Attachment A – Detailed Response to Submissions

Preamble

In its stakeholder consultations, modification application and this response, Pontiac Land Group (the Proponent) has outlined the evolution of the project's design and technical solutions which is summarised again below.

Modification 18 acknowledges the approved Modification 4 (SSD-7484-Mod-4, 18 December 2019), which resulted in the building uses within the Education Building containing all hotel keys, and Lands Building providing essential support and ancillary hotel and guest facilities.

For Lands specifically the following development is approved:

- Refurbishment of the heritage listed Lands Building for uses:
    - Retail and kitchen/restaurant spaces
    - Cultural spaces, meeting rooms and function rooms
    - Garden terraces and lounge/library spaces
- National Construction Code (NCC) use classification as Class 5, 6, 7b and Class 9b (previously solely Class 5 Office)
- The development was to be considered Type A construction with an effective height of greater than 25m

Consistent with prior consents, imposed conditions include those relating to compliance with the NCC as below:

B2	The proposed works must comply with the applicable performance requirements of the NCC so as to achieve and maintain acceptable standards of structural sufficiency, safety (including fire safety), health and amenity for the ongoing benefit of the community. Compliance with the performance requirements can only be achieved by: a) complying with the deemed to satisfy provisions; or b) formulating an alternative solution which: i) complies with the performance requirements; or ii) is shown to be at least equivalent to the deemed to satisfy provision; or iii) a combination of a) and b).

B3	All new structural works are to comply with the NCC, including structural, building services, acoustic, fire protection and access upgrades are to be designed and integrated into the two heritage items in a manner that maximises the conservation and enhancement of their historic spatial qualities and the conservation and exposure of significant original and early fabric and finishes. Alternate solutions are to be proposed, wherever these are necessary to ensure the most sympathetic heritage outcome. Significant plaster ceilings must not be intentionally or accidently disturbed or damaged in any way. The proposed designs for the structural, building services, acoustic, fire protection and access upgrades for the following buildings, accompanied by a Statement of Heritage Impact, are to be prepared in consultation with Council and the Heritage Council for approval by the Secretary prior to issue of the Construction Certificate - structure (CC3) for each building.

The Proponent's project team developed design and technical responses across a diverse range of specialist disciplines in the context of:

- Diversity of NCC use classes and intended end-uses in the heritage listed Lands Building's refurbishment
- NCC compliance to achieve and maintain acceptable standards of structural sufficiency, fire safety, health and amenity
- Developing deemed to satisfy or alternative solutions to ensure the most sympathetic heritage outcome

Legislative Requirements

In fire-safety specific terms, the technical response was developed to ensure that to no single element of the technical response would prohibit the issue of a Construction Certificate (CC) by the Principal Certifying Authority (PCA). The responses include, but are not limited to:

- All new works are required to comply with Sections 14 & 19 of the Environmental Planning and Assessment (Development Certification and Fire Safety) Regulations 2021 (relevant parts extracted):
  - **14 Fire protection and structural capacity**
    (1) A certifier must not issue a construction certificate for building work under a development consent that authorises a change of building use unless—
    (a) the fire protection and structural capacity of the building will be appropriate to its new use, and
    (b) the building will comply with the Category 1 fire safety provisions that apply to the new use.
  - **19 Compliance with development consent and Building Code of Australia**
    (1) A certifier must not issue a construction certificate for building work unless -
    (c) the building will comply with the relevant requirements of the Building Code of Australia as in force at the time the application for the construction certificate was made
- Note: As reiterated by BCA consultant Philip Chun in their letter dated 07/03/23 (see Attachment Q – Certifier Statement)):
  - Both 14 (a) and 19 (c) above can only be addressed via Deemed-to-Satisfy (DTS) or performance means

Based on the above legislative requirements, a Fire Safety Upgrade strategy (a strategy in which an existing building can be upgraded to make reasonable improvements to the fire life safety of the building – which may or may not fully meet the current performance requirements of the NCC) would not be suitable to enable the issuance of the relevant Construction or Occupation Certificate

Consultation & Validation

Given the unique nature of the Lands Building, the Proponent and the consultant team acknowledged that ahead of a construction certificate application, fire safety performance solutions where contemplated would require:

- Formal consultation with FRNSW, as a stakeholder, through the defined process - submitting a Performance-Based Design Brief (PBDB) otherwise known as Fire Engineering Brief Questionnaire (FEBQ)
- Validation of assumptions including investigation of the existing building fabric, proposed fire protection methodology, materials etc.
- Validation of material certification relative to the performance solution requirements, specific building fabric & construction circumstances of the Lands Building and uses contemplated

Performance Solutions (PS)

The developed technical response proposed performance solutions for Rationalisation of Fire Resistance Levels (FRLs) which were first submitted to FRNSW in formal consultation via FEBQ V1, 27/8/19. The V1 of the FEBQ argues for a proposed FRL of 60 min for all elements. Based on the Fire and Rescue NSW response that any FRL reduction of more than 50% would not be accepted, the FRL's were rationalised to the maximum reduction allowable and has remained consistent as summarised below. These criteria were the subject of the Proponent's validation process and have informed the design solution in the subsequent Modification 18.

FRL Rationalisation		
Deemed to Satisfy (DTS)	**Performance Solution (PS)**	**Use Classification Area**
180 FRL	90 FRL	Class 6 areas
120 FRL	60 FRL	Class 9b areas generally
120 FRL	60 FRL	Class 9b areas serving essential services
120 FRL	60 FRL	Class 5 office areas
FRL of existing heritage fabric/structure does not meet the requirements of Specification C1.1, including the use of timber elements for window architraves in the external walls on the existing heritage areas		

Proposed performance solution assessment - Time Equivalent Method: Eurocode 1, Law, and CIB

Assessment in support of Rationalisation of FRL's

Methodologies: Demonstrate that that the fire separation functions appropriately in the event of a fire: **Absolute, Quantitative, Qualitative and Deterministic.**

Acceptance Criteria: Considered to be met if, through the quantitative and qualitative assessments, it is shown that the FRL provided is sufficient to resist the spread of fire within and between buildings **and** that safe occupant evacuation is provided for the period of time taken to evacuate the part of the building

Performance Solution: Quantitative analysis using **Time Equivalence Method** to illustrate:

- The minimum FRL sufficient to withstand complete burnout of any room or compartment without failing
- That building elements are expected to maintain structural, integrity and insulation ratings after a fire has burnt all the fuel in the room or compartment
- No collapse of the building elements is expected.

FRSNW comments in FEBQ V2 11/10/19 which remain unamended

Departures from the Deemed-to-Satisfy provisions - Rationalisation of FRL's
The structure remains for the time which is commensurate to the hazard, risk and fuel load as well as the time taken **to evacuate the occupants and for FRNSW to carry out search and rescue and firefighting operations (fire service intervention)** unless otherwise justified.
Fire spread to other buildings and external fire attack needs are to be within acceptable BCA verification methods. Any reduction in FRL should also demonstrate that it is adequate to prevent fire spread to and from neighbouring buildings/compartments. The assessment should also demonstrate that the FRL **is adequate to maintain structural adequacy under exposure from a fire in neighbouring buildings/compartments.**
It is noted that a reduction in FRL of 50% or more may eventuate as certain members require an FRL of 180, in accordance with Table of the BCA for Type A construction (if these are to be constructed with a FRL of 60) as per the abovementioned performance solution. This is to be clarified and it should be noted that **a reduction in the required FRLs of greater than 50% will not be supported by FRNSW**

Investigation

Prior to the commencement of full-scale construction works, substantive, prolonged investigations were undertaken to validate:

- The condition of the existing building fabric, specifically heritage ceilings
- The proposed technical solutions in the context of existing fabric condition and certification requirements
- The buildings capacity to integrate the proposed solutions for a satisfactory, permanent and NCC compliant outcome
- **Key Criteria** was developed based on the outcomes of the investigations and to inform the design response, as proposed in Modification 18:
    - Maintaining the FEBQ proposed Rationalisation of FRL's in context of FRNW comments
    - Maintaining structural capacity and stability
    - Stabilisation of timber & metal L&P and concrete arch (coke breeze) ceilings
    - Hazardous material removal prior to stabilisation and subsequent intumescent coatings
    - Adherence and performance of intumescent coatings on various substrate(s) to meet performance criteria
    - Long-term durability and integrity of ceilings post stabilisation
    - Maintenance requirements of ceilings, ensuring integrity with respect to fire & life safety, health and amenity
    - Certification, warranties and potential insurability limitations

