9%) moisture content.



Shop 47, storeroom under stair, low west wall - very high (6.4%) moisture content.



Level 1, Room 1, north wall above window - 3.5% on rendered wall, moisture level still too high.



Level 1, Room 1, north wall at low height - results indicate normal dry rendered wall.



**Table 4.1: Airborne Mould samples Results**

ID	Location	Dominant Genera (>20%)	Results (Count/m <sup>3</sup> )	Hyphal Fragments (Count/m <sup>3</sup> )	Comments and Notes
A1	GF, Shop 47, Main Room	Aspergillus/Penicillium-Like (82%) (Asp/Pen)	9,453	53	>30xOA
A2	GF, Shop 47, Storeroom	Asp/Pen (81%)	3,507	147	11 x OA
A3	GF, Shop 47, Back Store	Asp/pen (86%)	4,733	13	15 x OA
A4	GF, Shop 47, Kitchenette	Asp/pen (82%)	2,387	53	8 x OA
A5	GF, Shop 45, Main Room	Asp/pen (57%), Cladosporium (35%)	5,840	240	19 x OA
A6	GF, Shop 45, Back store	Asp/pen (60%), Cladosporium (32%)	2,053	93	7 x OA
A7	<b>Outside Air (back side)</b>	Cladosporium (38%), Ascospores (25%), Cladosporium (25%)	107	-	Very Low
A8	L-1, Room 1	Asp/pen (64%)	3,600	107	12 x OA
A09	L-1, Room 2	Asp/pen (54%), Cladosporium (23%)	2,973	53	10 x OA
A10	L-1, Common Room	Asp/pen (60%), <b>Lomentospora/Scedosporium-like (30%)</b>	4,053	13	13 x OA
A11	L-1, Room 4	Asp/pen (51%),	1,560	53	5 x OA
A12	L-1, Room 5	Asp/pen (39%), Cladosporium (28%)	760	53	2 x OA
A13	L-1, Room 6	Asp/pen (30%), Basidiospores (19%)	2,333	133	8 x OA
A14	L-1, Room 7	Asp/pen (30%), Cladosporium (25%)	1,507	93	5 x OA
A15	<b>Outside Air (Front side)</b>	Cladosporium (48%)	307	13	Low
A16	GF, Shop 43, Main Room	Asp/pen (97%)	8,080	40	26 x OA

Note: The average outside air spore levels were lower than normally expected.

**Table 4.2: Surface mould spore results**

ID	Location	Dominant Genera	Results (spore/cm <sup>2</sup> )	Hyphal Fragments
S1	Shop 47 (Sh47), Southeast wall	Asp/Pen (100%)	<b>800,800</b>	<b>3,973</b>
S2	Sh47, east wall of the Back shop	Asp/Pen (80%)	<b>3,511</b>	46
S3	Sh47, North west wall of the back kitchenette	Cladosporium (100%)	<b>30,800</b>	<b>1,201</b>
S4	Sh47, West wall of the back kitchenette	Cladosporium (100%)	<b>30,800</b>	<b>14,938</b>
S5	Sh47, West wall of the small storage below stair	Cladosporium (90%)	<b>2,495</b>	909
S6	Sh45, north partition wall of the back store	Asp/Pen (100%)	<b>1,062,600</b>	<b>2,911</b>
S7	Sh45, South west ceiling	Oidiodendron (93%)	<b>679,232</b>	<b>40,040</b>
S8	Sh43, south ceiling at centre	Asp/pen (45%), Cladosporium (55%)	<b>508,200</b>	<b>33,880</b>
S9	Sh43, South east ceiling	Oidiodendron (88%)	<b>893,200</b>	46
S10	Sh43, low section of the east wall	Nigrospora (100%)	15	-
S11	L1, North ceiling cornice of the living Room 1	Asp/pen (100%)	462	-
S12	L1, Common area ceiling above stair	Asp/pen (72%), Cladosporium (28%)	<b>212,535</b>	<b>7,700</b>
S13	L1, north ceiling cornice of the living Room 2	Cladosporium (100%)	<b>5,636</b>	-
S14	L1, Common area, west ceiling	Acremonium (40%), Trichoderma (60%)	<b>385,678</b>	<b>18,480</b>
S15	L1, Common area, south ceiling	Chaetomium (100%)	<b>69,300</b>	<b>12,628</b>
S16	L1, Room 4, west ceiling	-	0	-
S17	L1, Room 5, west wall adjacent to window	Cladosporium (43%), Ascospores (20%)	616	46
S18	L1, Room 7, North ceiling cornice	Asp/pen (100%)	647	185
S19	L1, Room 7, west ceiling cornice	-	0	-
S20	L1, Common room, inside return air duct	Ascospores (32%), Cladosporium (26%), Basidiospores (21%)	293	123

## 5. Conclusion and Recommendations

The airborne mould spore found in the building were at least 2x the magnitude of what was present in reference outside air and the highest concentration level of 30 x was within the ground floor shop 47.

The main genus of airborne mould spores identified within the locations tested are Aspergillus/Penicillium-Like sp and Lomentospora/Scedosporium-like, which is different than the reference outside air (Cladosporium sp). Aspergillus/Penicillium sp is generally classified as potential allergens (See AEML Laboratory Report Glossary in Appendix 1). Lomentospora/Scedosporium-like sp moulds were present within level 1, mainly in the common room after the stair well.

Aspergillus/Penicillium sp is very common and ubiquitous to the environment, however Lomentospora/Scedosporium-like sp are considered opportunistic emerging pathogens which may cause infection to immunocompromised individual.

The levels of surfaces mould samples were low to very high and mostly are very common and ubiquitous to the environment.

Based on the IICRC R520 for Mould Remediation handbook, the mould in the building should be treated as "Condition 3" (Actual Growth) and "Condition 2" (settled spore from "Condition 3" area)

Currently there are no standard for airborne mould level, however from a health perspective, all mould spores should be treated with cautious as majority would have the potential to affect health risk, especially to individual that are predisposed to and or suffer from a respiratory ailment may still experience health impacts not experienced by the general population. It is recommended that the affected areas are completely cleaned, removed from the present location and then either cleaned with a fungicide and thoroughly dried before being reinstated, or else disposed of and replaced with new materials. This is a precautionary measure only in order to prevent proliferation of mould should another water ingress event occur.

Based on our visual observations, the survey tests and the laboratory analysis results, the following is recommended:

- Access into the building should be restricted and all personnel entering the building should at least wear a P2 respirator.
- From a health perspective, restricted access should be enforced for entering building, especially for individuals with immune deficiency or predisposed to and or suffer from a respiratory ailment.
- Mould remediation should be conducted by an accredited IICRC mould remediation contractor.
- Prior to mould remediation, water ingress into the building should be contained and rectified.
- Remove and replace wooden floor cover, remediate if feasible as well as to provide access for water proofing to the wall and floor joist remediation if required.
- Wall damp course membrane should be inspected and replaced or repaired if damaged,
- To ensure a quick drying of the subfloor soil, provision should be made to repair and provide the subfloor ventilation by natural ventilation or mechanical ventilation as per the current Australian Building Code.
- Remove the plaster board wall covering within the ground floor shops, dry the brick wall and render before reinstating the new wall covering.

- Remove affected ceiling and remediate roof trusses and joist.
- Remove and replace all mould effected porous building material e.g. carpet, gypsum, insulation.
- Keep the indoor humidity below 60 % RH with proper building ventilation and good housekeeping should minimise the possibility for mould regrowth.

## 6. Reference Standard and Guidelines

Currently there are no reliable standard and guideline for surface and airborne mould available. Hibbs use the outside air reference as the control sample to compare against the mould genera identified in the indoor air samples for determining normal mould ecology.

The following reference books were used to support our conclusions:

- Australian Building Codes Board. (2019). Condensation in buildings. In ACAB.gov. Australian Building Codes Board. <https://www.abcb.gov.au/Resources/Publications/Education-Training/Condensation-in-Buildings>
- Australian Building Codes Board. (2021). Indoor Air Quality Verification Method Handbook. <https://www.abcb.gov.au/sites/default/files/resources/2022/Handbook-indoor-air-quality.pdf>
- IICRC. (2015). ANSI/IICRC S520. Institute of Inspection, Cleaning & Restoration Certification.
- Kemp, P., & Neumeister-Kemp, H. (2010). Australian mould guideline: The go-to guide for everything mould, by Peter Kemp and Heike Neumeister-Kemp. Messenger Publishing.
- Prezant, B., Weekes, D. M., Miller, J. D., & American Industrial Hygiene Association. (2008). Recognition, evaluation, and control of indoor mold. American Industrial Hygiene Association.



## Appendix A Photograph

Photograph A.1: Shop 47, Sample S-1



Photograph A.2: Shop 47, Sample S-2



Photograph A.3: Shop 47, Sample S-3



Photograph A.4: Shop 47 Sample S-4



**Photograph A.5: Shop 47 Sample S-5**



**Photograph A.6: Shop 45, Sample S-6**



**Photograph A.7: Shop 45, Sample S-7**



**Photograph A.8: Shop 43, Sample S8**





**Photograph A.9: Shop 43 Sample S-9**



**Photograph A.10: Shop 43, Sample S-10**



**Photograph A.11: Level 1, Room 1, Sample S-11**



**Photograph A.12: Level 1, Stair, Sample S-12**



Photograph A.13: Level 1, Room 2, Sample S-13



Photograph A.14: Level 1, Room 3, Sample S-14



Photograph A.15: Level 1, Room 3, Sample S-15



Photograph A.16: Level 1, Room 4, Sample S-16



**Photograph A.17: Level 1, Room 5**



**Photograph A.18: Level 1, Room 7 North**



**Photograph A.19: Level 1, Room 7 West**



**Photograph A.20: Level 1, Room 3, AC Return Air**

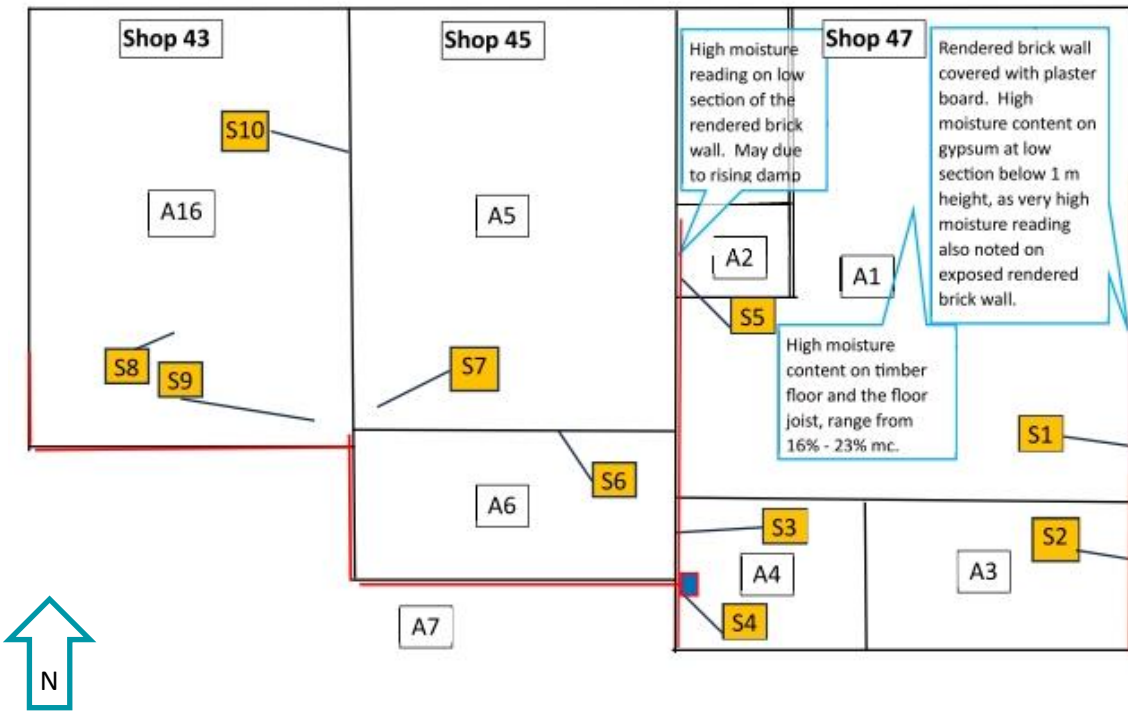




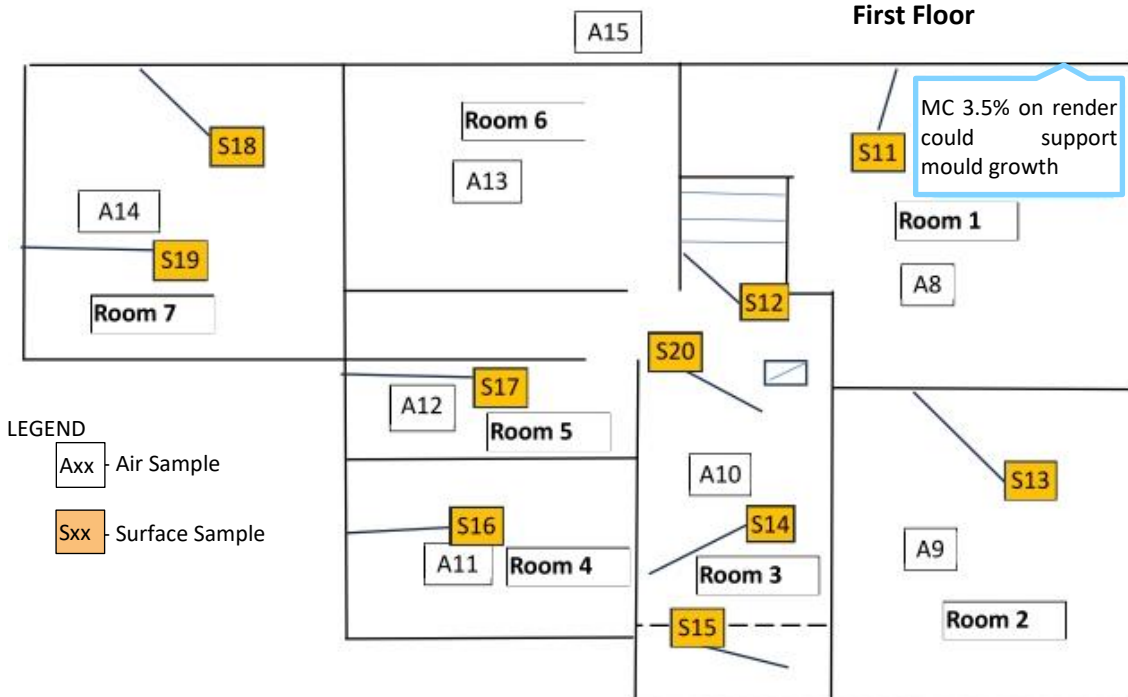
## Appendix B Sampling Site Diagram

Figure B.1: Diagram of Sampling Location

Ground Floor



First Floor





## Appendix C Laboratory Analysis



AEML

6 Monterey Road, Dandenong South VIC 3175  
PH: +613 8518 5720 | Email: [invoices@aemlply.com.au](mailto:invoices@aemlply.com.au)