With legislative preclusion of a Fire Safety Upgrade, achievement of Rationalised FRL criteria (performance solution) is **critical**:

Test	Lab Test Outcome v Rationalised FRL		Refer to H – Consultation Report
No.	**60 FRL**	**90 FRL**	**Description**
1a	Passed	Failed	Pilot Test - timber L&P 60/90min
1	[1]Aborted	[1]Aborted	Full Scale test - timber L&P 60/90min
2	[2]Part Only	Failed	Concrete Arch 60/90mins
3	Failed	Failed	EMF ceiling 60/90min
4a	Failed	Failed	Pilot Test - curved PB - 60/90min
4	[1]Aborted	[1]Aborted	Full Scale Test - curved PB - 60/90min

[1]Aborted due to Pilot Test outcome [2]Structural adequacy not achieved. This is due to the

Conclusion

The investigation and laboratory testing reports, prepared by specialist consultants, determined conclusions of material consequence:

- All keys in historic ceilings are variously compromised, achievement of fire and structural adequacy will require various strategies
- Various ceiling types, utilising proposed intumescent coatings, failed to meet required FRL performance criteria
- Previously proposed design solutions are no longer suitable as part of the conservation of the historic ceilings

The technical challenges presented by the existing building fabric in meeting the consent conditions are substantive. Given investigative outcomes, the Proponent, and its consultant team, has developed and submitted in Modification 18, an alternative proposal which it believes balances the requisite fire and structural compliance requirements with the protection of the building's heritage significance.

Responses to Submissions

The following tables provide specialist consultant responses to direct comments received by stakeholders for Modification 18.

Department of Planning and Environment

Ref	Matter Raised	Response	Reference Documents
	DPE Letter ref: **Sandstone Precinct – Lands Building Ceilings (SSD-7484-Mod-18) dated 10 February 2023** **Schedule 1:**		
1.0	**Provide a comprehensive response, including additional information and evidence, which addresses the detailed analysis provided in Attachment 2 of Heritage NSW advice dated 7 February 2023.**	**See below**	**See below**
	Heritage NSW Letter *7 February 2023* ref: Sandstone Precinct Mod 18 - Lands Building Ceilings (SSD-7484-Mod-18) – Lands Building Ceilings Attachment 2 – Analysis of SSD 7484 Modification 18		
1.1	Significance of the ceilings	The Proponent refers DPE to: Urbis in its written statement (Attachment C) acknowledges the heritage significance of the ceilings and provides commentary referencing Northrop's condition report and Warrington Fire's FRL testing report (Attachment N).	• Urbis Heritage Response to RFI statement dated 7/03/23 (Attachment C) • Northrop's Preliminary Report on Permanent Stabilisation dated 16/08/22, provided at

Ref	Matter Raised	Response	Reference Documents
		Urbis concludes that, notwithstanding the significance of the ceilings, the Mod 18 proposal balances the requisite fire, life-safety and structural compliance requirements with the protection of the building's heritage significance. Refer to the Key Criteria in the Preamble of this schedule.	Attachment H of the Mod 18 application package • Warrington's Ceiling System Test report dated 27/11/22 (Attachment N)
1.2	CMP policies for ceilings	The Proponent refers DPE to: Urbis in its written statement (Attachment C) acknowledges the CMP policies for ceilings and provides commentary referencing Northrop's condition report and Warrington Fire's FRL testing report (Attachment N). Urbis concludes that, notwithstanding the CMP policies, the Mod 18 proposal balances the requisite fire and structural compliance requirements with the protection of the building's heritage significance. It is further noted that the CMP Policy 16.7.3 provides that alternative options are to be explored to achieve compliance with the NCC. The originally submitted Heritage Impact Statement (at Attachment D) provides for a summary of the alternate options considered in the investigation and design stage of the Modification 18 application. The alternative options were found to have highly adverse impacts on the overall significance of the Lands Building. The three tiered solution as proposed is therefore considered by Urbis Heritage as the most appropriate approach to balance the significances of the Lands Building and	• Urbis Heritage Response to RFI statement dated 7/03/23 (Attachment C) • Heritage Impact Statement prepared by Urbis Heritage dated 14/12/2022 (Attachment D) • Northrop's Preliminary Report on Permanent Stabilisation dated 16/08/22 provided at Attachment H of the Mod 18 application package • Warrington's Ceiling System Test report dated 27/11/22 (Attachment N)

Ref	Matter Raised	Response	Reference Documents
		compliance with the NCC. This three tiered approach is summarised as: 1. Cornice salvage and reinstatement to rooms of exceptional and high significance • Salvage existing plaster cornices and reinstate in original locations 2. Rooms of high relative value • Replicate cornices and beam profiles 3. Rooms of lesser relative value • Replicate representative moulds Refer to the Key Criteria in the Preamble of this schedule.	
1.3	Assessment of lath and plaster ceiling condition	The Proponent refers DPE to: Urbis in its written statement (Attachment C) provides commentary referencing Northrop's condition report and Warrington Fire's FRL testing report (Attachment N) concluding that: • All keys in historic ceilings are variously compromised, achievement of fire and structural adequacy will require various strategies • Various ceiling types, utilising proposed intumescent coatings, failed to meet required FRL performance criteria • Previously proposed design solutions are no longer suitable as part of the conservation of the historic ceilings Urbis in its written statement (Attachment C) concludes that the increase in quantum of ceilings deemed "poor" or "very poor" is likely due	• Urbis Heritage Response to RFI statement dated 7/03/23 (Attachment C) • Northrop's Preliminary Report on Permanent Stabilisation dated 16/08/22 at Attachment H of the Mod 18 application package • Warrington's Ceiling System Test report dated 27/11/22 (Attachment N)

Ref	Matter Raised	Response	Reference Documents
		to the fact that the condition of keys etc. in historic ceilings was previously concealed within the floor cavity. Through its invasive investigations Northrop has brought these conditions to the fore enabling a clearer and more accurate understanding of the condition of the ceilings. Urbis concludes that given the condition of existing fabric the Mod 18 proposal balances the requisite fire and structural compliance requirements with the protection of the building's heritage significance Refer to the Key Criteria in the Preamble of this schedule.	
1.4	Previous works to ceilings and heritage approvals	The Proponent refers DPE to Urbis in its written statement (Attachment C) notes that the works detailed in this Attachment 2 item predate the Proponents possession of the Lands Building. Urbis is not aware of any endorsement of works issued on 28/08/18 and requests further information from HNSW on this matter. The Proponent confirms occupation of the site on 30 June 2018. Since taking occupation, the Proponent has carried out maintenance repairs to the building's roof, façade and stormwater drainage. The proponent has in its possession records of maintenance works carried out by the facilities manager JJL and can provide these if required. Built, as managing contractor of the site since February 2021 has carried out repairs to the façade roof and drainage since taking possession. Refer to letter provide in Attachment	• Urbis Heritage Response to RFI statement dated 7/03/23 (Attachment C) • Refer to Northrop's Anticipated Condition of Existing ceilings dated 22/09/23 (provided as part of Attachment H of the original Modification 18 package)

Ref	Matter Raised	Response	Reference Documents
		R. To date, the Proponent has carried out work to an approximate value of $6.6m since taking possession of the site. Temporary stabilisation has also been designed and installed on site to ensure no damage has occurred from construction works. Refer to Northrop's Anticipated Condition of Existing Ceilings letter.	
1.5	Ceiling stabilisation	The Proponent refers DPE to Urbis in its written statement (Attachment C) provides commentary referencing Northrop's condition report and Warrington Fire's FRL testing report (Attachment N) concluding that: • Whilst there may be a conservation methodology available this approach does not resolve all issues • All keys in historic ceilings are variously compromised, and achievement of fire and structural adequacy will require various strategies • Various ceiling types, utilising proposed intumescent coatings, failed to meet required FRL performance criteria • Previously proposed design solutions are no longer suitable as part of the conservation of the historic ceilings Northop in its written statement (Attachment H) advises that temporary stabilisation has been installed on site in select locations to ensure protection of the ceiling and prevent further damage from occurring due to construction activities. Refer to the Key Criteria in the Preamble.	• Urbis Heritage Response to RFI statement dated 7/03/23 (Attachment C) • Northrop's Response to RTS 02/03/23

Ref	Matter Raised	Response	Reference Documents
1.6	Fire compliance requirements	The Proponent refers DPE to: The Stantec Fire Engineering Process letter (Attachment F) which outlines the rationalised FRL's supported by performance solutions and Stantec's Response to Submissions 'Letter Table' (Attachment E) summarising the original, reduced and actual FRLs achieved for the ceilings. The project currently contemplates: • Automatic sprinkler protection to BCA Clause E1.5 and AS2118.1-2017 • Automatic detection system to BCA Spec. E2.2a and AS 1670.1–2015 • Sound System and Intercom System for Emergency Purposes (SSISEP) to BCA Spec E2.2a Clause 6 and AS 1670.4–2015 The Proponent has undertaken the relevant analysis in assessment of the performance solutions contained in the FEBQ and in the context of FRNSW comments. This RFI would suggest analysis be undertaken that: • Evaluates potential to further rationalise FRL's greater than the 50% reduction documented in the FEBQ process • Evaluates potential to adopt a Fire Safety Upgrade strategy in non-compliance with Sections 14 & 19 of the Environmental Planning and Assessment (Development Certification and Fire Safety) Regulations 2021	• Stantec Fire Engineering Process dated 7/03/23 (Attachment F) • Stantec Response to Submissions dated 7/03/23 (Attachment E) • Warrington Fire Cap Coatings letter dated 01/03/23 (Attachment L) • Warrington Fire Testing Explanatory letter dated 1/03/23 (Attachment N) • Philip Chun Statement dated 7/03/23 (Attachment Q) • FEBQ ref (FRN 17/753) dated 14/04/22 (Attachment B)

Ref	Matter Raised	Response	Reference Documents
		Please refer to Attachment Q by Philip Chun advice stating that due to legislative requirements a Fire Safety Upgrade is not suitable to enable the issuance of the relevant Construction or Occupation Certificate Please refer to FRNSW FEBQ comments *"a reduction in the required FRLs of greater than 50% will not be supported by FRNSW"* The proponent refers DPE to Warrington Fire's 'Cap Coatings Letter' dated 01/02/23 (Attachment J) which outlines the key variance between the Lands building and the Cap508 test arrangement and why the existing test cannot be relied upon for a 90/90/90 system at Lands. This relates to definitionally compartmented areas of ceilings being provided, which results in the timber lath and plaster becoming the only fire separating element (the FRL being measured on the top side of the lath and plaster), compared to a normal situation where the top side of the floor lining would be used to measure the FRL. Testing carried out with CAP coatings failed for a 90/90/90 FRL (the FRL required for Class 6 areas), however a 60 minute FRL was achieved for timber lathe and plaster ceilings (FRL required for Class 9b areas). The proponent refers DPE to Warrington Fire's 'Testing Explanatory Letter' dated 1 March 2023 (Attachment K) which verifies that the reported performance of the existing building elements is representative of expected end use behaviour.	
1.7	Lyon and Cottier Coat of Arms	The Proponent notes this commentary, and per the Urbis response at Attachment C, recognises	

Ref	Matter Raised	Response	Reference Documents
		the significance of this element. A detailed methodology will be prepared by a specialist contractor prior to its removal, storage and reinstatement – with its future exposure once reinstated being a highly positive heritage outcome.	
2.0	**Provide evidence of consultation, and agreement with the proposed approach to fire safety, with Fire and Rescue NSW in relation to:** **a. the analysis, testing and investigation undertaken to inform the proposal** **b. alterative options which have been explored (and any additional options which can be explored) to achieve compliance with the National Construction Code fire safety requirements which may allow greater retention and restoration of exceptional and highly significant ceilings**	**See below**	**See below**
2.1	a. the analysis, testing and investigation undertaken to inform the proposal	The Proponent refers DPE to: Stantec written statement regarding formal consultation process with FRNSW (Attachment F): • Consultation with FRNSW is undertaken through a defined, formal process - submitting a Performance-Based Design Brief (PBDB) otherwise known as Fire Engineering Brief Questionnaire (FEBQ) • Performance solutions to Rationalise Fire Resistance Levels (FRL's), first submitted to FRNSW in formal consultation via FEBQ/PBDB version 1, 27/08/2019 (Attachment B).	• Stantec Fire Engineering Process dated 7/03/23 (Attachment F) • Warrington Fire Testing Explanatory letter dated 01/03/23 (Attachment K) • Warrington Fire 'FRNSW Discussions Letter' dated 28/02/23 (Attachment L) • Philip Chun Statement dated 7/03/23 (Attachment Q) • Heritage Ceilings Risk Matrix (Attachment H of the original Mod 18 application package) • FEBQ ref (FRN 17/753) (Attachment B)

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FRL’s were changed in the subsequent FEBQ to satisfy FRNSW’s min 50% reduction requirement with only minor updates in subsequent revisions, - the FRL Rationalisation is unchanged
There are 7 Departures from the Deemed-to-Satisfy provisions

Issue number: 1 Title: Rationalisation of FRL’s

The FRL Rationalisation criteria and FRNSW key comments, were established through the FEBQ process. These are maintained for technical solution evaluation - summarised as:
<table>
<tr><th colspan="2">FRL Rationalisation</th></tr>
<tr><th>Performance Solution</th><th>Use Classification Area</th></tr>
<tr><td>90 FRL</td><td>Class 6</td></tr>
<tr><td>60 FRL</td><td>Class 9b generally</td></tr>
<tr><td>60 FRL</td><td>Class 9b essential services</td></tr>
<tr><td>60 FRL</td><td>Class 5 office areas</td></tr>
</table>
FRNSW Comments:
Structure to remain for time commensurate to hazard, risk & fuel load and time taken to evacuate occupants and for FRNSW to carry out search and rescue and firefighting operations (fire service intervention)
Reduction in FRL should demonstrate adequacy to prevent fire spread and maintain structural adequacy relative neighbouring buildings / compartments
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Ref	Matter Raised	Response	Reference Documents
		• Reduction in the required FRLs of **greater than 50%** will not be supported by FRNSW Refer to Attachment Q by Philip Chun stating that due to legislative requirements a Fire Safety Upgrade is not suitable to enable the issuance of the relevant Construction or Occupation Certificate Validation of the previous design was undertaken relative to: • FRL Rationalisation assumptions • Condition of existing building fabric • Viability of proposed fire protection methodology, materials etc. • Material certification was undertaken relative to the performance solution requirements • Specific building fabric & construction circumstances of the Lands Building and uses contemplated Refer to Warrington Fire 'Fire Testing Explanatory letter' (Attachment K) regarding FRL testing **Modification 18** Given the inability to proceed with the previous technical direction, the Proponent and its consultant team developed alternative technical solutions. The Proponent notes that it has developed options that specifically maintain the integrity of: • FEQB defined FRL Rationalisation criteria • FRNSW FEBQ comments:	

Ref	Matter Raised	Response	Reference Documents
		➢ Time to evacuate occupants, carry out search and rescue & firefighting operations (fire service intervention) ➢ FRL adequacy to prevent fire spread and maintain structural adequacy relative neighbouring buildings / compartments ➢ Reduction in FRL's no more than 50% • PCA advised legislative requirements Attachment H from the original Mod 18 submission package provides details relative to multiple options developed in and assessed in a Heritage Ceiling Risk Matrix. The Proponent believes that the option selected for Modification 18, balances the requisite fire and structural compliance requirements with the protection of the building's heritage significance. The Warrington Fire 'FRNSW Discussion Letter' (Attachment M) written statement regarding informal consultation with FRNSW – specifically refers to the likelihood of FRNSW accepting a further reduction of 50% FRL Rationalisation The Proponent notes that informal discussions do not result in any written assessment and advice is subject to change. The Proponent will rely upon the defined formal consultation and assessment process with FRNSW in finalising the Modification 18 proposal for the construction certificate application. As and when appropriate the FEBQ will be updated and formally submitted reflective of any variation.	