# CHAIN OF CUSTODY (COC) / ANALYSIS REQUEST

Project # / Job #: **233907**

<b>Company</b>	HIBBS	<b>Phone</b>	(02) 746 3244	<b>Sampled By</b>	IO / JW
<b>Contact Name</b>	Ide Onggo	<b>Contact E-mail</b>	ide.onggo@hibbs.com.au	<b>Project/Site Name</b>	S12772
<b>Address</b>	Suite B, 255 Rawson Street	<b>Report Email</b>	ide.onggo@hibbs.com.au	<b>Project #</b>	HB - pre
<b>City</b>	AUBURN	<b>State</b>	NSW	<b>P.O. #</b>	HW3315
<b>Post Code</b>	2144	<b>Customer Requirements</b>			

Sample #	Sample Identification	Sampling Date	Sample Type	Volume (Air m <sup>3</sup> )	Area (Swabs cm <sup>2</sup> )	Analysis Requested (Tick Boxes Below to Indicate request)						For Lab Use Only Sample Numbers			
						A = Air	T = Tape	W = Water	S = Swab	Other	A001		S001	T001	A002
1	A1	21/07/23	A	75		<input checked="" type="checkbox"/>									01
2	A2	21/07/23	A	75		<input checked="" type="checkbox"/>									02
3	A3	21/07/23	A	75		<input checked="" type="checkbox"/>									03
4	A4	21/07/23	A	75		<input checked="" type="checkbox"/>									04
5	A5	21/07/23	A	75		<input checked="" type="checkbox"/>									05
6	A6	21/07/23	A	75		<input checked="" type="checkbox"/>									06
7	A7	21/07/23	A	75		<input checked="" type="checkbox"/>									07
8	A8	21/07/23	A	75		<input checked="" type="checkbox"/>									08
9	A9	21/07/23	A	75		<input checked="" type="checkbox"/>									09
10	A10	21/07/23	A	75		<input checked="" type="checkbox"/>									10

<b>Special Instructions / Requirements:</b>	
---	--

Date	Time	Relinquished By	Company	Received By	Company	Good Condition
24/07/23	10:05am	Jessica Walker	HIBBS			Yes
25/7/23	13:15		Auspost	MD	Eurofins / AEML	Yes

Analyses performed by Environment Testing Australia Pty Ltd (Eurofins) trading as Eurofins | AEML are subject to Eurofins standard Terms and Conditions unless otherwise specified. ABN: 50 005 085 521



AEML

6 Monterey Road, Dandenong South VIC 3175  
PH: +613 8518 5720 | Email: [invoices@aemlby.com.au](mailto:invoices@aemlby.com.au)

# CHAIN OF CUSTODY (COC) / ANALYSIS REQUEST

Project # / Job #:	233907
--------------------	--------

Company		HIBBS		Phone		(02) 746 3244		Sampled By		IO / JW	
Contact Name		Ide Onggo		Contact E-mail		ide.onggo@hibbs.com.au		Project/Site Name		S12772	
Address		Suite B, 255 Rawson Street		Report Email		ide.onggo@hibbs.com.au		Project #		HB - pre	
City		AUBURN		State		NSW		Post Code		2144	
Customer Requirements		A = Air T = Tape B = Bulk		W = Water S = Swab Other _____		Turn Around Time		Standard <input checked="" type="checkbox"/>			
Sample #		Sample Identification		Sample Type		Volume (Air m <sup>3</sup> )		Area (Swabs cm <sup>2</sup> )		Analysis Requested (Tick Boxes Below to indicate request)	
1_1		A11		A		75				<input checked="" type="checkbox"/> A001 Mould <input type="checkbox"/> S001 Mould <input type="checkbox"/> T001 Mould <input type="checkbox"/> A002 Mould + skin cells, fibres, fibreglass & insect parts <input type="checkbox"/> S002 Mould + skin cells, fibres, fibreglass & insect parts <input type="checkbox"/> T002 Mould + skin cells, fibres, fibreglass & insect parts	
1_2		A12		A		75				<input checked="" type="checkbox"/> A001 Mould <input type="checkbox"/> S001 Mould <input type="checkbox"/> T001 Mould <input type="checkbox"/> A002 Mould + skin cells, fibres, fibreglass & insect parts <input type="checkbox"/> S002 Mould + skin cells, fibres, fibreglass & insect parts <input type="checkbox"/> T002 Mould + skin cells, fibres, fibreglass & insect parts	
1_3		A13		A		75				<input checked="" type="checkbox"/> A001 Mould <input type="checkbox"/> S001 Mould <input type="checkbox"/> T001 Mould <input type="checkbox"/> A002 Mould + skin cells, fibres, fibreglass & insect parts <input type="checkbox"/> S002 Mould + skin cells, fibres, fibreglass & insect parts <input type="checkbox"/> T002 Mould + skin cells, fibres, fibreglass & insect parts	
1_4		A14		A		75				<input checked="" type="checkbox"/> A001 Mould <input type="checkbox"/> S001 Mould <input type="checkbox"/> T001 Mould <input type="checkbox"/> A002 Mould + skin cells, fibres, fibreglass & insect parts <input type="checkbox"/> S002 Mould + skin cells, fibres, fibreglass & insect parts <input type="checkbox"/> T002 Mould + skin cells, fibres, fibreglass & insect parts	
1_5		A15		A		75				<input checked="" type="checkbox"/> A001 Mould <input type="checkbox"/> S001 Mould <input type="checkbox"/> T001 Mould <input type="checkbox"/> A002 Mould + skin cells, fibres, fibreglass & insect parts <input type="checkbox"/> S002 Mould + skin cells, fibres, fibreglass & insect parts <input type="checkbox"/> T002 Mould + skin cells, fibres, fibreglass & insect parts	
1_6		A16		A		75				<input checked="" type="checkbox"/> A001 Mould <input type="checkbox"/> S001 Mould <input type="checkbox"/> T001 Mould <input type="checkbox"/> A002 Mould + skin cells, fibres, fibreglass & insect parts <input type="checkbox"/> S002 Mould + skin cells, fibres, fibreglass & insect parts <input type="checkbox"/> T002 Mould + skin cells, fibres, fibreglass & insect parts	
1_7		S1		T						<input checked="" type="checkbox"/> A001 Mould <input type="checkbox"/> S001 Mould <input type="checkbox"/> T001 Mould <input type="checkbox"/> A002 Mould + skin cells, fibres, fibreglass & insect parts <input type="checkbox"/> S002 Mould + skin cells, fibres, fibreglass & insect parts <input type="checkbox"/> T002 Mould + skin cells, fibres, fibreglass & insect parts	
1_8		S2		T						<input checked="" type="checkbox"/> A001 Mould <input type="checkbox"/> S001 Mould <input type="checkbox"/> T001 Mould <input type="checkbox"/> A002 Mould + skin cells, fibres, fibreglass & insect parts <input type="checkbox"/> S002 Mould + skin cells, fibres, fibreglass & insect parts <input type="checkbox"/> T002 Mould + skin cells, fibres, fibreglass & insect parts	
1_9		S3		T						<input checked="" type="checkbox"/> A001 Mould <input type="checkbox"/> S001 Mould <input type="checkbox"/> T001 Mould <input type="checkbox"/> A002 Mould + skin cells, fibres, fibreglass & insect parts <input type="checkbox"/> S002 Mould + skin cells, fibres, fibreglass & insect parts <input type="checkbox"/> T002 Mould + skin cells, fibres, fibreglass & insect parts	
2_0		S4		T						<input checked="" type="checkbox"/> A001 Mould <input type="checkbox"/> S001 Mould <input type="checkbox"/> T001 Mould <input type="checkbox"/> A002 Mould + skin cells, fibres, fibreglass & insect parts <input type="checkbox"/> S002 Mould + skin cells, fibres, fibreglass & insect parts <input type="checkbox"/> T002 Mould + skin cells, fibres, fibreglass & insect parts	
Special Instructions / Requirements:											
Date		Time		Relinquished By		Company		Received By		Company	
24/07/23		10:05am		Jessica Valler		Hibbs					
25/7/23		13:15		Ansofort		Ansofort		MD		Eurofins / AEML	
										Good Condition	
										Yes	
										No	
										Yes	
										No	





AEML

6 Monterey Road, Dandenong South VIC 3175  
PH: +613 8518 5720 | Email: [invoices@aeimplv.com.au](mailto:invoices@aeimplv.com.au)

# CHAIN OF CUSTODY (COC) / ANALYSIS REQUEST

Project # / Job #:	233907
--------------------	--------

Company		HIBBS			Phone		(02) 746 3244			Sampled By		IO / JW						
Contact Name		Ide Onggo			Contact E-mail		ide.onggo@hibbs.com.au			Project/Site Name		S12772						
Address		Suite B, 255 Rawson Street			Report Email		ide.onggo@hibbs.com.au			Project #		HB - pre						
City		AUBURN	State	NSW	Post Code	2144	Customer Requirements		P.O. #		HW3315							
Sample #	Sample Identification				Sample Type		Turn Around Time		Analysis Requested (Tick Boxes Below to indicate request)						For Lab Use Only Sample Numbers			
					A = Air T = Tape B = Bulk	W = Water S = Swab	Standard <input checked="" type="checkbox"/>	Other _____	A001 Mould	S001 Mould	T001 Mould	A002 Mould + skin cells, fibres, fibreglass & insect parts	S002 Mould+ skin cells, fibres, fibreglass & insect parts	T002 Mould+ skin cells, fibres, fibreglass & insect parts				
2_1		S5				21/07/23	T										21	
2_2		S6				21/07/23	T											22
2_3		S7				21/07/23	T											23
2_4		S8				21/07/23	T											24
2_5		S9				21/07/23	T											25
2_6		S10				21/07/23	T											26
2_7		S11				21/07/23	T											27
2_8		S12				21/07/23	T											28
2_9		S13				21/07/23	T											29
3_0		S14				21/07/23	T											30
Special Instructions / Requirements:																		
Date		Time		Relinquished By		Company		Received By		Company		Good Condition						
24/03/23		10:05am		Jessica Udder		Hibbs		MD		Eurofins		Yes						
25/3/23		13:15		Aurfeest		Aurfeest		MD		Eurofins		Yes						



AEMIL

6 Monterey Road, Dandenong South VIC 3175  
PH: +613 8518 5720 | Email: [invoices@aemilpv.com.au](mailto:invoices@aemilpv.com.au)

# CHAIN OF CUSTODY (COC) / ANALYSIS REQUEST

Project # / Job #: **233907**

Company		HIBBS			Phone		(02) 746 3244			Sampled By		IO / JW					
Contact Name		Ide Onggo			Contact E-mail		ide.onggo@hibbs.com.au			Project/Site Name		S12772					
Address		Suite B, 255 Rawson Street			Report Email		ide.onggo@hibbs.com.au			Project #		HB - pre					
City		AUBURN	State	NSW	Post Code	2144	Customer Requirements		P.O. #		HW3315						
Sample #	Sample Identification				Sample Type		Turn Around Time		Analysis Requested (Tick Boxes Below to indicate request)						For Lab Use Only		
					A = Air T = Tape B = Bulk	W = Water S = Swab	Standard <input checked="" type="checkbox"/>	Other _____									
3_1		S15			21/07/23	T											31
3_2		S16			21/07/23	T											32
3_3		S17			21/07/23	T											33
3_4		S18			21/07/23	T											34
3_5		S19			21/07/23	T											35
3_6		S20			21/07/23	T											36
__7					21/07/23	T											37
__8																	WD
__9																	25/7/23
__0																	
Special Instructions / Requirements:																	
Date		Time		Relinquished By		Company		Received By		Company		Good Condition					
24/07/2023		10:05am		Jessica White		HIBBS						Yes					
25/7/23		13:15		Aur Post		Aur Post		WD		Eurofins		Yes					

Analyses performed by Environment Testing Australia Pty Ltd (Eurofins) trading as Eurofins | AEMIL are subject to Eurofins standard Terms and Conditions unless otherwise specified. ABN: 50 005 085 521

QS3140\_R0, modified by K Whigglesworth, approved on 27.03.2023 by S. Xie

---

**Air Analytical Report**

**Prepared For:** Mr Ide Onggo  
HIBBS & Associates Pty Ltd  
Suite B, 255 Rawson St  
Auburn, NSW 2144  
02 9746 3244

**Eurofins | AEML Batch:** 233907

**Project/Site:**

**S12772, HB-Pre, HW3315**



**Authorised for release by:**

Cimona Fernandes  
Project Manager



*This report may not be reproduced except in its entirety and with written approval from Eurofins Environment Testing Australia Pty Ltd. For questions please contact the laboratory at the e-mail address or telephone number listed on this page. Results pertain only to the sample(s) as received by the laboratory and presented on the accompanying Chain of Custody. Accredited for compliance with ISO/IEC 17025-Testing Accreditation #01261 Site #24876*

---

## ***Table of Contents***

**Client:** Mr Ide Onggo  
HIBBS & Associates Pty Ltd  
Suite B, 255 Rawson St  
Auburn, NSW 2144  
02 9746 3244

**Eurofins | AEML Batch:** 233907

**Project/Site:** S12772, HB-Pre, HW3315

1. Cover Page .....	1
2. Table of Contents .....	2
3. Project Narrative .....	3
4. Sample Summary .....	4
5. Detection Summary .....	6
6. Client Sample Results .....	12
7. Chart .....	16
8. Definitions and Glossary .....	20
9. Fungal Glossary .....	22
10. References and Links .....	31

---

## ***Project Narrative***

**Client:** Mr Ide Onggo  
HIBBS & Associates Pty Ltd  
Suite B, 255 Rawson St  
Auburn, NSW 2144  
02 9746 3244  
**Project/Site:** S12772, HB-Pre, HW3315

**Eurofins | AEML Batch:** 233907

### **Receipt**

The sample(s) contained in this report were collected on July 21, 2023 and received by Eurofins Environment Testing Australia Pty Ltd on July 25, 2023. All samples were received in good condition unless otherwise noted in the results section of this report or on the accompanying Chain of Custody.

### **Sample Analysis**

Analyses were performed in accordance to Eurofins Environment Testing Australia Pty Ltd.'s Standard Operating Procedures and Quality Assurance Program. No deviations were made to these procedures unless noted in the results section of this report. Any additional information that the laboratory believes relevant will be noted as Data Qualifiers accompanying the sample results.

### **Quality Assurance**

Eurofins Environment Testing Australia Pty Ltd. has developed and implemented policies and procedures that adhere to the General Requirements for the Competence of Testing and Calibration Laboratories, ISO/IEC 17025:2017.

The laboratory is staffed by highly trained and experienced professionals. Eurofins Environment Testing Australia Pty Ltd. utilises state of the art equipment that is of the most recent technology available for fungal spore identification and quantification. Eurofins Environment Testing Australia Pty Ltd. has the most up to date data systems available with capabilities to provide standard reports in hardcopy and electronic data deliverables.