Ref	Matter Raised	Response	Reference Documents
2.2	b. alterative options which have been explored (and any additional options which can be explored) to achieve compliance with the National Construction Code fire safety requirements which may allow greater retention and restoration of exceptional and highly significant ceilings	The Proponent notes that it has developed options that specifically maintain the integrity of: • FEBQ defined FRL Rationalisation criteria • FRNSW FEBQ comments: ➢ Time to evacuate occupants, carry out search and rescue & firefighting operations (fire service intervention) ➢ FRL adequacy to prevent fire spread and maintain structural adequacy relative neighbouring buildings / compartments • Reduction in FRL's no more than 50% • PCA advised legislative requirements The Attachment F Stantec Fire Engineering Process letter outlines the rationalised FRL's supported by performance solutions. Further advice from Philip Chun (Attachment Q) provides that due to legislative requirements a Fire Safety Upgrade is not suitable to enable the issuance of the relevant Construction or Occupation Certificate The summary package at Attachment H of the original Mod 18 lodgement package provides details relative to multiple options developed and assessed in a Heritage Ceiling Risk Matrix. The Proponent believes the option selected for Modification 18, balances the requisite fire and structural compliance requirements with the protection of the building's heritage significance. Refer to Warrington Fire written statement regarding informal consultation with FRNSW (Attachment M) and specifically the likelihood of	• Stantec Fire Engineering Process dated 7/03/23 (Attachment F) • Warrington Fire 'Heritage Ceilings and Performance' dated 28/02/23 (Attachment M) • Philip Chun Statement dated 7/03/23 (Attachment Q) • Heritage Ceilings Risk Matrix (Attachment H of the original Mod 18 application package)

Ref	Matter Raised	Response	Reference Documents
		FRNSW accepting further reduction of 50% FRL Rationalisation The Proponent notes that informal discussions with FRNSW do not result in any written assessment and advice is subject to change. The Proponent will rely upon the defined formal assessment process with FRNSW in finalising the Modification 18 proposal for construction certificate application. As and when appropriate the FEBQ will be updated and formally submitted reflective of any variation.	
3.0	**Provide a full copy of the Fire Engineering Brief Questionnaire (FRN 17/753)**	**See below**	**See below**
3.1	FEBQ FRN 17/753	See appended at Attachment B.	FEBQ (FRN 17/753) dated 14/04/22 (Attachment B)

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The Proponent refers DPE to:

FEBQ FRN 17/753 (Attachment B)

Performance Solutions
The developed technical response for the previous design solutions and Modification 18 have been developed in the context of the criteria defined through the FEBQ process.

Rationalised Fire Resistance Levels (FRL's):

First submitted to FRNSW in formal consultation via FEBQ V1, 27/08/2019
Notwithstanding subsequent minor, the FRL rationalisation defined has remained consistent
The summary below sets out FRL Rationalisation relevant to the matters considered in the Proponents validation process and subsequent in Modification 18.

<table>
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Ref	Matter Raised	Response	Reference Documents

		FRNSW comments:
		
		The structure remains for the time which is commensurate to the hazard, risk and fuel load as well as the time taken to evacuate the occupants and for FRNSW to carry out search and rescue and firefighting operations (fire service intervention) unless otherwise justified.
		
		Fire spread to other buildings and external fire attack needs are to be within acceptable BCA verification methods. Any reduction in FRL should also demonstrate that it is adequate to prevent fire spread to and from neighbouring buildings/compartments. The assessment should also demonstrate that the FRL is adequate to maintain structural adequacy under exposure from a fire in neighbouring buildings/compartments.
		
		It is noted that a reduction in FRL of 50% or more may eventuate as certain members require an FRL of 180, in accordance with Table of the BCA for Type A construction (if these are to be constructed with a FRL of 60) as per the abovementioned performance solution. This is to be clarified and it should be noted that a reduction in the required FRLs of greater than 50% will not be supported by FRNSW
		
		The Proponent notes that it has developed modification 18 specifically maintain the integrity of:
		• FEQB defined FRL Rationalisation criteria
		• FRNSW FEBQ comments:
		  • Time to evacuate occupants, carry out search and rescue & firefighting operations (fire service intervention)
		  • FRL adequacy to prevent fire spread and maintain structural adequacy relative neighbouring buildings / compartments
		  • Reduction in FRL's no more than 50%
		• PCA advised legislative requirements	

Ref	Matter Raised	Response	Reference Documents
4.0	**Confirm the proportion of ceilings across the lower ground, ground and level 1 which are original and non-original (ie. have been replaced in the past). This detail is to be as accurate as feasible, informed by surveys (and any further surveying undertaken).**	**See below**	**See below**
4.1		Refer to Hassell details of original and non-original ceilings based on rooms which are currently exposed at Attachment P. This provides that there is a total area of 3,287m2 of ceiling within the Lands Building, of which 1,759m^2 are able to be inspected.. There are approximately 164m^2 (of the total 3,287m2) of ceilings that have previously been replaced (i.e. original ceilings replaced with modern ceilings), being approximately 5%. Of the areas that are currently exposed (available for inspection), approximately 9% have been replaced with modern materials. Note that this includes for ceilings only and does not include for other modern materials that have been installed such as MDF and timber feature trims.	Hassell Existing Lathe and Plaster Ceiling Review dated 02/03/23 (Attachment P).
5.0	**Where retention and restoration of ceilings and cornices is not possible, consider further mitigation and interpretation measures which could include: a. retention, restoration and conservation of sample rooms, as recommended by Council, to demonstrate the original ceiling construction details b. commitment to match the finish, colour scheme and height of any new ceilings with the original ceilings**	**See below**	**See below**

Ref	Matter Raised	Response	Reference Documents
	c. commitment to match the design, material and finish of all replicated cornices as the existing cornices.		
5.1	a. retention, restoration and conservation of sample rooms, as recommended by Council, to demonstrate the original ceiling construction details	The proponent acknowledges the Council's desire to retain, restore and conserve ceilings in samples rooms. However in order to satisfy fire rating and stability requirements, any retained ceiling would need to be encapsulated. The Proponent refers to Urbis' letter (Attached C) whereby it is not recommended to encapsulate ceilings due to potential adverse It impacts to heritage fabric: • Suspension of the new ceiling from the existing heritage ceiling resulting in a lowered ceiling and room outcome • Multiple penetrations for new ceiling and services support hangers • Heritage fabric would be concealed above new ceiling and would not enable the original construction details to be demonstrated Alternatively, the Proponent proposes: • Removal and salvage of 1 x timber lathe & plaster ceiling and 1 x metal lathe and plaster ceiling sections (1 x 1m) • Integration of the heritage examples into the Lands heritage interpretation and design by FRD (Freeman Ryan Design) Demonstration of the original construction details and techniques as part of holistic description can be informed through heritage interpretation methods as part of the FRD methodology. These representative examples of each ceiling type are proposed to be carefully	• Urbis Heritage Response to RFI statement dated 7/03/23 (Attachment C)

Ref	Matter Raised	Response	Reference Documents
		salvaged and incorporated into this interpretation strategy. This approach has been previously approved for the salvaged roof trusses (Attachment C). This heritage interpretation of traditional construction techniques can be a highly positive outcome from a heritage and broader public engagement outcome. The update of the FRD strategy could form part of a condition of consent.	
5.2	b. commitment to match the finish, colour scheme and height of any new ceilings with the original ceilings	The Proponent refers to Urbis RFI Response letter (Attachment C) whereby it is proposed that the new colour scheme is fitting of a contemporary hotel use within a significant heritage building. It is noted that further co-ordination is required for key spaces such as the Ministers Room (G.07) and Undersecretary's Room (G.06) as identified in the conservation works schedule for the Lands Building.	• Urbis Heritage Response to RFI statement dated 7/03/23 (Attachment C) • Hassell MOD18 Response letter dated 7/03/23 (Attachment O)
5.3	c. commitment to match the design, material and finish of all replicated cornices as the existing cornices.	The Proponent refers to Urbis RFI Response letter (Attachment C) whereby it is proposed that new cornices will match or interpret existing original cornices with respect to design and finish. New cornices however will be manufactured using contemporary materials (eg plaster with fibreglass reinforcement) and techniques which was carried out to a high standard at the Education Building (by the Traditional Restoration Company). In addition, and as noted by Urbis, there is a scarcity of suitably qualified tradespeople in this specialised field and as such it would not be feasible to the project to reinstate cornices in the traditional lathe and plaster techniques.	• Urbis Heritage Response to RFI statement dated 7/03/23 (Attachment C)

Ref	Matter Raised	Response	Reference Documents
6.0	**Provide expert heritage advice on the feasibility of salvaging and reinstating cornices, based on the investigation of the existing fabric and experience in previous conservation projects.**	**See below**	**See below**
6.1	Feasibility of salvaging and reinstating cornices	Urbis in its written statement (Attachment C) notes that due to the heavy and fragile nature of the cornices there is a risk of plaster breakage between the lathe sections. There would also be increased joints compared with replicated sections. Traditional Stone Company (Attachment I), leading experts in this specialist field, have provided a report following their trial removal of a cornice section. Their findings are of a similar nature to that of Urbis, and confirm it is only feasible to undertake salvaging and reinstatement of cornices to those rooms of exceptional and high significance.	• Urbis Heritage Response to RFI statement dated 7/03/23 (Attachment C) • Traditional Stone Company report dated 1/03/23 (Attachment I)
7.0	**Justify the proposed reconstruction of cornices in secondary rooms with 'typical' cornice profiles, rather than exact profiles.**	**See below**	**See below**
7.1	Proposed reconstruction of cornices	Urbis in its written statement (Attachment C) notes that an inspection of cornices found that there are currently 22 different cornice types in the building. 7 of these cornices are located within rooms of high or exceptional significance or high relative value and 15 of those cornices are located within secondary rooms. Of the 7 cornice types located within rooms of high or exceptional significance, or high relative value these are cornices will be replicated to	• Urbis Heritage Response to RFI statement dated 7/03/23 (Attachment C)

Ref	Matter Raised	Response	Reference Documents
		match existing (other than the 3 rooms G.01, G.04, G.07) to which cornices are proposed to be salvaged). Of the 15 cornices types located in secondary rooms, several of these are extremely similar in nature and therefore it is proposed to rationalise 15 cornice types to 12 (with one type not being reinstated). It is noted all cornice types have been inspected, measured and documented by Purcell. The hierarchy of individual rooms and spaces will continue to remain legible as a result of this approach, with more ornate cornices to be part salvaged and carefully reconstructed in the principal rooms of exceptional value. The proposed solution respects and responds the presentation character and significance of the Lands and therefore constitutes an acceptable heritage outcome.	
8.0	**Explore and document options to retain the vault containing the Lyon and Cottier Coat of Arms in-situ.**	**See below**	**See below**
8.1	Retain the vault containing the Lyon and Cottier Coat of Arms in-situ	Urbis in its written statement (Attachment C) endorses the safe removal, storage and future reinstatement of the Lyon and Cottier Coat of Arms. It is considered that retaining this exceptionally significant element in situ while carrying out necessary fire-rating interventions to the substrate would cause a significant risk of damage to the element, and therefore it is supported (and proposed as part of this modification) to be removed and reinstated.	• Urbis Heritage Response to RFI statement dated 7/03/23 (Attachment C) • Stantec Coat of Arms dated 27/02/23 (Attachment G)

Ref	Matter Raised	Response	Reference Documents
		Stantec (Attachment G) notes that the section of coke breeze ceiling to which the Lyon and Cottier Coat of Arms is located is rated to 90/90/90 FRL. The test for this element failed and therefore does not meet the performance requirements of the Performance Solution 01 (as described in Attachment B). Stantec support the intent for the Lyon and Cotter Coat of Arms to be carefully removed and stored in its entirety and then reinstated.	
9.0	**Provide landowners consent to the application.**	See appended under separate cover.	Landowners Consent dated 18/12/22

Ref	Matter Raised	Response	Reference Documents
10.0	**City of Sydney Letter ref: R/2014/39/AD** **SSD7484Mod18** **Sandstone Precinct Modification 18 Lands Building Ceilings**		
	Demolition of existing lath & plaster ceiling and replacement of fire rated plaster boards:		
10.1	Given the condition of the existing ceilings and the test failures in their fire rating capacities, the City have no objection on the proposed replacement.	The City's support for the MOD 18 proposed replacement of ceilings due to ceiling fabric condition and fire testing failure is noted.	No reference documents required
	However, the finish, colour scheme and the height of the new ceilings must match the original ceiling. The construction details of the of both lath and plaster ceilings, and mesh and plaster ceilings are to be properly documented	Refer above response to Item 5.2b A complete archival photographic recording was undertaken in 2017 as required under condition B48. A 3D point cloud survey of the existing ceilings in each room will be undertaken prior to demolition (progressively in accordance with the construction programme) Note that Purcell have carried out initial inspections, measurements and documentation of cornice types previously (as outlined in Attachment C).	• Urbis Heritage Response to RFI statement dated 7/03/23 (Attachment C) • Hassell MOD18 Response letter dated 7/03/23 (Attachment O)

Ref	Matter Raised	Response	Reference Documents
	In addition, two sample rooms, one containing intact timber lath & plaster ceiling and the other containing metal mesh lath & plaster ceiling should be retained to demonstrate the original ceiling construction details	Refer above response to Item 5.1.	Refer above response to Item 5.1.
	Demolition and reinstatement of wall and beam cornices:		
10.2	Though in principle the City support the proposed salvage, replica and reinstatement scheme, we recommend more cornices may be salvaged and reinstated where possible. The option of retaining the wall cornices insitu should be tested by a professional contractor. Retention of more existing cornices has both heritage and economical benefits.	The Proponent notes the City's support for the MOD 18 proposed salvage, replica and reinstatement of heritage cornices is noted. The Proponent notes that, reinstatement has been considered prior to the adoption of replacement as set out in the modification. There are three material issues **Fire Rating Integrity:** As noted in Warrington Fire's letter (Attachment L), to meet the FRL requirements: • A fire rated barrier is required at the junction of the new fire rated ceiling to the existing wall • The barrier must be fully sealed at this weak point by turning down and lapping both the ceiling and wall **New ceiling at lower level:** As noted in Urbis letter at Attachment C, the new fire rating ceiling build up will be at a greater depth to the existing plaster. The cornices will therefore not be able to be retained as the new ceiling level will clash with the cornice. **Reinstatement Practicality:**	• Urbis Heritage Response to RFI statement dated 7/03/23 (Attachment C) • Traditional Restoration Company report 1/03/23 (Attachment I) • Warrington Fire Fire Rated Ceilings and Cornice letter 2/03/23 (Attachment L)

Ref	Matter Raised	Response	Reference Documents
		TRC (Traditional Restoration Company) has provided the Proponent with its specialist advice concluding that: • Sections are both heavy and fragile with high potential for existing cement breaking off between lathe sections • Cornice sections would require a significant number of joints creating visual breaks in the intricate motifs • To complete the salvage and reinstatement of the full extent of existing cornices would be an immense undertaking of the largest scale.	
	Demolition and replacement of breeze arches:		
10.3	The corridor ceiling contains a painted and tiled Coat of Arms which is of exceptional significance. Its removal and reinstatement is considered to have major adverse heritage impact. Options to retain it in- situ are not discussed in the application.	The Proponent notes this commentary, and per the Urbis response at Attachment C, recognises the significances of this element. A detailed methodology will be prepared by a specialist contractor prior to its removal, storage and reinstatement – with its future exposure once reinstated being a highly positive heritage outcome.	Refer response to Item 1.7.
	Given its significance, the portion of vault containing the artwork should be retained insitu and a fire insulation treatment may be applied in the ceiling space.	Refer response above and at Item 1.7.	Refer response to Item 1.7.