## Sample Summary

**Client:** Mr Ide Onggo  
 HIBBS & Associates Pty Ltd  
 Suite B, 255 Rawson St  
 Auburn, NSW 2144  
 02 9746 3244

**Eurofins | AEML Batch:** 233907

**Project/Site:** S12772, HB-Pre, HW3315

Lab Sample ID	Client Sample ID	Media	Collected	Received
233907-01	A1	Air-O-Cell	21-07-2023	25-07-2023
233907-02	A2	Air-O-Cell	21-07-2023	25-07-2023
233907-03	A3	Air-O-Cell	21-07-2023	25-07-2023
233907-04	A4	Air-O-Cell	21-07-2023	25-07-2023
233907-05	A5	Air-O-Cell	21-07-2023	25-07-2023
233907-06	A6	Air-O-Cell	21-07-2023	25-07-2023
233907-07	A7	Air-O-Cell	21-07-2023	25-07-2023
233907-08	A8	Air-O-Cell	21-07-2023	25-07-2023
233907-09	A9	Air-O-Cell	21-07-2023	25-07-2023
233907-10	A10	Air-O-Cell	21-07-2023	25-07-2023
233907-11	A11	Air-O-Cell	21-07-2023	25-07-2023
233907-12	A12	Air-O-Cell	21-07-2023	25-07-2023

---

**Sample Summary**

**Client:** Mr Ide Onggo  
HIBBS & Associates Pty Ltd  
Suite B, 255 Rawson St  
Auburn, NSW 2144  
02 9746 3244

**Eurofins | AEML Batch:** 233907

**Project/Site:** S12772, HB-Pre, HW3315

<b>Lab Sample ID</b>	<b>Client Sample ID</b>	<b>Media</b>	<b>Collected</b>	<b>Received</b>
233907-13	A13	Air-O-Cell	21-07-2023	25-07-2023
233907-14	A14	Air-O-Cell	21-07-2023	25-07-2023
233907-15	A15	Air-O-Cell	21-07-2023	25-07-2023
233907-16	A16	Air-O-Cell	21-07-2023	25-07-2023

## ***Detection Summary***

**Client:** Mr Ide Onggo  
 HIBBS & Associates Pty Ltd  
 Suite B, 255 Rawson St  
 Auburn, NSW 2144  
 02 9746 3244

**Eurofins | AEML Batch:** 233907

**Project/Site:** S12772, HB-Pre, HW3315

<b>Lab Sample ID</b>	<b>Client Sample ID</b>	<b>Spore Type</b>	<b>Result / Count/m<sup>3</sup></b>
233907-01	A1	Ascospores	147
		Aspergillus/Penicillium-Like	7,760
		Basidiospores	173
		Botrytis	13
		Cladosporium	1,173
		Smut/Myxomyces/Periconia	187
		Hyphal Fragments	53
233907-02	A2	Ascospores	53
		Aspergillus/Penicillium-Like	2,827
		Basidiospores	67
		Cladosporium	440
		Epicoccum	27
		Smut/Myxomyces/Periconia	93
		Hyphal Fragments	147
233907-03	A3	Alternaria	13
		Ascospores	40
		Aspergillus/Penicillium-Like	4,093
		Basidiospores	67
		Chaetomium	13
		Cladosporium	427
		Ganoderma	40
233907-04	A4	Smut/Myxomyces/Periconia	40
		Hyphal Fragments	13
		Pollen	13
		Ascospores	13



## Detection Summary

**Client:** Mr Ide Onggo  
 HIBBS & Associates Pty Ltd  
 Suite B, 255 Rawson St  
 Auburn, NSW 2144  
 02 9746 3244

**Eurofins | AEML Batch:** 233907

**Project/Site:** S12772, HB-Pre, HW3315

Lab Sample ID	Client Sample ID	Spore Type	Result / Count/m <sup>3</sup>
233907-05	A5	Aspergillus/Penicillium-Like	1,960
		Basidiospores	53
		Chaetomium	40
		Cladosporium	267
		Smut/Myxomyces/Periconia	53
		Hyphal Fragments	53
		Pollen	27
		Ascospores	40
		Aspergillus/Penicillium-Like	3,307
		Basidiospores	253
		Botrytis	13
		Cladosporium	2,040
		Curvularia	13
233907-06	A6	Smut/Myxomyces/Periconia	173
		Hyphal Fragments	240
		Pollen	27
		Ascospores	67
		Aspergillus/Penicillium-Like	1,240
		Botrytis	13
		Cladosporium	653
		Curvularia	13
		Epicoccum	13
		Smut/Myxomyces/Periconia	53
233907-07	A7	Hyphal Fragments	93
		Ascospores	27
		Cladosporium	40

## Detection Summary

**Client:** Mr Ide Onggo  
 HIBBS & Associates Pty Ltd  
 Suite B, 255 Rawson St  
 Auburn, NSW 2144  
 02 9746 3244

**Eurofins | AEML Batch:** 233907

**Project/Site:** S12772, HB-Pre, HW3315

Lab Sample ID	Client Sample ID	Spore Type	Result / Count/m <sup>3</sup>
233907-08	A8	Curvularia	13
		Epicoccum	27
		Pollen	13
		Alternaria	13
		Ascospores	173
		Aspergillus/Penicillium-Like	2,320
		Basidiospores	147
		Botrytis	13
		Cladosporium	293
		Epicoccum	13
		Ganoderma	13
		Lomentospora/Scedosporium-Like	293
		Nigrospora	40
		Oidium/Peronospora	13
		Pithomyces	13
		Smut/Myxomyces/Periconia	253
233907-09	A9	Hyphal Fragments	107
		Pollen	53
		Alternaria	67
		Ascospores	187
		Aspergillus/Penicillium-Like	1,600
		Basidiospores	133
		Bipolaris/Dreschlera	13
		Cladosporium	693
		Lomentospora/Scedosporium-Like	160
		Smut/Myxomyces/Periconia	120

## Detection Summary

**Client:** Mr Ide Onggo  
 HIBBS & Associates Pty Ltd  
 Suite B, 255 Rawson St  
 Auburn, NSW 2144  
 02 9746 3244

**Eurofins | AEML Batch:** 233907

**Project/Site:** S12772, HB-Pre, HW3315

Lab Sample ID	Client Sample ID	Spore Type	Result / Count/m <sup>3</sup>
233907-10	A10	Hyphal Fragments	53
		Pollen	27
		Alternaria	80
		Ascospores	293
		Aspergillus/Penicillium-Like	1,747
		Basidiospores	213
		Chaetomium	120
		Cladosporium	213
		Epicoccum	40
		Lomentospora/Scedosporium-Like	1,213
		Nigrospora	13
		Pithomyces	13
		Smut/Myxomyces/Periconia	107
233907-11	A11	Hyphal Fragments	13
		Pollen	93
		Ascospores	173
		Aspergillus/Penicillium-Like	800
		Basidiospores	293
		Bipolaris/Dreschlera	13
		Botrytis	40
		Cladosporium	67
		Lomentospora/Scedosporium-Like	107
		Smut/Myxomyces/Periconia	53
		Torula	13
		Hyphal Fragments	53
		Pollen	13

## Detection Summary

**Client:** Mr Ide Onggo  
 HIBBS & Associates Pty Ltd  
 Suite B, 255 Rawson St  
 Auburn, NSW 2144  
 02 9746 3244

**Eurofins | AEML Batch:** 233907

**Project/Site:** S12772, HB-Pre, HW3315

Lab Sample ID	Client Sample ID	Spore Type	Result / Count/m <sup>3</sup>
233907-12	A12	Ascospores	53
		Aspergillus/Penicillium-Like	293
		Basidiospores	67
		Cercospora	13
		Cladosporium	213
		Lomentospora/Scedosporium-Like	107
		Smut/Myxomyces/Periconia	13
		Hyphal Fragments	53
233907-13	A13	Alternaria	53
		Ascospores	187
		Aspergillus/Penicillium-Like	707
		Basidiospores	453
		Botrytis	27
		Cladosporium	227
		Lomentospora/Scedosporium-Like	347
		Rust	27
		Smut/Myxomyces/Periconia	240
		Torula	67
		Hyphal Fragments	133
		Pollen	53
233907-14	A14	Alternaria	67
		Ascospores	200
		Aspergillus/Penicillium-Like	453
		Basidiospores	200
		Cladosporium	307
		Ganoderma	27

## Detection Summary

**Client:** Mr Ide Onggo  
 HIBBS & Associates Pty Ltd  
 Suite B, 255 Rawson St  
 Auburn, NSW 2144  
 02 9746 3244

**Eurofins | AEML Batch:** 233907

**Project/Site:** S12772, HB-Pre, HW3315

Lab Sample ID	Client Sample ID	Spore Type	Result / Count/m <sup>3</sup>
233907-15	A15	Nigrospora	13
		Rust	13
		Smut/Myxomyces/Periconia	227
		Hyphal Fragments	93
		Alternaria	27
		Ascospores	53
		Aspergillus/Penicillium-Like	13
		Bipolaris/Dreschlera	13
		Cladosporium	147
		Curvularia	13
		Epicoccum	27
233907-16	A16	Smut/Myxomyces/Periconia	13
		Hyphal Fragments	13
		Pollen	13
		Alternaria	13
		Ascospores	27
		Aspergillus/Penicillium-Like	7,800
		Basidiospores	40
		Cladosporium	120
		Epicoccum	40
		Nigrospora	13
		Smut/Myxomyces/Periconia	13
Ulocladium	13		
Hyphal Fragments	40		
Pollen	13		

**Spore Trap Analysis (AEML-DOC-18)**

Sample ID:	233907-01	233907-02	233907-03	233907-04
Client Sample ID:	A1	A2	A3	A4
Volume Sampled (L):	75	75	75	75
Media:	Air-O-Cell	Air-O-Cell	Air-O-Cell	Air-O-Cell
Percent of Trace Analysed:	100% at 600X Magnification	100% at 600X Magnification	100% at 600X Magnification	100% at 600X Magnification

Spore Types	Raw Count	Count/m <sup>3</sup>	%	Raw Count	Count/m <sup>3</sup>	%	Raw Count	Count/m <sup>3</sup>	%	Raw Count	Count/m <sup>3</sup>	%
Alternaria	—	—	—	—	—	—	1	13	<1	—	—	—
Arthrinium	—	—	—	—	—	—	—	—	—	—	—	—
Ascospores	11	147	2	4	53	2	3	40	1	1	13	1
Aspergillus/Penicillium-Like	582	7,760	82	212	2,827	81	307	4,093	86	147	1,960	82
Basidiospores	13	173	2	5	67	2	5	67	1	4	53	2
Bipolaris/Dreschlera	—	—	—	—	—	—	—	—	—	—	—	—
Botrytis	1	13	<1	—	—	—	—	—	—	—	—	—
Cercospora	—	—	—	—	—	—	—	—	—	—	—	—
Chaetomium	—	—	—	—	—	—	1	13	<1	3	40	2
Cladosporium	88	1,173	12	33	440	13	32	427	9	20	267	11
Curvularia	—	—	—	—	—	—	—	—	—	—	—	—
Epicoccum	—	—	—	2	27	1	—	—	—	—	—	—
Fusarium	—	—	—	—	—	—	—	—	—	—	—	—
Ganoderma	—	—	—	—	—	—	3	40	1	—	—	—
Lomentospora/Scedosporium-Like	—	—	—	—	—	—	—	—	—	—	—	—
Memnoniella	—	—	—	—	—	—	—	—	—	—	—	—
Nigrospora	—	—	—	—	—	—	—	—	—	—	—	—
Oidium/Peronospora	—	—	—	—	—	—	—	—	—	—	—	—
Pithomyces	—	—	—	—	—	—	—	—	—	—	—	—
Rust	—	—	—	—	—	—	—	—	—	—	—	—
Smut/Myxomyces/Periconia	14	187	2	7	93	3	3	40	1	4	53	2
Stachybotrys	—	—	—	—	—	—	—	—	—	—	—	—
Torula	—	—	—	—	—	—	—	—	—	—	—	—
Ulocladium	—	—	—	—	—	—	—	—	—	—	—	—
Unidentified Spores	—	—	—	—	—	—	—	—	—	—	—	—
<b>Total Spores</b>	<b>709</b>	<b>9,453</b>		<b>263</b>	<b>3,507</b>		<b>355</b>	<b>4,733</b>		<b>179</b>	<b>2,387</b>	
Hyphal Fragments	4	53		11	147		1	13		4	53	
Pollen	—	—		—	—		1	13		2	27	
Debris Rating	3			3			3			3		
Detection Limit	13			13			13			13		

Cimona Fernandes  
Project Manager

Results submitted pertain only to the samples as presented on the accompanying Chain of Custody.  
This report shall not be reproduced, except in its entirety, and the with written approval of Eurofins AEML.  
Accredited for compliance with ISO/IEC 17025-Testing Accreditation #01261 Site #24876.



**Spore Trap Analysis (AEML-DOC-18)**

Sample ID:	233907-05	233907-06	233907-07	233907-08
Client Sample ID:	A5	A6	A7	A8
Volume Sampled (L):	75	75	75	75
Media:	Air-O-Cell	Air-O-Cell	Air-O-Cell	Air-O-Cell
Percent of Trace Analysed:	100% at 600X Magnification	100% at 600X Magnification	100% at 600X Magnification	100% at 600X Magnification

Spore Types	Raw Count	Count/m <sup>3</sup>	%	Raw Count	Count/m <sup>3</sup>	%	Raw Count	Count/m <sup>3</sup>	%	Raw Count	Count/m <sup>3</sup>	%
Alternaria	—	—	—	—	—	—	—	—	—	1	13	<1
Arthrinium	—	—	—	—	—	—	—	—	—	—	—	—
Ascospores	3	40	1	5	67	3	2	27	25	13	173	5
Aspergillus/Penicillium-Like	248	3,307	57	93	1,240	60	—	—	—	174	2,320	64
Basidiospores	19	253	4	—	—	—	—	—	—	11	147	4
Bipolaris/Dreschlera	—	—	—	—	—	—	—	—	—	—	—	—
Botrytis	1	13	<1	1	13	1	—	—	—	1	13	<1
Cercospora	—	—	—	—	—	—	—	—	—	—	—	—
Chaetomium	—	—	—	—	—	—	—	—	—	—	—	—
Cladosporium	153	2,040	35	49	653	32	3	40	38	22	293	8
Curvularia	1	13	<1	1	13	1	1	13	13	—	—	—
Epicoccum	—	—	—	1	13	1	2	27	25	1	13	<1
Fusarium	—	—	—	—	—	—	—	—	—	—	—	—
Ganoderma	—	—	—	—	—	—	—	—	—	1	13	<1
Lomentospora/Scedosporium-Like	—	—	—	—	—	—	—	—	—	22	293	8
Memnoniella	—	—	—	—	—	—	—	—	—	—	—	—
Nigrospora	—	—	—	—	—	—	—	—	—	3	40	1
Oidium/Peronospora	—	—	—	—	—	—	—	—	—	1	13	<1
Pithomyces	—	—	—	—	—	—	—	—	—	1	13	<1
Rust	—	—	—	—	—	—	—	—	—	—	—	—
Smut/Myxomyces/Periconia	13	173	3	4	53	3	—	—	—	19	253	7
Stachybotrys	—	—	—	—	—	—	—	—	—	—	—	—
Torula	—	—	—	—	—	—	—	—	—	—	—	—
Ulocladium	—	—	—	—	—	—	—	—	—	—	—	—
Unidentified Spores	—	—	—	—	—	—	—	—	—	—	—	—
<b>Total Spores</b>	<b>438</b>	<b>5,840</b>		<b>154</b>	<b>2,053</b>		<b>8</b>	<b>107</b>		<b>270</b>	<b>3,600</b>	
Hyphal Fragments	18	240		7	93		—	—		8	107	
Pollen	2	27		—	—		1	13		4	53	
Debris Rating	3			3			3			3		
Detection Limit	13			13			13			13		

  
Cimona Fernandes  
Project Manager

Results submitted pertain only to the samples as presented on the accompanying Chain of Custody.  
This report shall not be reproduced, except in its entirety, and the with written approval of Eurofins AEML.  
Accredited for compliance with ISO/IEC 17025-Testing Accreditation #01261 Site #24876.



**Spore Trap Analysis (AEML-DOC-18)**

Sample ID:	233907-09	233907-10	233907-11	233907-12
Client Sample ID:	A9	A10	A11	A12
Volume Sampled (L):	75	75	75	75
Media:	Air-O-Cell	Air-O-Cell	Air-O-Cell	Air-O-Cell
Percent of Trace Analysed:	100% at 600X Magnification	100% at 600X Magnification	100% at 600X Magnification	100% at 600X Magnification

Spore Types	Raw Count	Count/m <sup>3</sup>	%	Raw Count	Count/m <sup>3</sup>	%	Raw Count	Count/m <sup>3</sup>	%	Raw Count	Count/m <sup>3</sup>	%
Alternaria	5	67	2	6	80	2	—	—	—	—	—	—
Arthrinium	—	—	—	—	—	—	—	—	—	—	—	—
Ascospores	14	187	6	22	293	7	13	173	11	4	53	7
Aspergillus/Penicillium-Like	120	1,600	54	131	1,747	43	60	800	51	22	293	39
Basidiospores	10	133	4	16	213	5	22	293	19	5	67	9
Bipolaris/Dreschlera	1	13	<1	—	—	—	1	13	1	—	—	—
Botrytis	—	—	—	—	—	—	3	40	3	—	—	—
Cercospora	—	—	—	—	—	—	—	—	—	1	13	2
Chaetomium	—	—	—	9	120	3	—	—	—	—	—	—
Cladosporium	52	693	23	16	213	5	5	67	4	16	213	28
Curvularia	—	—	—	—	—	—	—	—	—	—	—	—
Epicoccum	—	—	—	3	40	1	—	—	—	—	—	—
Fusarium	—	—	—	—	—	—	—	—	—	—	—	—
Ganoderma	—	—	—	—	—	—	—	—	—	—	—	—
Lomentospora/Scedosporium-Like	12	160	5	91	1,213	30	8	107	7	8	107	14
Memnoniella	—	—	—	—	—	—	—	—	—	—	—	—
Nigrospora	—	—	—	1	13	<1	—	—	—	—	—	—
Oidium/Peronospora	—	—	—	—	—	—	—	—	—	—	—	—
Pithomyces	—	—	—	1	13	<1	—	—	—	—	—	—
Rust	—	—	—	—	—	—	—	—	—	—	—	—
Smut/Myxomyces/Periconia	9	120	4	8	107	3	4	53	3	1	13	2
Stachybotrys	—	—	—	—	—	—	—	—	—	—	—	—
Torula	—	—	—	—	—	—	1	13	1	—	—	—
Ulocladium	—	—	—	—	—	—	—	—	—	—	—	—
Unidentified Spores	—	—	—	—	—	—	—	—	—	—	—	—
<b>Total Spores</b>	<b>223</b>	<b>2,973</b>		<b>304</b>	<b>4,053</b>		<b>117</b>	<b>1,560</b>		<b>57</b>	<b>760</b>	
Hyphal Fragments	4	53		1	13		4	53		4	53	
Pollen	2	27		7	93		1	13		—	—	
Debris Rating	3			3			3			3		
Detection Limit	13			13			13			13		

  
Cimona Fernandes  
Project Manager

Results submitted pertain only to the samples as presented on the accompanying Chain of Custody.  
This report shall not be reproduced, except in its entirety, and the with written approval of Eurofins AEML.  
Accredited for compliance with ISO/IEC 17025-Testing Accreditation #01261 Site #24876.





**Spore Trap Analysis (AEML-DOC-18)**

Sample ID:	233907-13	233907-14	233907-15	233907-16
Client Sample ID:	A13	A14	A15	A16
Volume Sampled (L):	75	75	75	75
Media:	Air-O-Cell	Air-O-Cell	Air-O-Cell	Air-O-Cell
Percent of Trace Analysed:	100% at 600X Magnification	100% at 600X Magnification	100% at 600X Magnification	100% at 600X Magnification

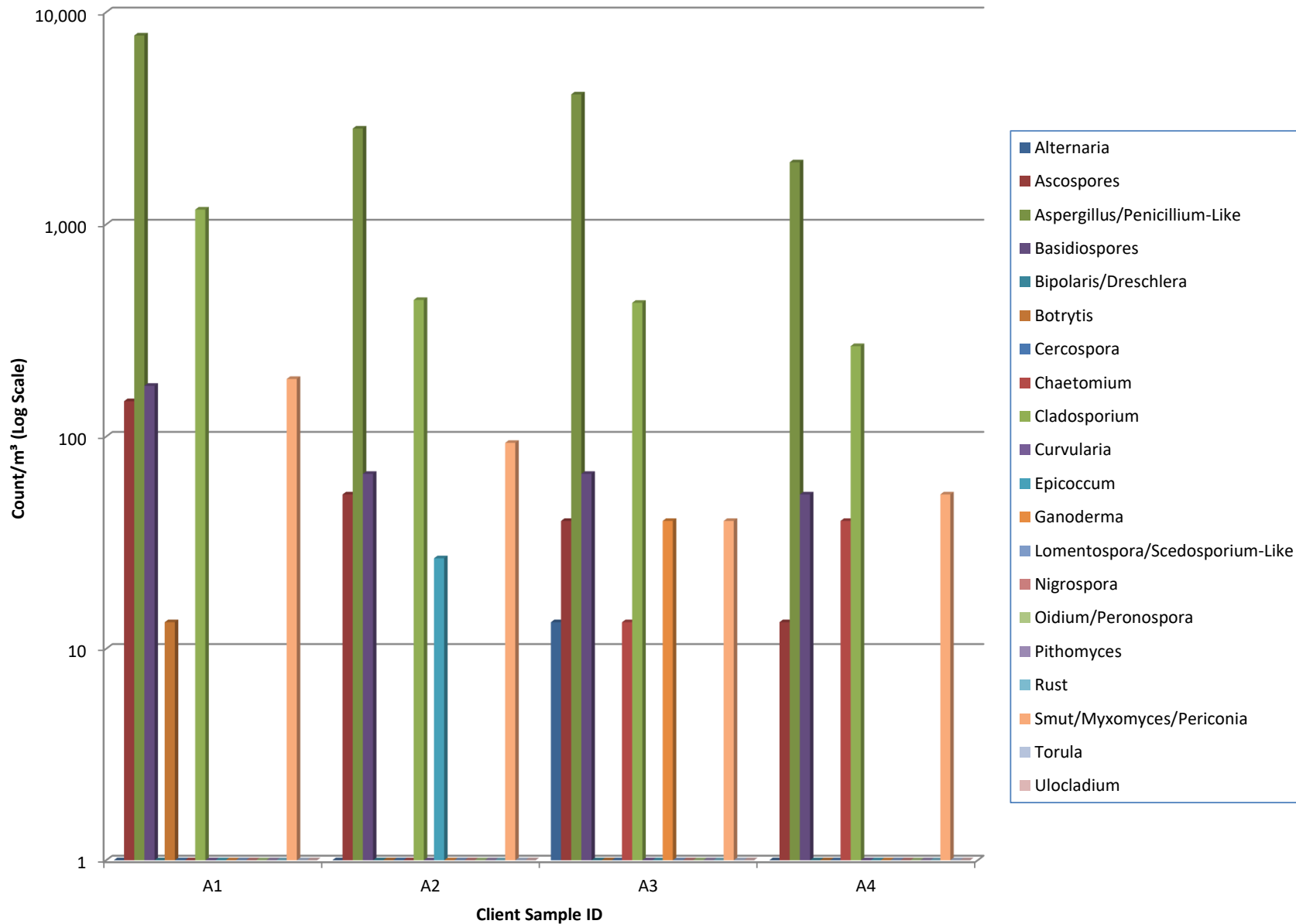
Spore Types	Raw Count	Count/m <sup>3</sup>	%	Raw Count	Count/m <sup>3</sup>	%	Raw Count	Count/m <sup>3</sup>	%	Raw Count	Count/m <sup>3</sup>	%
Alternaria	4	53	2	5	67	4	2	27	9	1	13	<1
Arthrinium	—	—	—	—	—	—	—	—	—	—	—	—
Ascospores	14	187	8	15	200	13	4	53	17	2	27	<1
Aspergillus/Penicillium-Like	53	707	30	34	453	30	1	13	4	585	7,800	97
Basidiospores	34	453	19	15	200	13	—	—	—	3	40	<1
Bipolaris/Dreschlera	—	—	—	—	—	—	1	13	4	—	—	—
Botrytis	2	27	1	—	—	—	—	—	—	—	—	—
Cercospora	—	—	—	—	—	—	—	—	—	—	—	—
Chaetomium	—	—	—	—	—	—	—	—	—	—	—	—
Cladosporium	17	227	10	23	307	20	11	147	48	9	120	1
Curvularia	—	—	—	—	—	—	1	13	4	—	—	—
Epicoccum	—	—	—	—	—	—	2	27	9	3	40	<1
Fusarium	—	—	—	—	—	—	—	—	—	—	—	—
Ganoderma	—	—	—	2	27	2	—	—	—	—	—	—
Lomentospora/Scedosporium-Like	26	347	15	—	—	—	—	—	—	—	—	—
Memnoniella	—	—	—	—	—	—	—	—	—	—	—	—
Nigrospora	—	—	—	1	13	1	—	—	—	1	13	<1
Oidium/Peronospora	—	—	—	—	—	—	—	—	—	—	—	—
Pithomyces	—	—	—	—	—	—	—	—	—	—	—	—
Rust	2	27	1	1	13	1	—	—	—	—	—	—
Smut/Myxomyces/Periconia	18	240	10	17	227	15	1	13	4	1	13	<1
Stachybotrys	—	—	—	—	—	—	—	—	—	—	—	—
Torula	5	67	3	—	—	—	—	—	—	—	—	—
Ulocladium	—	—	—	—	—	—	—	—	—	1	13	<1
Unidentified Spores	—	—	—	—	—	—	—	—	—	—	—	—
<b>Total Spores</b>	<b>175</b>	<b>2,333</b>		<b>113</b>	<b>1,507</b>		<b>23</b>	<b>307</b>		<b>606</b>	<b>8,080</b>	
Hyphal Fragments	10	133		7	93		1	13		3	40	
Pollen	4	53		—	—		1	13		1	13	
Debris Rating	3			3			3			3		
Detection Limit	13			13			13			13		

  
Cimona Fernandes  
Project Manager

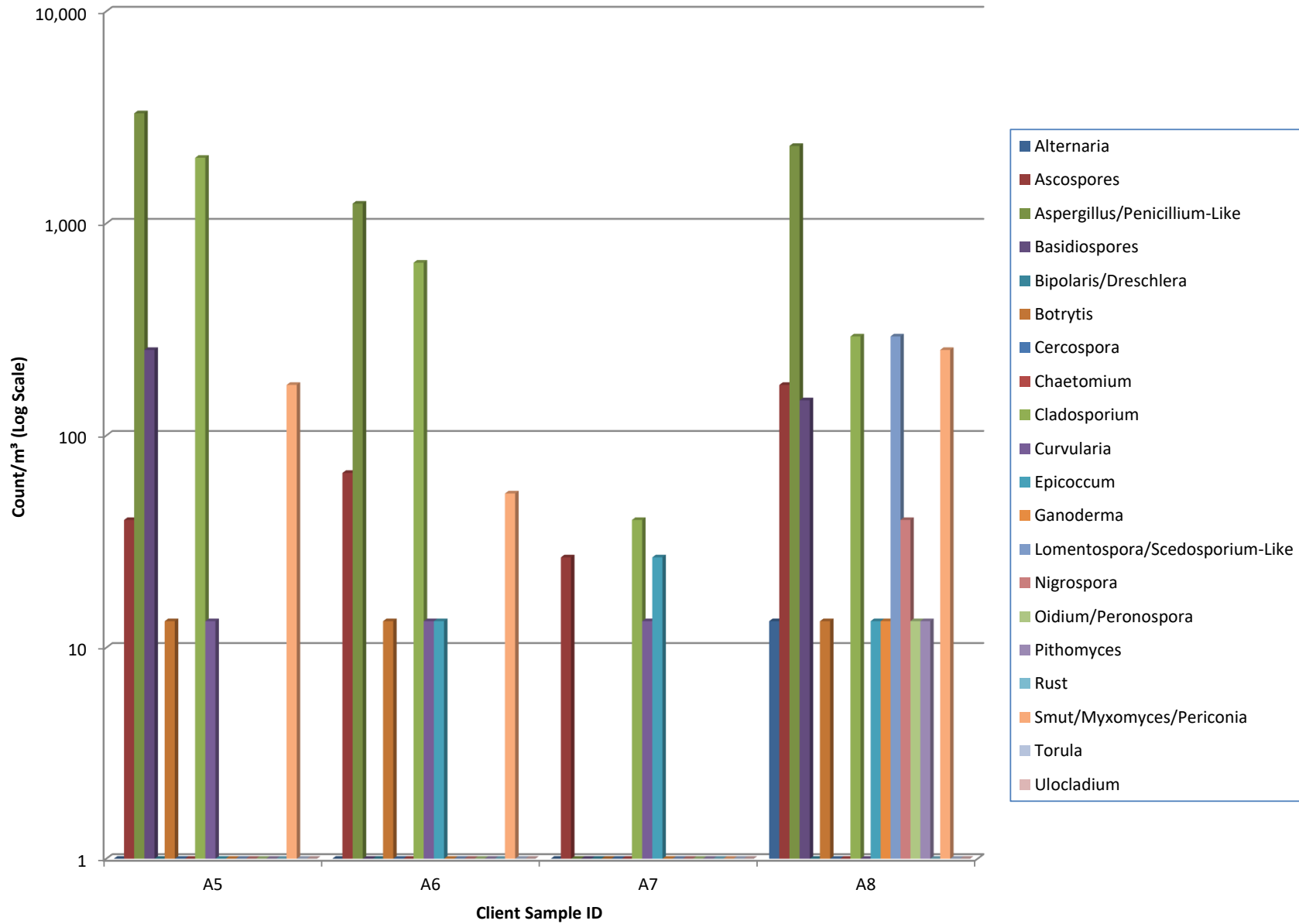
Results submitted pertain only to the samples as presented on the accompanying Chain of Custody.  
This report shall not be reproduced, except in its entirety, and the with written approval of Eurofins AEML.  
Accredited for compliance with ISO/IEC 17025-Testing Accreditation #01261 Site #24876.