Ref	Matter Raised	Response	Reference Documents

	Given the complexity of issues in relation to varied conditions of the ceilings, building compliance requirements and heritage significance, it may be more appropriate to allow for flexibility in adopting different options instead of a one fit all solution.	Urbis in its written statement advises that a variety of options were explored throughout the design process in preparation of the Modification 18 as outlined in the Heritage Impact Statement at Attachment D, and summarised here:
		• Option 1: Retain and restore (discounted)
		  • This option looked to retain and restore the existing ceilings per the original approval
		  • This would have been the preferred heritage outcome
		  • This option is no longer possible due to the required structural and fire performance outcomes needed for the building
		• Option 2: Retain, restore and encapsulate (discounted)
		  • This option looked to retain and restore the existing ceilings and encapsulate them with new linings that would meet the required fire rating levels.
		  • This option was discounted due to unacceptable heritage impacts including the lowering of ceilings.
		• Option 3: Salvage all cornices, introduce new ceilings (discounted)
		  • This option considered salvaging all cornices, removing the existing ceilings, replacing with new fire-rated ceilings and reinstating the salvaged cornices.
		  • This was considered to have significant heritage impact due to the removal of original structural timber to which cornices were attached.
		  • New structure would be required to provide sufficient support to the building
			• Urbis Heritage Response to RFI statement dated 7/03/23 (Attachment C)
			• Heritage Ceilings Risk Matrix (Attachment H of the original Mod 18 application package)

Ref	Matter Raised	Response	Reference Documents
		to support the reinstatement of the cornices. • Option 4: Salvage sections of cornices to 3 nominated rooms of exceptional and high significance, reinstate salvaged elements with reconstructed ceilings and cornices (proposed solution) • This option was identified as the most suitable, as outlined in detail in this modification application. These options were reviewed against the criteria of Heritage & Architecture, Technical Compliance and Operational Considerations. Each option was given a risk rating. The option which yielded the only appropriate risk across all criteria was the full replacement of ceilings, which forms the basis of this proposal.	
	While overall the City consider this modification application is largely acceptable, we also recommend other options that have been previously discussed should be selectively adopted to some specific elements and rooms. This includes to retain some original ceilings and to retain the significant artwork at the ceilings	See responses to Items 5.1 to 5.3 above	See responses to Items 5.1 to 5.3 above
10.4	BLANK		
10.5	A full documentation of existing ceilings to be demolished or modified, including a 3D point cloud survey and archival photograph recording of each room and ceiling details, is to be carried out prior to commencement of any demolition work.	See responses to Items 5.1 to 5.3 above	See responses to Items 5.1 to 5.3 above

Ref	Matter Raised	Response	Reference Documents
	City consent condition recommendations:		
10.6	Two sample rooms, one containing intact timber lath & plaster ceiling and the other containing metal mesh lath & plaster ceiling (e.g. G07 which contains original painting scheme), including their cornices, should be retain ed to demonstrate the original construction details.	See response to Item 5.1 above.	See response to Item 5.1 above.
	All new ceilings are to be finished with a coating and finish that is consistent with the original set plaster finish.	The Proponent refers to Urbis RFI Response letter (Attachment C) whereby it is proposed that the new colour scheme is fitting of a contemporary hotel use within a significant heritage building. It is noted that further co-ordination is required for key spaces such as the Ministers Room (G.07) and Undersecretary's Room (G.06) as identified in the conservation works schedule for the Lands Building.	**See Item 5.2 above**
	Further tests of salvaging more cornices (than the proposed) and options to retain the wall cornices insitu are to be explored.	The Proponent notes that, reinstatement has been considered prior to the adoption of replacement as set out in the modification. There are three material issues: **Fire Rating Integrity:** As noted in Warrington Fire's letter (Attachment L), to meet the FRL requirements: • A fire rated barrier is required at the junction of the new fire rated ceiling to the existing wall • The barrier must be fully sealed at this weak point by turning down and lapping both the ceiling and wall,	**See Item 5.3 above**

Ref	Matter Raised	Response	Reference Documents
		New ceiling at lower level: As noted in Urbis letter at Attachment C, the new fire rating ceiling build up will be at a greater depth to the existing plaster. The cornices will therefore not be able to be retained as the new ceiling level will clash with the cornice. **Reinstatement Practicality:** TRC (Traditional Restoration Company) has provided the Proponent with its specialist advice concluding that: • Sections are both heavy and fragile with high potential for existing cement breaking off between lathe sections • Cornice sections would require a significant number of joints creating visual breaks in the intricate motifs • To complete the salvage and reinstatement of the full extent of existing cornices would be an immense undertaking of the largest scale. •	
	The replicated cornices are to use the same material and finish as the existing. The samples/prototypes of all types of new cornices are to be reviewed by Heritage NSW and City of Sydney prior to their manufacturing.	The Proponent refers to Urbis RFI Response letter (Attachment C) whereby it is proposed that new cornices will match or interpret existing original cornices with respect to design and finish. New cornices however will be manufactured using contemporary materials (eg plaster with fibreglass reinforcement) and techniques which was carried out to a high standard at the	**See Item 5.3 above**

Ref	Matter Raised	Response	Reference Documents
		Education Building (by the Traditional Restoration Company). In addition, and as noted by Urbis, there is a scarcity of suitably qualified tradespeople in this specialised field and as such it would not be feasible to the project to reinstate cornices in the traditional lathe and plaster techniques. The proponent acknowledges and accepts the request for Heritage NSW and City of Sydney to review prototypes prior to manufacturing.	
	The vault containing the significant Lyon and Cottier painted tiled Coat of Arms is to be retained to preserve the artwork. A fire insulation option that enables its retention is to be adopted.	See response to Item 8.1 above.	See Item 8.1 above

Heritage NSW

Ref	Matter Raised	Response	Reference Documents
11.0	**Heritage NSW Letter ref: Sandstone Precinct Mod 18 - Lands Building Ceilings (SSD-7484-Mod-18) – Lands Building Ceilings**		
11.1		The Proponent notes that the HNSW Letter summarises matters raised by and detailed in Attachment 1 and Attachments 2 from its Technical Advisory Panel (TAP). The Proponent acknowledges the heritage intent established for the Lands Building and similarly to the Education Building, the sister building within The Sandstones precinct. The Proponent is committed to the refurbishment and adaptive re-use of the heritage building as a key component of its 6-star hospitality experience. As exemplified by the recently completed Education Building, the Proponent places importance of the retention of heritage fabric in alignment with the creation of safe and durable places for patrons and public.	No documentation required
	Heritage NSW Letter: Summary		
11.4	The ceilings proposed for removal in Modification 18 are of high and exceptional significance. The policies in the Conservation Management Plan state that the lath and plaster	As outlined by Urbis (Attachment C) Policy 16.7.3 of the CMP provides that upgrades and adaptations of the Lands Building should aim to meet the requirements of the NCC particularly in	• Stantec Fire Engineering Process dated 7/03/23 (Attachment F)

Ref	Matter Raised	Response	Reference Documents

	and decorative plasterwork throughout the Lands Building are of exceptional and high significance and should be retained in situ, repaired, and conserved.	relation to fire protection. As such, the Proponents team has sought to address the requirements of the existing SSD consent conditions in addressing issues relating to:
		
		• **Diversity of NCC use classes & end-uses:** This requires significant FRL separation between different use classifications (reduced through NCC compliant performance solutions)
		
		• **NCC compliance to achieve and maintain acceptable standards of:**
		  • Structural sufficiency
		  • Fire safety
		  • Health and amenity
		  This requires consideration of multiple inter-related elements across multiple disciplines
		
		• **Developing DTS or alternative solutions ensuring sympathetic heritage outcomes:**
		• This requires the holistic consideration of solutions satisfying multilayered aspects and fire safety factors in respect of:
		  • Safe & timely occupant evacuation
		  • Ability of first responders to undertake search-and-rescue activities relative to incapacitated occupants
		  • FRNSW suppression of fire outbreak
		  • Protection of the heritage asset to prevent loss of heritage fabric, catastrophic damage and/or collapse.
			• Philip Chun Statement dated 7/03/23 (Attachment Q)

Ref	Matter Raised	Response	Reference Documents
		The Proponent's submission provides consultant documentation together with investigation & testing reports. The proposal has been prepared specific to the building, its condition in the context of multiple, inter-related aspects as identified above and as articulated in the developed Key Criteria, repeated here for clarity: • Structural capacity and stability • Stabilisation of both timber and metal lathe & plaster ceilings • Stabilisation of concrete arch (coke breeze) ceilings • Hazardous material removal prior to stabilisation and subsequent intumescent coatings • Adherence of intumescent coatings to variable substrates • Fire resistance of applied intumescent coatings to meet performance criteria • Long-term durability and integrity of ceilings post stabilisation • Maintenance requirements of ceilings, ensuring integrity with respect to fire & life safety, health and amenity • Certification, warranties and potential insurability limitations The Proponent contends that whilst there are technical resolutions to individual criteria, on a cumulative basis the investigations, testing and consultant reporting (as attached) indicates that: • All keys in historic ceilings are variously compromised, achievement of fire and structural adequacy will require various strategies	

Ref	Matter Raised	Response	Reference Documents
		• Various ceiling types, utilising proposed intumescent coatings, failed to meet required FRL performance criteria • Previously proposed design solutions are no longer suitable as part of the conservation of the historic ceilings The Proponent contends that the Modification 18 proposal balances the requisite fire and structural compliance requirements with the protection of the building's heritage significance.	
11.5	It is noted that the condition of the ceilings in the Lands Building has deteriorated considerably from generally good and fair in 2015 to poor and very poor in 2022. It is not clear from the documentation the exact cause of the ceiling deterioration. It is likely that the deterioration is related to localised water ingress, a lack of regular maintenance and possibly the vibrations from the current construction activities. Furthermore, it is understood that ~34% of the ceilings were not given a condition rating because ceiling protection is installed and there are floorboards above the ceiling.	Refer response to Item 1.4 above. The Proponent confirms occupation of the site on 30 June 2018. Since taking occupation, the Proponent has carried out maintenance repairs to the building's roof, façade and stormwater drainage. Temporary stabilisation has also been designed and installed on site to ensure no damaged has occurred from construction works. Refer to Northrop's Anticipated Condition of Existing Ceilings letter.	Refer to Item 1.4.
11.6	The implementation of the methodology for conservation of the ceilings and cornices as outlined in the Northrop report, Preliminary Report on Permanent Stabilisation Detail of Timber and Metal Lath Ceilings (16 August 2022), is supported. According to Northrop's assessment, the proposed method of conservation will have a low risk of major ceiling failure/collapse.	Refer response to Item 11.4. It is acknowledged the supportive nature of this comment.	Refer 11.4

Ref	Matter Raised	Response	Reference Documents
11.7	Westox has been used in other buildings for conservation of ceilings in NSW. These public and privately owned buildings remain open to the public and for commercial use including the Australian Museum and the GPO Building.	Refer Item 11.4. It is noted that alternative options have been considered for the proposed works.	Refer Item 11.4.
11.8	The fire safety strategy proposed by Warrington Fire is reliant on material performance to ensure life safety and property protection. Meeting the agreed FRLs is not the only way to achieve the performance requirements of the National Construction Code for fire safety and fire resistance We support a first principles fire engineering analysis using computer modelling be undertaken and peer reviewed to determine the actual fire resistance levels needed for the ceilings.	Refer Item 1.6 above. A multiple of options have been explored to identify the most appropriate proposal to manage the fire safety elements.	Refer Item 1.6 above.
11.9	The Department of Planning Environment should give consideration to the cumulative impact of incremental loss of original fabric over time that is having a direct, permanent and adverse impact on the intactness and authenticity of the interior of the Lands Building.	Refer Item 11.4 above. As outlined by Urbis in Attachment C, there is a clear three tiered hierarchy of rooms within the Lands Building that the proposed three-tiered approach to ceiling work addresses, It is acknowledged that the impact on original fabric is proposed, however this has been considered and minimised based on the requirements to provide a safe building for occupation from a life and fire perspective.	Refer Item 11.4 above.
	Heritage NSW Letter: Ceilings, cornices and decorative plasterwork		
11.10	Given that the proposed demolition and replacement of ceilings and cornices on the	See response to Items 1.6 & 11.4 above. As outlined by Urbis (Attachment C) there have	See response to Items 1.6 & 11.4 above.

Ref	Matter Raised	Response	Reference Documents
	lower ground, ground and level one of the Lands Department Building will have a direct, permanent and adverse impact on the heritage values, the Department of Planning and Environment (DPE) should give consideration to: • engaging independent reviewers to peer review the proposed fire strategy and structural engineering approach as part of the assessment of Modification 18 • whether DPE is satisfied those alternatives to the use of Westox and a performance-based fire safety strategy have been considered and assessed, as the removal of significant heritage fabric should be a last resort	been multiple options explored and considered, with the selected outcome being considered the appropriate response that reasonably responds to the relative contributory value of the ceilings per the endorsed CMP. .	
11.11	The Preliminary Report on Permanent Stabilisation Detail of Timber and Metal Lath Ceilings (16 August 2022) details the conservation methodology options for the stabilisation of the lath and plaster ceilings. Timber block attachment and adhesive (Option B) is the option preferred by the consultants (Northrop). This conservation methodology conserves the lath and plaster ceilings and the concrete arch ceilings by allowing those original ceilings that can be retained and treated to meet fire safety requirements are retained in situ	See response to Items 11.4 and 11.6.	See response to Items 11.4 and 11.6
11.12	This methodology also allows the removal of those ceiling components where they are beyond structural recovery or they do not meet the agreed fire requirements. Northrop believe that if Option B is applied, the risk of major failure/collapse is low.	Refer to Item 1.4.	Refer 1.4

Ref	Matter Raised	Response	Reference Documents
	This would be an acceptable approach after consideration is given to a peer review of the proposed fire strategy and structural engineering approach and alternatives to the use of Westox and a performance-based fire safety strategy.		
11.13	Northrop have also recommended that where lath and plaster ceilings have collapsed this portion of the ceiling should be removed and the lath and plaster ceiling reconstructed. This is an acceptable approach and consideration should be given to: • The condition of all ceilings must be assessed in order to determine the appropriate stabilisation approach. It is noted that ~34% have not been allocated a condition rating. • Where original ceilings and cornices are designated for total or part replacement, the replication of those elements must meet exactly the scale, form and detail of the original ceilings and ornamental cornices. • Any removed fabric must be archivally recorded prior to removal to the requirements of Heritage Council guidance. Elements of removed detail should be considered for public display in the building as a record of the technology used in the building's craftsmanship.	See Item 11.4 above. The Proponent advises that the remaining ceilings are not able to be investigated as these are concealed as a safety precaution. These rooms are designated contractor amenities and therefore must be free of lead paint and dust. Northrop has reported the likelihood of similar condition being found in the 34% non-investigated area (being the location of contractor amenities). Northrop advise in their Anticipated Ceiling Condition Remaining Ceilings dated 21/09/22 (as provided at Attachment H of the Mod 18 application package) that the remaining ceilings are anticipated to be in a similar condition to those that have been previously inspected Refer to Urbis Heritage Response to RFI (Attachment C) for commentary on replicated cornices. The Proponent confirms that archival recording will be undertaken to the appropriate standards. Refer to Urbis commentary on this matter.	• Urbis Heritage Response to RFI statement dated 7/03/23 (Attachment C) • Northrop Anticipated Ceiling Condition Remaining Ceilings dated 21/09/22 (Attachment H of the Mod 18 package)
	Heritage NSW Letter: Lyon and Cottier Coat of Arms:		