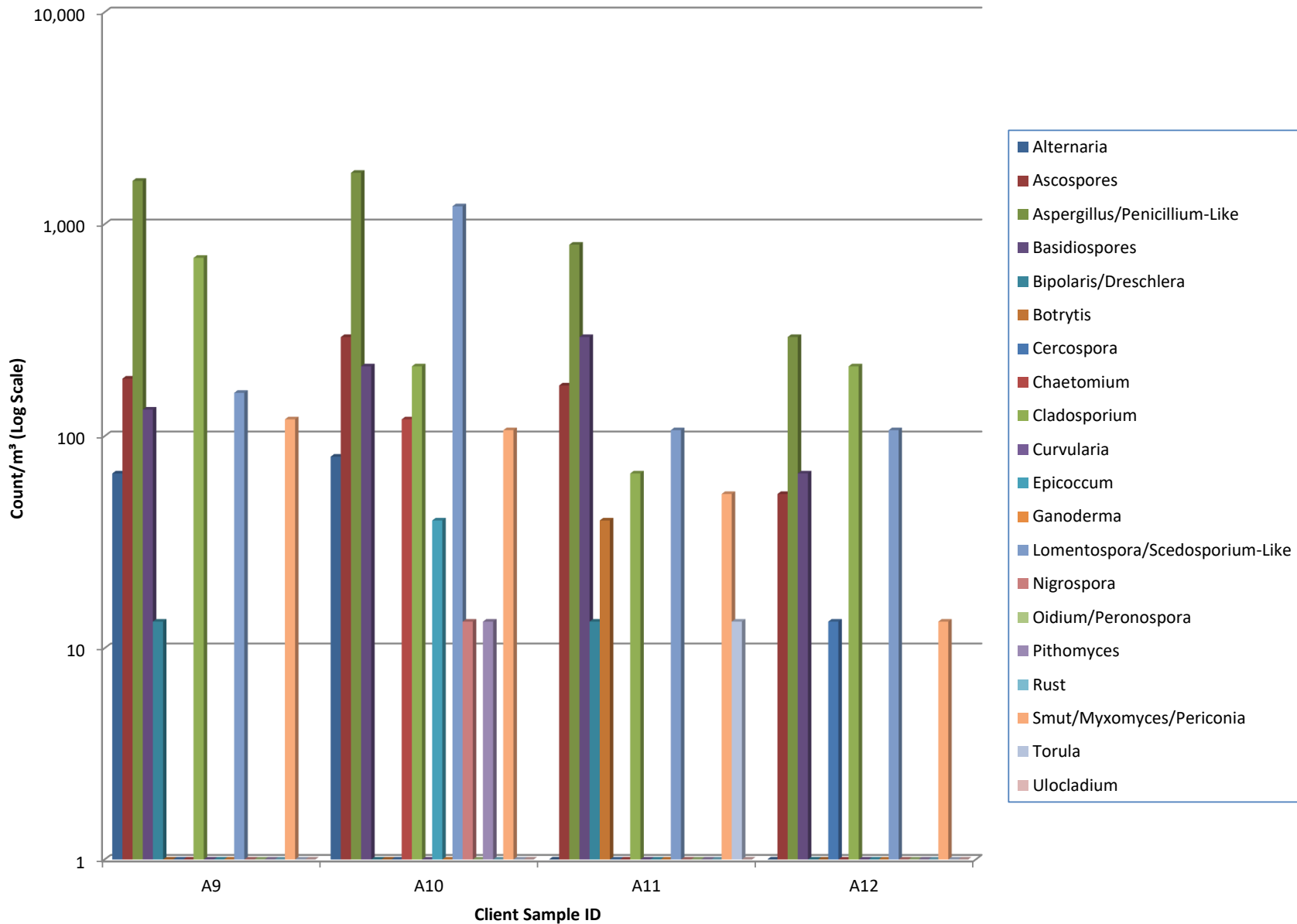
Project: S12772, HB-Pre, HW3315



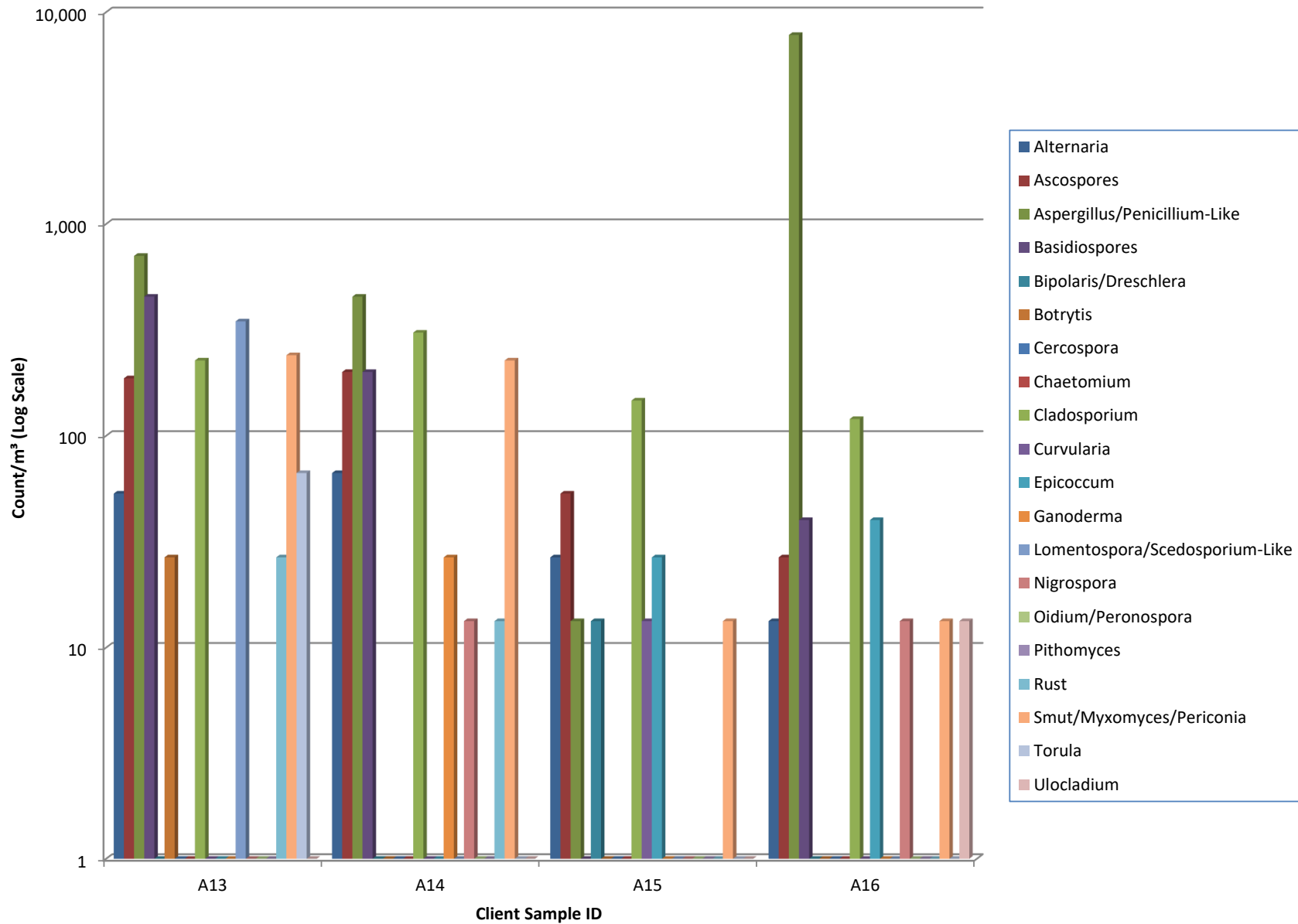
Project: S12772, HB-Pre, HW3315



Project: S12772, HB-Pre, HW3315



Project: S12772, HB-Pre, HW3315



---

## ***Definitions and Glossary***

### **Definitions**

**Mould** - A fungus that grows in the form of multicellular filaments called hyphae. Moulds cause biodegradation of natural materials, which is necessary in nature but can become unwanted when it causes food spoilage or damage to property. Some diseases of animals and humans can be caused by certain moulds. These diseases may result from allergic sensitivity to mould spores, from growth of pathogenic moulds within the body, or from the effects of ingested or inhaled toxic compounds (mycotoxins) produced by moulds.

**Fungi** - A Kingdom composed of eukaryotic organisms that include unicellular microorganisms such as moulds, yeasts, smuts, and mushrooms. Fungi receive nutrients by absorbing dissolved molecules and are referred to as nature's decomposers.

**Spores** - Produced by moulds and fungi as units of reproduction that have adapted for dispersal. Spores can disperse through the air, by insects, animals, or humans and remain dormant on a surface for years until favourable conditions for growth occur.

**Mycotoxin** - A toxic secondary metabolite produced by mould. The term 'mycotoxin' is usually reserved for the toxic chemical products produced by fungi that readily colonise crops. One mould species may produce many different mycotoxins, and the same mycotoxin may be produced by several species.

### **Glossary**

**Sample ID** - A unique internal identification assigned to the sample by the laboratory for traceability of the sample.

**Client Sample ID** - An identification given to the sample and provided to the laboratory by the person who collected the sample. This is typically the location the sample was collected.

**Volume Sampled** - The volume of air that was sampled displayed in litres. This is based on the flow rate of the sampling pump in Litres per minute and the time, in minutes, that the sample was collected.

**Media** - The device used for collection of the sample.

**Percent of Trace Analysed** - The percent of the trace that was analysed by the laboratory. When 100% of the trace is analysed at 600X magnification, the entire impaction area of the sample is analysed at a high level of magnification and provides the highest quality analysis.

**Raw Count** - Spore count present in the sample received by the laboratory.

**Count/m<sup>3</sup>** - An extrapolated count of spores that would be present in a cubic metre of air. This calculation is based on the volume of air sampled and the raw count.

---

## ***Definitions and Glossary***

### **Glossary**

**Percent (%)** - Percent composition of the sample. This is a breakdown of the percentage of the total spore count of the sample that each spore comprises.

**Debris Rating** - Background debris can interfere with the analyst's ability to analyse and accurately report the counts for each analyte. Therefore, a Debris Level system of 0-5 will be reported for each sample to aid clients in their interpretation of the data.

**Debris Level: 0** - No non-microbial particulates were observed in the impaction area. Since most air samples contain at least some debris, this indicates that the sample is either a blank sample submitted to the lab as a control, that there was an error sampling, or that a defective spore trap cassette was used.

**Debris Level: 1** - A minimal amount of background particulates are present. The background debris has no effect on the reported results.

**Debris Level: 2** - Non-microbial particulates are covering up to 25% of the trace.

**Debris Level: 3** - Non-microbial particulates are covering 26% to 75% of the trace.

**Debris Level: 4** - Non-microbial particulates are covering 76% to 90% of the trace.

**Debris Level: 5** - Non-microbial particulates are covering greater than 90% of the trace. An accurate count is not possible. A range of spores is reported based on the number of spores observed in and around the borders of the trace.

Debris Levels of 2, 3, or 4 contain background debris that could mask the presence of an analyte. The higher the level of debris, the greater the chance that this could occur.

**Detection Limit** - Also known as Method Detection Limit. This is the minimum number of spores that would need to be present in one cubic metre of air in order for one spore to be detected by this analysis. This calculation is based on the volume of air sampled and the percent of the trace analysed.

### **Remediation**

**Remediation** - The process correcting, or remedying, any issues in the building that were identified by a mould assessor. This may include cleaning or removing any contaminated material, as well as, identifying and correcting any conditions that may be favourable for mould growth.

Eurofins Environment Testing Australia Pty Ltd. makes no claims pertaining to the necessity of remediation. The results contained in this report should be used in conjunction with a physical inspection of the property to determine what, if any, actions are necessary.

## Fungal Glossary



Typically found growing outdoors.



Potential allergen.



Considered water damage indicator.



Potential to produce mycotoxins.

Alternaria	
Description	Characteristics
<p>These are a common plant pathogen involved in the decomposition of plants. In the indoor environment they are found growing on a variety of substrates including sheetrock and other building materials. They are common allergens causing hay fever or hypersensitivity reactions.</p>	
Arthrimum	
Description	Characteristics
<p>These are a plant pathogen found in soil and decomposing plant material. Not typically found growing indoors. One species has been determined to be an allergen.</p>	
Ascospores	
Description	Characteristics
<p>These are a very large group of spores that are found everywhere in nature. They are commonly found outdoors and associated with rain and moisture. Some species grow well indoors on damp materials. Ascospores have allergenic potential, however, it is species dependent.</p>	



## Fungal Glossary



Typically found growing outdoors.



Potential allergen.




Considered water damage indicator.




Potential to produce mycotoxins.


### Aspergillus/Penicillium-Like

Description	Characteristics
<p>These are two of the most common genera in the world. They can be found everywhere in nature, both indoors and outdoors. Indoors they can be found on water damaged wallpaper, carpet, and other organic materials. They can also grow well in conditions of high humidity. Many species are allergens and a common cause of respiratory irritation. Some species are human and animal pathogens and can cause infection.</p>	

### Basidiospores

Description	Characteristics
<p>These are primarily comprised of mushrooms and shelf fungi. They are typically found outdoors. Occasionally they are found indoors growing on any organic matter causing dry rot. Some species can be an allergen to sensitive individuals.</p>	

### Bipolaris/Dreschlera

Description	Characteristics
<p>These are a plant pathogen typically found outdoors on grasses, grains, and decaying food. Indoors they can be found on plants and building materials. They are an allergen that can affect the nose, skin, eyes and upper respiratory track.</p>	

## Fungal Glossary



Typically found growing outdoors.



Potential allergen.



Considered water damage indicator.



Potential to produce mycotoxins.

Botrytis	
Description	Characteristics
<p>These are a plant pathogen typically found growing on vegetation particularly in temperate and subtropical climates. Indoors they can be found growing on plants. They are a potential allergen causing hay fever and asthma effects.</p>	
Chaetomium	
Description	Characteristics
<p>These are typically found indoors on water damaged cellulose containing materials such as paper, sheetrock, and wallpaper. Not well studied but possible allergen with hay fever and asthma effects.</p>	
Cladosporium	
Description	Characteristics
<p>One of the most common genera in both the indoor and outdoor environments. Indoors they grow well in damp environments and areas where condensation builds. They are often found on textiles, window sills, in bathrooms, and A/C systems. They are a common allergen when airborne.</p>	

## Fungal Glossary



Typically found growing outdoors.



Potential allergen.

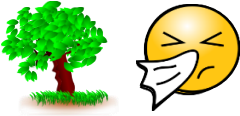


Considered water damage indicator.




Potential to produce mycotoxins.


### Curvularia

Description	Characteristics
<p>Primarily found outdoors on plants and soil especially in subtropical and tropical environments. Indoors they grow on a variety of building materials. They are a common allergen causing hay fever, asthma, and allergic fungal sinusitis.</p>	

### Epicoccum

Description	Characteristics
<p>Outdoors they are found in the soil, air, and rotting vegetation. Indoors they grow well on a variety of building materials such as paper and textiles. They are a potential allergen with hay fever, asthma, and skin allergy effects.</p>	

### Fusarium

Description	Characteristics
<p>Indoors they are typically found under very wet conditions. Some places they can be found are dust in carpet and mattresses, damp walls, wallpaper, and duct liner. They are a potential allergen causing hay fever and asthma effects.</p>	

**Fungal Glossary**



Typically found growing outdoors.



Potential allergen.



Considered water damage indicator.



Potential to produce mycotoxins.

Ganoderma	
Description	Characteristics
<p>These are shelf mushrooms that are typically found growing outdoors on wood causing white rot, root rot, and stem rot. They are a possible allergen at high concentrations.</p>	

Memmoniella	
Description	Characteristics
<p>These are mycotoxin producing spores related to and often found in conjunction with Stachybotrys. These grow well on water damaged cellulose containing building materials such as sheetrock, paper, wallpaper, and textiles.</p>	

Nigrospora	
Description	Characteristics
<p>These are typically found on decaying plant material and soil and are usually not found growing indoors. They are a potential allergen causing hay fever and asthma effects.</p>	

## Fungal Glossary



Typically found growing outdoors.



Potential allergen.




Considered water damage indicator.




Potential to produce mycotoxins.