Ref	Matter Raised	Response	Reference Documents
11.14	The proposal to temporarily remove the Lyon and Cottier Coat of Arms is appropriate. However, it is recommended that the Coat of Arms be carefully removed and stored in its entirety including the more recent restoration works that reinstated lost tiles.	Refer to Item 1.7. It is proposed to remove and then reinstate the Coat of Arms at the appropriate time. A methodology will be prepared as needed.	Refer to Item 1.7.
	Attachment 2 - Ceiling Stabilisation:		
11.15	A conservation methodology that conserves the lath and plaster ceilings and the concrete arch ceilings is supported.	Refer to Item 1.3.	refer 1.3
11.16	Northrop in their report noted that if their preferred method of conservation were to be applied the risk of major failure/collapse is low.	Refer to Item 11.4. Multiple options have been explored for Modification 18 and the proposed approach has been considered by a range of specialists, including consideration of fire safety matters as identified under the CMP.	Refer to Item 11.4.
11.17	Ceiling failure has been observed in the past however maintenance is overdue. Approval was given for maintenance works in 2018 that included the repair and stabilisation of lath and plaster ceilings, cornices and beams using Westox RAP system to reinstate plaster keys to original timber laths.	Refer to Item 1.8.	Refer 1.8
11.18	Northrop have also recommended that where lath and plaster ceilings have collapsed this portion of the ceiling should be removed and the lath and plaster ceiling reconstructed. This is also supported.	The Proponent notes this statement	No documentation required
11.19	One of the key reasons identified by the engineers for the loss of lath and plaster ceiling stability is the ingress of water. This is attributed	See Item 11.5 above.	No documentation required

Ref	Matter Raised	Response	Reference Documents
	to poor roof and rainwater goods maintenance and a single event of substantial water dousing to extinguish a significant fire. The making good of the roof/rainwater goods and ongoing maintenance will reduce if not eliminate future water ingress.		
11.20	Concern was expressed by the applicant that delamination and imminent failure could not be predicted or observed without invasive monitoring. Remote survey methods, such as point cloud laser scanning and high-resolution photogrammetry, allow production of reflected ceiling plan spot level or distortion maps. These ceiling maps have up to a ±3mm accuracy and when compared to baseline data can detect even minor movement. Where movement is observed this can be followed up with a physical examination of the ceiling but only as necessary. Remote testing will also reduce the level of disruption to hotel operations.	The Proponent acknowledges that methodologies are available to monitor building fabric movement. This would address one of a number of key technical issues arising from the previous technical performance solutions. The Proponent contends that whilst there are technical resolutions to individual criteria, on a cumulative basis the investigations, testing and consultant reporting indicates that: • All keys in historic ceilings are variously compromised, achievement of fire and structural adequacy will require various strategies • Various ceiling types, utilising proposed intumescent coatings, failed to meet required FRL performance criteria • Previously proposed design solutions are no longer suitable as part of the conservation of the historic ceilings The Proponent contends that the Modification 18 proposal balances the requisite fire and structural compliance requirements with the protection of the building's heritage significance.	Northrop Response to RTS (Attachment H)
11.21	More detailed investigation is required and where void access above a ceiling isn't possible coring small boreholes allows a steerable	The Proponent advises that borescope investigations is not a viable option as this method:	Northrop Response to RTS 02/03/23

Ref	Matter Raised	Response	Reference Documents
	borescope with integrated torch to reach into voids. The lifting of floorboards above, or the creation of new permanent access hatches are other options. Such hatches are destructive but can prove warranted for the long-term conservation of the ceiling asset. The use of remote survey methods and selective access hatch/boreholes would substantially reduce the invasiveness of more detailed checks should they be required.	• Cannot provide visual access to the top surface of the ceiling as the void under the floorboards contains coke breeze. Timber flooring needs to be lifted and coke breeze removed to expose the ceiling soffit • Allows the condition to be reviewed only at spot locations The Proponent refers to Northrop's letter (Attachment H) which advises that no guarantee can be provided even with the implementation of monitoring regimes and periodic maintenance. The Proponent notes that Northrop has previously advised that the condition of currently concealed ceilings is anticipated to be consistent with those already inspected.	
11.22	Regardless of the suitability of the conservation methodologies recommended by Northrop, the application states that the ceilings cannot be conserved because the preferred conservation methodology uses Westox RAP that cannot be warranted and will not meet the required fire resistance levels. Several buildings throughout NSW and wider Australia have used Westox RAP to stabilise lath and plaster ceilings. These public and privately owned buildings remain open to the public and for commercial use including the Australian Museum and the GPO Building.	See response to Item 11.4 above.	See 11.4 above.
	Attachment 2 - Fire compliance requirements:		
11.23	The most appropriate fire protection strategy for heritage buildings is finding the right balance between the requirements of achieving a sufficient level of life safety and property	See Items 1.6 & 11.5 above	See Items 1.6 & 11.5 above

Ref	Matter Raised	Response	Reference Documents
	protection and an acceptable level of impact on historic character and significant fabric. The loss of all exceptionally and highly significant lath and plaster ceilings and the loss of some highly significant concrete arch ceilings is an unacceptable loss of significant fabric at the Lands Building.		
11.24	The National Construction Code requirements can be complied with by achieving a deemed to satisfy provision, satisfying a performance requirement with a performance-based solution or a combination of both. The proposal outlines a fire strategy that is heavily reliant on material performance. No documentation has been provided that assessed alternative options including performance based solutions to reduce the impact and the severity of any future fires. These measures could include a functioning sprinkler system, smoke detection and alarm system and local fire suppression in higher-risk areas such as kitchens.	See Items 1.6 & 11.5 above	See Items 1.6 & 11.5 above
11.25	A first principles fire engineering analysis using computer modelling derived from the real-world measurements and variables of the Lands Building was not undertaken. The use of FRLs that have not been derived from this type of computer model limits the opportunities for a more nuanced fire safety solution for the Lands Building and the potential retention of exceptional and highly significant heritage fabric.	See Items 1.6 & 11.5 above	See Items 1.6 & 11.5 above
11.26	It is recommended a first principles fire engineering analysis using computer modelling be undertaken and peer reviewed to determine	See Item 11.23 above	See Item 11.23 above

Ref	Matter Raised	Response	Reference Documents
	the actual fire resistance levels needed for the ceilings.		
11.27	It should be noted that the company that produces CAP508 have tested this product in the CSIRO testing lab with a lath and plaster ceiling and a CAP508 coating of 700microns. This treatment achieved FRLs of 90/90/90 and 60 min RISF. There are many variables that may explain the difference in testing results. One variation is the age of the plaster being tested. It is important that lime plasters used in testing facilities are fully carbonated and have achieved their full strength and fire potential before being tested. This can take several months.	See Items 1.6 & 11.5 above The proponent refers DPE to Warrington Fire's 'Cap Coatings Letter' dated 01/02/23 (Attachment J) which outlines the key variance between the Lands building and the Cap508 test arrangement and why the existing test cannot be relied upon for a 90/90/90 system at Lands. This relates to definitionally compartmented areas of ceilings being provided, which results in the timber lath and plaster becoming the only fire separating element (the FRL being measured on the top side of the lath and plaster), compared to a normal situation where the top side of the floor lining would be used to measure the FRL. Testing carried out with CAP coatings failed for a 90/90/90 FRL (the FRL required for Class 6 areas), however a 60 minute FRL was achieved for timber lathe and plaster ceilings (FRL required for Class 9b areas)	See Items 1.6 & 11.5 above Warrington Fire's 'Cap Coatings Letter' dated 01/02/23 (Attachment J)
	Attachment 2 - Lyon and Cottier Coat of Arms:		
11.28	Mod 18 proposes to temporarily remove the Lyon and Cottier Coat of Arms. It is recommended the Cost of Arms be carefully removed and stored in its entirety; including the more recent restoration works that were undertaken to reinstate lost tiles.	Refer to Item 1.7. It is proposed to remove and then reinstate the Coat of Arms at the appropriate time. A methodology will be prepared as needed	Refer 1.7