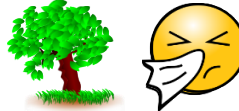
### Oidium/Peronospora

Description	Characteristics
<p>These are plant pathogens that are common obligate parasites on leaves, stems, flowers, and fruits of higher living plants.</p>	

### Pithomyces

Description	Characteristics
<p>These are typically found on dead leaves and stems of plants. Rarely found growing indoors; however, they grow well on paper indoors given the right conditions.</p>	

### Rust

Description	Characteristics
<p>These are parasitic plant pathogens that grow on plants, grass, and trees. They are rarely found growing indoors since they require a living host, and therefore typically not found on cellulose containing building materials. They are a potential allergen causing hay fever and asthma effects.</p>	

## Fungal Glossary



Typically found growing outdoors.



Potential allergen.

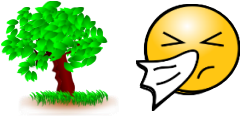


Considered water damage indicator.




Potential to produce mycotoxins.


### Smut/Myxomyces/Periconia

Description	Characteristics
<p>This is a grouping of several genera organised together in a general category that are mostly associated with living and decaying plants, wood, soil, grass, cereal crops, weeds, and flowering plants. These are rarely found growing indoors. They are a potential allergen causing hay fever and asthma effects.</p>	

### Stachybotrys

Description	Characteristics
<p>These are typically found indoors growing on water damaged cellulose containing building materials such as sheetrock, paper, and ceiling tiles. They are often referred to as "toxic black mould." They have the ability to produce mycotoxins which may cause a burning sensation in the mouth, throat, and nasal passages. Chronic exposure has been known to cause headaches, diarrhea, memory loss, and brain damage.</p>	

### Torula

Description	Characteristics
<p>These are typically found growing outdoors on leaves, roots, wood, and soil. Indoors they can be found growing on water damaged cellulose, paper, wicker, straw baskets and ceiling tiles. They are a potential allergen causing hay fever and asthma effects.</p>	

## Fungal Glossary



Typically found growing outdoors.





Potential allergen.



Considered water damage indicator.



Potential to produce mycotoxins.

Ulocladium	
Description	Characteristics
Requires very wet conditions and can commonly be found indoors in damp or wet areas such as bathrooms, kitchens, basements, and around windows. These grow well on cellulose containing materials such as paper and straw and on water damaged building material such as sheetrock. They are a common allergen causing hay fever and asthma effects.	 
Unidentified Spores	
Description	Characteristics
This is a grouping of spores that are unable to be categorised due to a variety of reasons. They may be weathered, disfigured, or otherwise lacking the morphological structures necessary to identify the genus.	
Hyphal Fragments	
Description	Characteristics
These are branched filamentous structures with cell walls. Hyphae are somewhat analogous to stems or roots in plants whereas the spores would be analogous to the seeds. Large quantities present may indicate an active fungal colony or active fungal growth in the structure.	

## Fungal Glossary



Typically found growing outdoors.



Potential allergen.



Considered water damage indicator.



Potential to produce mycotoxins.

Pollen	
Description	Characteristics
<p>These are a fine to coarse powdery substance produced by the anthers of seed-bearing plants, trees, grasses, flowers, and weeds. They are an allergen that causes hay fever effects.</p>	

The information provided in this report is not intended to provide medical advice. This report is designed to be used for building diagnostic purposes only. Any determination of exposure or potential for exposure should be formed using the results in this report in conjunction with a physical inspection of the property. A medical professional must be consulted for any medical or health related information.



---

## **References and Links**

Environmental Protection Agency (EPA) - [www.epa.gov/mold/](http://www.epa.gov/mold/)

A Brief Guide to Mould, Moisture, and Your Home - [www2.epa.gov/mold/brief-guide-mold-moisture-and-your-home](http://www2.epa.gov/mold/brief-guide-mold-moisture-and-your-home)

Should You Have the Air Ducts in Your Home Cleaned? - [www2.epa.gov/indoor-air-quality-iaq/should-you-have-air-ducts-your-home-cleaned](http://www2.epa.gov/indoor-air-quality-iaq/should-you-have-air-ducts-your-home-cleaned)

Flood Cleanup - Avoiding Indoor Air Quality Problems - [www2.epa.gov/indoor-air-quality-iaq/flood-cleanup-protect-indoor-air-quality](http://www2.epa.gov/indoor-air-quality-iaq/flood-cleanup-protect-indoor-air-quality)

Center for Disease Control and Prevention (CDC) - [www.cdc.gov/mold/](http://www.cdc.gov/mold/)

General Information - [www.cdc.gov/mold/basics.htm](http://www.cdc.gov/mold/basics.htm)

Cleanup and Remediation - [www.cdc.gov/mold/cleanup.htm](http://www.cdc.gov/mold/cleanup.htm)

Occupational Safety & Health Administration (OSHA) - [www.osha.gov/SLTC/molds](http://www.osha.gov/SLTC/molds)

American Academy of Allergy, Asthma & Immunology (AAAAI) - [www.aaaai.org](http://www.aaaai.org)

Institute of Inspection, Cleaning and Restoration Certification (IICRC) - [www.iicrc.org](http://www.iicrc.org)

Information and recommendations about mould can vary based on location and climate. More information can be found through your local state's Indoor Air Quality programs. Links for some local resources can be found below:

New South Wales - [www.health.nsw.gov.au/environment/factsheets/Pages/mould.aspx](http://www.health.nsw.gov.au/environment/factsheets/Pages/mould.aspx)

Northern Territory - [www.nt.gov.au/wellbeing/healthy-living/mould-growth](http://www.nt.gov.au/wellbeing/healthy-living/mould-growth)

Queensland - [www.qld.gov.au/community/disasters-emergencies/recovery-after-disaster/cleaning-up/mould](http://www.qld.gov.au/community/disasters-emergencies/recovery-after-disaster/cleaning-up/mould)

South Australia - [www.sahealth.sa.gov.au/wps/wcm/connect/public+content/sa+health+internet/protecting+public+health/living+conditions+and+sanitation/household+mould](http://www.sahealth.sa.gov.au/wps/wcm/connect/public+content/sa+health+internet/protecting+public+health/living+conditions+and+sanitation/household+mould)

Victoria - [www.betterhealth.vic.gov.au/health/conditionsandtreatments/mould-and-your-health](http://www.betterhealth.vic.gov.au/health/conditionsandtreatments/mould-and-your-health)

[www.betterhealth.vic.gov.au/health/conditionsandtreatments/mould-removal-at-home](http://www.betterhealth.vic.gov.au/health/conditionsandtreatments/mould-removal-at-home)

Western Australia - [www.healthywa.wa.gov.au/Articles/J\\_M/Mould-and-dampness](http://www.healthywa.wa.gov.au/Articles/J_M/Mould-and-dampness)

New Zealand - [www.building.govt.nz/resolving-problems/resolution-options/weathertight-services/signs-of-a-leaky-home/mould/](http://www.building.govt.nz/resolving-problems/resolution-options/weathertight-services/signs-of-a-leaky-home/mould/)

[www.tenancy.govt.nz/maintenance-and-inspections/mould-and-dampness/](http://www.tenancy.govt.nz/maintenance-and-inspections/mould-and-dampness/)

---

***Tape Analytical Report***

**Prepared For:** Mr Ide Onggo  
HIBBS & Associates Pty Ltd  
Suite B, 255 Rawson St  
Auburn, NSW 2144  
02 9746 3244

**Eurofins | AEML Batch:** 233907

**Project/Site:**

**S12772, HB-Pre, HW3315**



***Authorised for release by:***

Cimona Fernandes  
Project Manager



*This report may not be reproduced except in its entirety and with written approval from Eurofins Environment Testing Australia Pty Ltd. For questions please contact the laboratory at the e-mail address or telephone number listed on this page. Results pertain only to the sample(s) as received by the laboratory and presented on the accompanying Chain of Custody. Accredited for compliance with ISO/IEC 17025-Testing Accreditation #01261 Site #24876*

---

## ***Table of Contents***

**Client:** Mr Ide Onggo  
HIBBS & Associates Pty Ltd  
Suite B, 255 Rawson St  
Auburn, NSW 2144  
02 9746 3244

**Eurofins | AEML Batch:** 233907

**Project/Site:** S12772, HB-Pre, HW3315

1. Cover Page .....	1
2. Table of Contents .....	2
3. Project Narrative .....	3
4. Sample Summary .....	4
5. Detection Summary .....	6
6. Client Sample Results .....	9
7. Definitions and Glossary .....	14
8. Fungal Glossary .....	16
9. References and Links .....	25

---

## ***Project Narrative***

**Client:** Mr Ide Onggo  
HIBBS & Associates Pty Ltd  
Suite B, 255 Rawson St  
Auburn, NSW 2144  
02 9746 3244

**Eurofins | AEML Batch:** 233907

**Project/Site:** S12772, HB-Pre, HW3315

### **Receipt**

The sample(s) contained in this report were collected on July 21, 2023 and received by Eurofins Environment Testing Australia Pty Ltd on July 25, 2023. All samples were received in good condition unless otherwise noted in the results section of this report or on the accompanying Chain of Custody.

### **Sample Analysis**

Analyses were performed in accordance to Eurofins Environment Testing Australia Pty Ltd.'s Standard Operating Procedures and Quality Assurance Program. No deviations were made to these procedures unless noted in the results section of this report. Any additional information that the laboratory believes relevant will be noted as Data Qualifiers accompanying the sample results.

### **Quality Assurance**

Eurofins Environment Testing Australia Pty Ltd. has developed and implemented policies and procedures that adhere to the General Requirements for the Competence of Testing and Calibration Laboratories, ISO/IEC 17025:2017.

The laboratory is staffed by highly trained and experienced professionals. Eurofins Environment Testing Australia Pty Ltd. utilises state of the art equipment that is of the most recent technology available for fungal spore identification and quantification. Eurofins Environment Testing Australia Pty Ltd. has the most up to date data systems available with capabilities to provide standard reports in hardcopy and electronic data deliverables.

## Sample Summary

**Client:** Mr Ide Onggo  
 HIBBS & Associates Pty Ltd  
 Suite B, 255 Rawson St  
 Auburn, NSW 2144  
 02 9746 3244

**Eurofins | AEML Batch:** 233907

**Project/Site:** S12772, HB-Pre, HW3315

Lab Sample ID	Client Sample ID	Media	Collected	Received
233907-17	S1	Tape	21-07-2023	25-07-2023
233907-18	S2	Tape	21-07-2023	25-07-2023
233907-19	S3	Tape	21-07-2023	25-07-2023
233907-20	S4	Tape	21-07-2023	25-07-2023
233907-21	S5	Tape	21-07-2023	25-07-2023
233907-22	S6	Tape	21-07-2023	25-07-2023
233907-23	S7	Tape	21-07-2023	25-07-2023
233907-24	S8	Tape	21-07-2023	25-07-2023
233907-25	S9	Tape	21-07-2023	25-07-2023
233907-26	S10	Tape	21-07-2023	25-07-2023
233907-27	S11	Tape	21-07-2023	25-07-2023
233907-28	S12	Tape	21-07-2023	25-07-2023

---

## ***Sample Summary***

**Client:** Mr Ide Onggo  
 HIBBS & Associates Pty Ltd  
 Suite B, 255 Rawson St  
 Auburn, NSW 2144  
 02 9746 3244

**Eurofins | AEML Batch:** 233907

**Project/Site:** S12772, HB-Pre, HW3315

<b>Lab Sample ID</b>	<b>Client Sample ID</b>	<b>Media</b>	<b>Collected</b>	<b>Received</b>
233907-29	S13	Tape	21-07-2023	25-07-2023
233907-30	S14	Tape	21-07-2023	25-07-2023
233907-31	S15	Tape	21-07-2023	25-07-2023
233907-32	S16	Tape	21-07-2023	25-07-2023
233907-33	S17	Tape	21-07-2023	25-07-2023
233907-34	S18	Tape	21-07-2023	25-07-2023
233907-35	S19	Tape	21-07-2023	25-07-2023
233907-36	S20	Tape	21-07-2023	25-07-2023

## Detection Summary

**Client:** Mr Ide Onggo  
 HIBBS & Associates Pty Ltd  
 Suite B, 255 Rawson St  
 Auburn, NSW 2144  
 02 9746 3244

**Eurofins | AEML Batch:** 233907

**Project/Site:** S12772, HB-Pre, HW3315

Lab Sample ID	Client Sample ID	Spore Type	Count/cm <sup>2</sup>
233907-17	S1	Aspergillus/Penicillium-Like	800,800
		Hyphal Fragments	3,973
233907-18	S2	Aspergillus/Penicillium-Like	2,818
		Cladosporium	678
		Nigrospora	15
		Hyphal Fragments	46
233907-19	S3	Cladosporium	30,800
		Hyphal Fragments	1,201
233907-20	S4	Cladosporium	30,800
		Hyphal Fragments	14,938
233907-21	S5	Aspergillus/Penicillium-Like	246
		Basidiospores	15
		Cladosporium	2,233
		Hyphal Fragments	909
233907-22	S6	Aspergillus/Penicillium-Like	1,062,600
		Hyphal Fragments	2,911
233907-23	S7	Aspergillus/Penicillium-Like	47,740
		Cladosporium	92
		Oidiodendron	631,400
		Hyphal Fragments	40,040
233907-24	S8	Aspergillus/Penicillium-Like	231,000
		Cladosporium	277,200
		Hyphal Fragments	33,880
233907-25	S9	Aspergillus/Penicillium-Like	107,800
		Oidiodendron	785,400

## **Detection Summary**

**Client:** Mr Ide Onggo  
 HIBBS & Associates Pty Ltd  
 Suite B, 255 Rawson St  
 Auburn, NSW 2144  
 02 9746 3244

**Eurofins | AEML Batch:** 233907

**Project/Site:** S12772, HB-Pre, HW3315

Lab Sample ID	Client Sample ID	Spore Type	Count/cm <sup>2</sup>
		Hyphal Fragments	46
233907-26	S10	Nigrospora	15
233907-27	S11	Aspergillus/Penicillium-Like	462
233907-28	S12	Aspergillus/Penicillium-Like	154,000
		Chaetomium	15
		Cladosporium	58,520
		Hyphal Fragments	7,700
233907-29	S13	Basidiospores	15
		Cladosporium	5,621
233907-30	S14	Acremonium	154,000
		Chaetomium	678
		Trichoderma	231,000
		Hyphal Fragments	18,480
233907-31	S15	Chaetomium	69,300
		Hyphal Fragments	12,628
233907-33	S17	Alternaria	77
		Ascospores	123
		Basidiospores	31
		Cladosporium	262
		Curvularia	15
		Epicoccum	62
		Nigrospora	15
		Smut/Myxomyces/Periconia	15
		Spegazzinia	15
		Hyphal Fragments	46
233907-34	S18	Aspergillus/Penicillium-Like	647



---

## ***Detection Summary***

**Client:** Mr Ide Onggo  
 HIBBS & Associates Pty Ltd  
 Suite B, 255 Rawson St  
 Auburn, NSW 2144  
 02 9746 3244

**Eurofins | AEML Batch:** 233907

**Project/Site:** S12772, HB-Pre, HW3315

<b>Lab Sample ID</b>	<b>Client Sample ID</b>	<b>Spore Type</b>	<b>Count/cm<sup>2</sup></b>
233907-36	S20	Hyphal Fragments	185
		Ascospores	92
		Basidiospores	62
		Chaetomium	15
		Cladosporium	77
		Smut/Myxomyces/Periconia	31
		Torula	15
		Hyphal Fragments	123

**Tape, Swab and Bulk Analysis (AEML-DOC-19)**

Sample ID:	233907-17	233907-18	233907-19	233907-20
Client Sample ID:	S1	S2	S3	S4
Detection Limit:	15	15	15	15
Media:	Tape	Tape	Tape	Tape
Sample Analysis:	Analyzed at 600X Magnification	Analyzed at 600X Magnification	Analyzed at 600X Magnification	Analyzed at 600X Magnification

Spore Types	Raw Count	Count/cm <sup>2</sup>	%	Raw Count	Count/cm <sup>2</sup>	%	Raw Count	Count/cm <sup>2</sup>	%	Raw Count	Count/cm <sup>2</sup>	%
Acremonium	—	—	—	—	—	—	—	—	—	—	—	—
Alternaria	—	—	—	—	—	—	—	—	—	—	—	—
Arthrinium	—	—	—	—	—	—	—	—	—	—	—	—
Ascospores	—	—	—	—	—	—	—	—	—	—	—	—
Aspergillus/Penicillium-Like	52,000	800,800	100	183	2,818	80	—	—	—	—	—	—
Basidiospores	—	—	—	—	—	—	—	—	—	—	—	—
Bipolaris/Dreschlera	—	—	—	—	—	—	—	—	—	—	—	—
Botrytis	—	—	—	—	—	—	—	—	—	—	—	—
Chaetomium	—	—	—	—	—	—	—	—	—	—	—	—
Cladosporium	—	—	—	44	678	19	2,000	30,800	100	2,000	30,800	100
Curvularia	—	—	—	—	—	—	—	—	—	—	—	—
Epicoccum	—	—	—	—	—	—	—	—	—	—	—	—
Fusarium	—	—	—	—	—	—	—	—	—	—	—	—
Ganoderma	—	—	—	—	—	—	—	—	—	—	—	—
Memnoniella	—	—	—	—	—	—	—	—	—	—	—	—
Nigrospora	—	—	—	1	15	<1	—	—	—	—	—	—
Oidiodendron	—	—	—	—	—	—	—	—	—	—	—	—
Oidium/Peronospora	—	—	—	—	—	—	—	—	—	—	—	—
Pithomyces	—	—	—	—	—	—	—	—	—	—	—	—
Rust	—	—	—	—	—	—	—	—	—	—	—	—
Smut/Myxomyces/Periconia	—	—	—	—	—	—	—	—	—	—	—	—
Spegazzinia	—	—	—	—	—	—	—	—	—	—	—	—
Stachybotrys	—	—	—	—	—	—	—	—	—	—	—	—
Torula	—	—	—	—	—	—	—	—	—	—	—	—
Trichoderma	—	—	—	—	—	—	—	—	—	—	—	—
Ulocladium	—	—	—	—	—	—	—	—	—	—	—	—
Unidentified Spores	—	—	—	—	—	—	—	—	—	—	—	—
<b>Total Spores</b>	<b>52,000</b>	<b>800,800</b>		<b>228</b>	<b>3,511</b>		<b>2,000</b>	<b>30,800</b>		<b>2,000</b>	<b>30,800</b>	
Hyphal Fragments	258	3,973		3	46		78	1,201		970	14,938	

Cimona Fernandes  
Project Manager

Results submitted pertain only to the samples as presented on the accompanying Chain of Custody.  
This report shall not be reproduced, except in its entirety, and the with written approval of Eurofins AEML.  
Accredited for compliance with ISO/IEC 17025-Testing Accreditation #01261 Site #24876.



**Tape, Swab and Bulk Analysis (AEML-DOC)**

Sample ID:	233907-21	233907-22	233907-23	233907-24
Client Sample ID:	S5	S6	S7	S8
Detection Limit:	15	15	15	15
Media:	Tape	Tape	Tape	Tape
Sample Analysis:	Analyzed at 600X Magnification	Analyzed at 600X Magnification	Analyzed at 600X Magnification	Analyzed at 600X Magnification

Spore Types	Raw Count	Count/cm <sup>2</sup>	%	Raw Count	Count/cm <sup>2</sup>	%	Raw Count	Count/cm <sup>2</sup>	%	Raw Count	Count/cm <sup>2</sup>	%
Acremonium	—	—	—	—	—	—	—	—	—	—	—	—
Alternaria	—	—	—	—	—	—	—	—	—	—	—	—
Arthrinium	—	—	—	—	—	—	—	—	—	—	—	—
Ascospores	—	—	—	—	—	—	—	—	—	—	—	—
Aspergillus/Penicillium-Like	16	246	10	69,000	1,062,600	100	3,100	47,740	7	15,000	231,000	45
Basidiospores	1	15	1	—	—	—	—	—	—	—	—	—
Bipolaris/Dreschlera	—	—	—	—	—	—	—	—	—	—	—	—
Botrytis	—	—	—	—	—	—	—	—	—	—	—	—
Chaetomium	—	—	—	—	—	—	—	—	—	—	—	—
Cladosporium	145	2,233	90	—	—	—	6	92	<1	18,000	277,200	55
Curvularia	—	—	—	—	—	—	—	—	—	—	—	—
Epicoccum	—	—	—	—	—	—	—	—	—	—	—	—
Fusarium	—	—	—	—	—	—	—	—	—	—	—	—
Ganoderma	—	—	—	—	—	—	—	—	—	—	—	—
Memnoniella	—	—	—	—	—	—	—	—	—	—	—	—
Nigrospora	—	—	—	—	—	—	—	—	—	—	—	—
Oidiodendron	—	—	—	—	—	—	41,000	631,400	93	—	—	—
Oidium/Peronospora	—	—	—	—	—	—	—	—	—	—	—	—
Pithomyces	—	—	—	—	—	—	—	—	—	—	—	—
Rust	—	—	—	—	—	—	—	—	—	—	—	—
Smut/Myxomyces/Periconia	—	—	—	—	—	—	—	—	—	—	—	—
Spegazzinia	—	—	—	—	—	—	—	—	—	—	—	—
Stachybotrys	—	—	—	—	—	—	—	—	—	—	—	—
Torula	—	—	—	—	—	—	—	—	—	—	—	—
Trichoderma	—	—	—	—	—	—	—	—	—	—	—	—
Ulocladium	—	—	—	—	—	—	—	—	—	—	—	—
Unidentified Spores	—	—	—	—	—	—	—	—	—	—	—	—
<b>Total Spores</b>	<b>162</b>	<b>2,495</b>		<b>69,000</b>	<b>1,062,600</b>		<b>44,106</b>	<b>679,232</b>		<b>33,000</b>	<b>508,200</b>	
Hyphal Fragments	59	909		189	2,911		2,600	40,040		2,200	33,880	

Cimona Fernandes  
Project Manager

Results submitted pertain only to the samples as presented on the accompanying Chain of Custody.  
This report shall not be reproduced, except in its entirety, and the with written approval of Eurofins AEML.  
Accredited for compliance with ISO/IEC 17025-Testing Accreditation #01261 Site #24876.



**Tape, Swab and Bulk Analysis (AEML-DOC)**

Sample ID:	233907-25	233907-26	233907-27	233907-28
Client Sample ID:	S9	S10	S11	S12
Detection Limit:	15	15	15	15
Media:	Tape	Tape	Tape	Tape
Sample Analysis:	Analyzed at 600X Magnification	Analyzed at 600X Magnification	Analyzed at 600X Magnification	Analyzed at 600X Magnification

Spore Types	Raw Count	Count/cm <sup>2</sup>	%	Raw Count	Count/cm <sup>2</sup>	%	Raw Count	Count/cm <sup>2</sup>	%	Raw Count	Count/cm <sup>2</sup>	%
Acremonium	—	—	—	—	—	—	—	—	—	—	—	—
Alternaria	—	—	—	—	—	—	—	—	—	—	—	—
Arthrinium	—	—	—	—	—	—	—	—	—	—	—	—
Ascospores	—	—	—	—	—	—	—	—	—	—	—	—
Aspergillus/Penicillium-Like	7,000	107,800	12	—	—	—	30	462	100	10,000	154,000	72
Basidiospores	—	—	—	—	—	—	—	—	—	—	—	—
Bipolaris/Dreschlera	—	—	—	—	—	—	—	—	—	—	—	—
Botrytis	—	—	—	—	—	—	—	—	—	—	—	—
Chaetomium	—	—	—	—	—	—	—	—	—	1	15	<1
Cladosporium	—	—	—	—	—	—	—	—	—	3,800	58,520	28
Curvularia	—	—	—	—	—	—	—	—	—	—	—	—
Epicoccum	—	—	—	—	—	—	—	—	—	—	—	—
Fusarium	—	—	—	—	—	—	—	—	—	—	—	—
Ganoderma	—	—	—	—	—	—	—	—	—	—	—	—
Memnoniella	—	—	—	—	—	—	—	—	—	—	—	—
Nigrospora	—	—	—	1	15	100	—	—	—	—	—	—
Oidiodendron	51,000	785,400	88	—	—	—	—	—	—	—	—	—
Oidium/Peronospora	—	—	—	—	—	—	—	—	—	—	—	—
Pithomyces	—	—	—	—	—	—	—	—	—	—	—	—
Rust	—	—	—	—	—	—	—	—	—	—	—	—
Smut/Myxomyces/Periconia	—	—	—	—	—	—	—	—	—	—	—	—
Spegazzinia	—	—	—	—	—	—	—	—	—	—	—	—
Stachybotrys	—	—	—	—	—	—	—	—	—	—	—	—
Torula	—	—	—	—	—	—	—	—	—	—	—	—
Trichoderma	—	—	—	—	—	—	—	—	—	—	—	—
Ulocladium	—	—	—	—	—	—	—	—	—	—	—	—
Unidentified Spores	—	—	—	—	—	—	—	—	—	—	—	—
<b>Total Spores</b>	<b>58,000</b>	<b>893,200</b>		<b>1</b>	<b>15</b>		<b>30</b>	<b>462</b>		<b>13,801</b>	<b>212,535</b>	
Hyphal Fragments	3	46		—	—		—	—		500	7,700	

**Tape, Swab and Bulk Analysis (AEML-DOC)**

Sample ID:	233907-29	233907-30	233907-31	233907-32
Client Sample ID:	S13	S14	S15	S16
Detection Limit:	15	15	15	15
Media:	Tape	Tape	Tape	Tape
Sample Analysis:	Analyzed at 600X Magnification	Analyzed at 600X Magnification	Analyzed at 600X Magnification	Analyzed at 600X Magnification

Spore Types	Raw Count	Count/cm <sup>2</sup>	%	Raw Count	Count/cm <sup>2</sup>	%	Raw Count	Count/cm <sup>2</sup>	%	Raw Count	Count/cm <sup>2</sup>	%
Acremonium	—	—	—	10,000	154,000	40	—	—	—	—	—	—
Alternaria	—	—	—	—	—	—	—	—	—	—	—	—
Arthrinium	—	—	—	—	—	—	—	—	—	—	—	—
Ascospores	—	—	—	—	—	—	—	—	—	—	—	—
Aspergillus/Penicillium-Like	—	—	—	—	—	—	—	—	—	—	—	—
Basidiospores	1	15	<1	—	—	—	—	—	—	—	—	—
Bipolaris/Dreschlera	—	—	—	—	—	—	—	—	—	—	—	—
Botrytis	—	—	—	—	—	—	—	—	—	—	—	—
Chaetomium	—	—	—	44	678	<1	4,500	69,300	100	—	—	—
Cladosporium	365	5,621	100	—	—	—	—	—	—	—	—	—
Curvularia	—	—	—	—	—	—	—	—	—	—	—	—
Epicoccum	—	—	—	—	—	—	—	—	—	—	—	—
Fusarium	—	—	—	—	—	—	—	—	—	—	—	—
Ganoderma	—	—	—	—	—	—	—	—	—	—	—	—
Memnoniella	—	—	—	—	—	—	—	—	—	—	—	—
Nigrospora	—	—	—	—	—	—	—	—	—	—	—	—
Oidiodendron	—	—	—	—	—	—	—	—	—	—	—	—
Oidium/Peronospora	—	—	—	—	—	—	—	—	—	—	—	—
Pithomyces	—	—	—	—	—	—	—	—	—	—	—	—
Rust	—	—	—	—	—	—	—	—	—	—	—	—
Smut/Myxomyces/Periconia	—	—	—	—	—	—	—	—	—	—	—	—
Spegazzinia	—	—	—	—	—	—	—	—	—	—	—	—
Stachybotrys	—	—	—	—	—	—	—	—	—	—	—	—
Torula	—	—	—	—	—	—	—	—	—	—	—	—
Trichoderma	—	—	—	15,000	231,000	60	—	—	—	—	—	—
Ulocladium	—	—	—	—	—	—	—	—	—	—	—	—
Unidentified Spores	—	—	—	—	—	—	—	—	—	—	—	—
<b>Total Spores</b>	<b>366</b>	<b>5,636</b>		<b>25,044</b>	<b>385,678</b>		<b>4,500</b>	<b>69,300</b>		<b>0</b>	<b>0</b>	
Hyphal Fragments	—	—	—	1,200	18,480	—	820	12,628	—	—	—	—

Cimona Fernandes  
Project Manager

Results submitted pertain only to the samples as presented on the accompanying Chain of Custody.  
This report shall not be reproduced, except in its entirety, and the with written approval of Eurofins AEML.  
Accredited for compliance with ISO/IEC 17025-Testing Accreditation #01261 Site #24876.



**Tape, Swab and Bulk Analysis (AEML-DOC)**

Sample ID:	233907-33	233907-34	233907-35	233907-36
Client Sample ID:	S17	S18	S19	S20
Detection Limit:	15	15	15	15
Media:	Tape	Tape	Tape	Tape
Sample Analysis:	Analyzed at 600X Magnification	Analyzed at 600X Magnification	Analyzed at 600X Magnification	Analyzed at 600X Magnification

Spore Types	Raw Count	Count/cm <sup>2</sup>	%	Raw Count	Count/cm <sup>2</sup>	%	Raw Count	Count/cm <sup>2</sup>	%	Raw Count	Count/cm <sup>2</sup>	%
Acremonium	—	—	—	—	—	—	—	—	—	—	—	—
Alternaria	5	77	13	—	—	—	—	—	—	—	—	—
Arthrinium	—	—	—	—	—	—	—	—	—	—	—	—
Ascospores	8	123	20	—	—	—	—	—	—	6	92	32
Aspergillus/Penicillium-Like	—	—	—	42	647	100	—	—	—	—	—	—
Basidiospores	2	31	5	—	—	—	—	—	—	4	62	21
Bipolaris/Dreschlera	—	—	—	—	—	—	—	—	—	—	—	—
Botrytis	—	—	—	—	—	—	—	—	—	—	—	—
Chaetomium	—	—	—	—	—	—	—	—	—	1	15	5
Cladosporium	17	262	43	—	—	—	—	—	—	5	77	26
Curvularia	1	15	3	—	—	—	—	—	—	—	—	—
Epicoccum	4	62	10	—	—	—	—	—	—	—	—	—
Fusarium	—	—	—	—	—	—	—	—	—	—	—	—
Ganoderma	—	—	—	—	—	—	—	—	—	—	—	—
Memnoniella	—	—	—	—	—	—	—	—	—	—	—	—
Nigrospora	1	15	3	—	—	—	—	—	—	—	—	—
Oidiodendron	—	—	—	—	—	—	—	—	—	—	—	—
Oidium/Peronospora	—	—	—	—	—	—	—	—	—	—	—	—
Pithomyces	—	—	—	—	—	—	—	—	—	—	—	—
Rust	—	—	—	—	—	—	—	—	—	—	—	—
Smut/Myxomyces/Periconia	1	15	3	—	—	—	—	—	—	2	31	11
Spegazzinia	1	15	3	—	—	—	—	—	—	—	—	—
Stachybotrys	—	—	—	—	—	—	—	—	—	—	—	—
Torula	—	—	—	—	—	—	—	—	—	1	15	5
Trichoderma	—	—	—	—	—	—	—	—	—	—	—	—
Ulocladium	—	—	—	—	—	—	—	—	—	—	—	—
Unidentified Spores	—	—	—	—	—	—	—	—	—	—	—	—
<b>Total Spores</b>	<b>40</b>	<b>616</b>		<b>42</b>	<b>647</b>		<b>0</b>	<b>0</b>		<b>19</b>	<b>293</b>	
Hyphal Fragments	3	46		12	185		—	—		8	123	

---

## ***Definitions and Glossary***

### **Definitions**

**Mould** - A fungus that grows in the form of multicellular filaments called hyphae. Moulds cause biodegradation of natural materials, which is necessary in nature but can become unwanted when it causes food spoilage or damage to property. Some diseases of animals and humans can be caused by certain moulds. These diseases may result from allergic sensitivity to mold spores, from growth of pathogenic moulds within the body, or from the effects of ingested or inhaled toxic compounds (mycotoxins) produced by moulds.

**Fungi** - A Kingdom composed of eukaryotic organisms that include unicellular microorganisms such as moulds, yeasts, smuts, and mushrooms. Fungi receive nutrients by absorbing dissolved molecules and are referred to as nature's decomposers.

**Spores** - Produced by moulds and fungi as units of reproduction that have adapted for dispersal. Spores can disperse through the air, by insects, animals, or humans and remain dormant on a surface for years until favourable conditions for growth occur.

**Mycotoxin** - A toxic secondary metabolite produced by mould. The term 'mycotoxin' is usually reserved for the toxic chemical products produced by fungi that readily colonise crops. One mould species may produce many different mycotoxins, and the same mycotoxin may be produced by several species.

### **Glossary**

**Sample ID** - A unique internal identification assigned to the sample by the laboratory for traceability of the sample.

**Client Sample ID** - An identification given to the sample and provided to the laboratory by the person who collected the sample. This is typically the location the sample was collected.

**Media** - The device used for collection of the sample.

**Sample Analysis** - The method of analysis used by the laboratory to analyse the sample. The use of a high level of magnification such as 600X magnification is necessary to see small details and provides the highest quality analysis.

**Raw Count** - Spore count present in the portion of the sample analysed by the laboratory.

**Count/cm<sup>2</sup>** - An extrapolated count of spores that would be present in a square centimetre of surface area. This calculation is based on the portion of the sampled analysed by the laboratory and the raw count.

---

## ***Definitions and Glossary***

### **Glossary**

**Percent (%)** - Percent composition of the sample. This is a breakdown of the percentage of the total spore count of the sample that each spore comprises.

**Detection Limit** - Also known as Method Detection Limit. This is the minimum number of spores that would need to be present in one square centimetre of the surface in order for one spore to be detected by this analysis. This calculation is based on the portion of the sample analysed by the laboratory.

### **Remediation**

**Remediation** - The process correcting, or remedying, any issues in the building that were identified by a mould assessor. This may include cleaning or removing any contaminated material, as well as, identifying and correcting any conditions that may be favourable for mould growth.

Eurofins Environment Testing Australia Pty Ltd. makes no claims pertaining to the necessity of remediation. The results contained in this report should be used in conjunction with a physical inspection of the property to determine what, if any, actions are necessary.



## Fungal Glossary



Typically found growing outdoors.



Potential allergen.




Considered water damage indicator.




Potential to produce mycotoxins.



### Alternaria

Description	Characteristics
<p>These are a common plant pathogen involved in the decomposition of plants. In the indoor environment they are found growing on a variety of substrates including sheetrock and other building materials. They are common allergens causing hay fever or hypersensitivity reactions.</p>	

### Arthrimum

Description	Characteristics
<p>These are a plant pathogen found in soil and decomposing plant material. Not typically found growing indoors. One species has been determined to be an allergen.</p>	

### Ascospores

Description	Characteristics
<p>These are a very large group of spores that are found everywhere in nature. They are commonly found outdoors and associated with rain and moisture. Some species grow well indoors on damp materials. Ascospores have allergenic potential, however, it is species dependent.</p>	 

## Fungal Glossary



Typically found growing outdoors.



Potential allergen.




Considered water damage indicator.




Potential to produce mycotoxins.


### Aspergillus/Penicillium-Like

Description	Characteristics
<p>These are two of the most common genera in the world. They can be found everywhere in nature, both indoors and outdoors. Indoors they can be found on water damaged wallpaper, carpet, and other organic materials. They can also grow well in conditions of high humidity. Many species are allergens and a common cause of respiratory irritation. Some species are human and animal pathogens and can cause infection.</p>	

### Basidiospores

Description	Characteristics
<p>These are primarily comprised of mushrooms and shelf fungi. They are typically found outdoors. Occasionally they are found indoors growing on any organic matter causing dry rot. Some species can be an allergen to sensitive individuals.</p>	

### Bipolaris/Dreschlera

Description	Characteristics
<p>These are a plant pathogen typically found outdoors on grasses, grains, and decaying food. Indoors they can be found on plants and building materials. They are an allergen that can affect the nose, skin, eyes and upper respiratory track.</p>	

## Fungal Glossary



Typically found growing outdoors.



Potential allergen.



Considered water damage indicator.



Potential to produce mycotoxins.

Botrytis	
Description	Characteristics
<p>These are a plant pathogen typically found growing on vegetation particularly in temperate and subtropical climates. Indoors they can be found growing on plants. They are a potential allergen causing hay fever and asthma effects.</p>	
Chaetomium	
Description	Characteristics
<p>These are typically found indoors on water damaged cellulose containing materials such as paper, sheetrock, and wallpaper. Not well studied but possible allergen with hay fever and asthma effects.</p>	
Cladosporium	
Description	Characteristics
<p>One of the most common genera in both the indoor and outdoor environments. Indoors they grow well in damp environments and areas where condensation builds. They are often found on textiles, window sills, in bathrooms, and A/C systems. They are a common allergen when airborne.</p>	

## Fungal Glossary



Typically found growing outdoors.



Potential allergen.

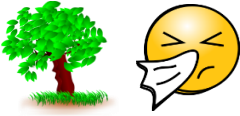


Considered water damage indicator.




Potential to produce mycotoxins.


### Curvularia

Description	Characteristics
<p>Primarily found outdoors on plants and soil especially in subtropical and tropical environments. Indoors they grow on a variety of building materials. They are a common allergen causing hay fever, asthma, and allergic fungal sinusitis.</p>	

### Epicoccum

Description	Characteristics
<p>Outdoors they are found in the soil, air, and rotting vegetation. Indoors they grow well on a variety of building materials such as paper and textiles. They are a potential allergen with hay fever, asthma, and skin allergy effects.</p>	

### Fusarium

Description	Characteristics
<p>Indoors they are typically found under very wet conditions. Some places they can be found are dust in carpet and mattresses, damp walls, wallpaper, and duct liner. They are a potential allergen causing hay fever and asthma effects.</p>	

## Fungal Glossary



Typically found growing outdoors.



Potential allergen.



Considered water damage indicator.



Potential to produce mycotoxins.

Ganoderma	
Description	Characteristics
<p>These are shelf mushrooms that are typically found growing outdoors on wood causing white rot, root rot, and stem rot. They are a possible allergen at high concentrations.</p>	
Memmoniella	
Description	Characteristics
<p>These are mycotoxin producing spores related to and often found in conjunction with Stachybotrys. These grow well on water damaged cellulose containing building materials such as sheetrock, paper, wallpaper, and textiles.</p>	
Nigrospora	
Description	Characteristics
<p>These are typically found on decaying plant material and soil and are usually not found growing indoors. They are a potential allergen causing hay fever and asthma effects.</p>	

## Fungal Glossary



Typically found growing outdoors.



Potential allergen.




Considered water damage indicator.




Potential to produce mycotoxins.


### Oidium/Peronospora

Description	Characteristics
<p>These are plant pathogens that are common obligate parasites on leaves, stems, flowers, and fruits of higher living plants.</p>	

### Pithomyces

Description	Characteristics
<p>These are typically found on dead leaves and stems of plants. Rarely found growing indoors; however, they grow well on paper indoors given the right conditions.</p>	

### Rust

Description	Characteristics
<p>These are parasitic plant pathogens that grow on plants, grass, and trees. They are rarely found growing indoors since they require a living host, and therefore typically not found on cellulose containing building materials. They are a potential allergen causing hay fever and asthma effects.</p>	

## Fungal Glossary



Typically found growing outdoors.



Potential allergen.




Considered water damage indicator.




Potential to produce mycotoxins.


### Smut/Myxomyces/Periconia

Description	Characteristics
<p>This is a grouping of several genera organised together in a general category that are mostly associated with living and decaying plants, wood, soil, grass, cereal crops, weeds, and flowering plants. These are rarely found growing indoors. They are a potential allergen causing hay fever and asthma effects.</p>	

### Stachybotrys

Description	Characteristics
<p>These are typically found indoors growing on water damaged cellulose containing building materials such as sheetrock, paper, and ceiling tiles. They are often referred to as "toxic black mould." They have the ability to produce mycotoxins which may cause a burning sensation in the mouth, throat, and nasal passages. Chronic exposure has been known to cause headaches, diarrhea, memory loss, and brain damage.</p>	

### Torula

Description	Characteristics
<p>These are typically found growing outdoors on leaves, roots, wood, and soil. Indoors they can be found growing on water damaged cellulose, paper, wicker, straw baskets and ceiling tiles. They are a potential allergen causing hay fever and asthma effects.</p>	

## Fungal Glossary



Typically found growing outdoors.





Potential allergen.



Considered water damage indicator.



Potential to produce mycotoxins.

Ulocladium	
Description	Characteristics
Requires very wet conditions and can commonly be found indoors in damp or wet areas such as bathrooms, kitchens, basements, and around windows. These grow well on cellulose containing materials such as paper and straw and on water damaged building material such as sheetrock. They are a common allergen causing hay fever and asthma effects.	 
Unidentified Spores	
Description	Characteristics
This is a grouping of spores that are unable to be categorised due to a variety of reasons. They may be weathered, disfigured, or otherwise lacking the morphological structures necessary to identify the genus.	
Hyphal Fragments	
Description	Characteristics
These are branched filamentous structures with cell walls. Hyphae are somewhat analogous to stems or roots in plants whereas the spores would be analogous to the seeds. Large quantities present may indicate an active fungal colony or active fungal growth in the structure.	



## Fungal Glossary



Typically found growing outdoors.



Potential allergen.




Considered water damage indicator.



Potential to produce mycotoxins.

### Pollen

Description	Characteristics
<p>These are a fine to coarse powdery substance produced by the anthers of seed-bearing plants, trees, grasses, flowers, and weeds. They are an allergen that causes hay fever effects.</p>	

The information provided in this report is not intended to provide medical advice. This report is designed to be used for building diagnostic purposes only. Any determination of exposure or potential for exposure should be formed using the results in this report in conjunction with a physical inspection of the property. A medical professional must be consulted for any medical or health related information.

---

## **References and Links**

Environmental Protection Agency (EPA) - [www.epa.gov/mold/](http://www.epa.gov/mold/)

A Brief Guide to Mould, Moisture, and Your Home - [www2.epa.gov/mold/brief-guide-mold-moisture-and-your-home](http://www2.epa.gov/mold/brief-guide-mold-moisture-and-your-home)

Should You Have the Air Ducts in Your Home Cleaned? - [www2.epa.gov/indoor-air-quality-iaq/should-you-have-air-ducts-your-home-cleaned](http://www2.epa.gov/indoor-air-quality-iaq/should-you-have-air-ducts-your-home-cleaned)

Flood Cleanup - Avoiding Indoor Air Quality Problems - [www2.epa.gov/indoor-air-quality-iaq/flood-cleanup-protect-indoor-air-quality](http://www2.epa.gov/indoor-air-quality-iaq/flood-cleanup-protect-indoor-air-quality)

Center for Disease Control and Prevention (CDC) - [www.cdc.gov/mold/](http://www.cdc.gov/mold/)

General Information - [www.cdc.gov/mold/basics.htm](http://www.cdc.gov/mold/basics.htm)

Cleanup and Remediation - [www.cdc.gov/mold/cleanup.htm](http://www.cdc.gov/mold/cleanup.htm)

Occupational Safety & Health Administration (OSHA) - [www.osha.gov/SLTC/molds](http://www.osha.gov/SLTC/molds)

American Academy of Allergy, Asthma & Immunology (AAAAI) - [www.aaaai.org](http://www.aaaai.org)

Institute of Inspection, Cleaning and Restoration Certification (IICRC) - [www.iicrc.org](http://www.iicrc.org)

Information and recommendations about mould can vary based on location and climate. More information can be found through your local state's Indoor Air Quality programs. Links for some local resources can be found below:

New South Wales - [www.health.nsw.gov.au/environment/factsheets/Pages/mould.aspx](http://www.health.nsw.gov.au/environment/factsheets/Pages/mould.aspx)

Northern Territory - [www.nt.gov.au/wellbeing/healthy-living/mould-growth](http://www.nt.gov.au/wellbeing/healthy-living/mould-growth)

Queensland - [www.qld.gov.au/community/disasters-emergencies/recovery-after-disaster/cleaning-up/mould](http://www.qld.gov.au/community/disasters-emergencies/recovery-after-disaster/cleaning-up/mould)

South Australia - [www.sahealth.sa.gov.au/wps/wcm/connect/public+content/sa+health+internet/protecting+public+health/living+conditions+and+sanitation/household+mould](http://www.sahealth.sa.gov.au/wps/wcm/connect/public+content/sa+health+internet/protecting+public+health/living+conditions+and+sanitation/household+mould)

Victoria - [www.betterhealth.vic.gov.au/health/conditionsandtreatments/mould-and-your-health](http://www.betterhealth.vic.gov.au/health/conditionsandtreatments/mould-and-your-health)

[www.betterhealth.vic.gov.au/health/conditionsandtreatments/mould-removal-at-home](http://www.betterhealth.vic.gov.au/health/conditionsandtreatments/mould-removal-at-home)

Western Australia - [www.healthywa.wa.gov.au/Articles/J\\_M/Mould-and-dampness](http://www.healthywa.wa.gov.au/Articles/J_M/Mould-and-dampness)

New Zealand - [www.building.govt.nz/resolving-problems/resolution-options/weathertight-services/signs-of-a-leaky-home/mould/](http://www.building.govt.nz/resolving-problems/resolution-options/weathertight-services/signs-of-a-leaky-home/mould/)

[www.tenancy.govt.nz/maintenance-and-inspections/mould-and-dampness/](http://www.tenancy.govt.nz/maintenance-and-inspections/mould-and-dampness/)



**Quality • Service • Integrity**



**HIBBS**

Excellence in Risk Management

**HIBBS & ASSOCIATES PTY LTD**

**Sydney**

Suite B, 255 Rawson Street, Auburn NSW 2144

P.O. Box 4266, Homebush NSW 2140

**Melbourne**

17 / 31 Queen Street, Melbourne VIC 3000

**Brisbane**

27 / 32 Turbot Street, Brisbane QLD 4000

**P 1300 444 227**

**E [info@hibbs.com.au](mailto:info@hibbs.com.au)**

**ABN 12 608 093 134**

**[www.hibbs.com.au](http://www.hibbs.com.au)**