Integrated Management System

Planning Approval Consistency Assessment Form

SM ES-FT-414

Sydney Metro Integrated Management System (IMS)

Prepared by:	OCP Architects & Laing O'Rourke
Prepared for:	Laing O'Rourke
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The Planning Approval Consistency Assessment Form should be completed in accordance with the Sydney Metro Planning Approval Consistency Assessment Procedure (SM ES-PW-314) and Sydney Metro Environmental Planning and Approval Manual (SM ES-ST-216)

1.0 Existing Approved Project

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

Sydney Metro City and Southwest Chatswood to Sydenham Conditions of Approval (SSI 15_7400) as modified.
Modification 1 – Relocation of Victoria Cross northern services building. Additional station entry and relocation of Artarmon Substation (SSI Mod 1).
Modification 2 – Central Walk – Sydney Metro City and Southwest – Chatswood to Sydenham (SSI Mod 2).
Modification 3 – Martin Place Metro Station - Sydney Metro City and Southwest – Chatswood to Sydenham (SSI Mod 3).
Modification 4 – Sydenham Station and Metro Facility South – Chatswood to Sydenham (SSI Mod 4).
Modification 5 – Blues Point Acoustic Shed (SSI Mod 5)
Modification 6 – Administrative Changes – Modification to Sydney Metro City & Southwest – Chatswood to Sydenham (SSI Mod 6)

Date of determination:

SSI 15_7400 – 9 January 2017.
SSI Mod 1 – 18 October 2017.
SSI Mod 2 – 21 December 2017.
SSI Mod 3 – 22 March 2017.
SSI Mod 4 – 13 December 2017.
SSI Mod 5 – 2 November 2018
SSI Mod 6 – 21 February 2019.

Type of planning approval:

Part 5.1 – Critical State Significant Infrastructure

Description of existing approved project you are assessing for consistency:

SSI 15_7400: The Chatswood to Sydenham component of Sydney Metro City and Southwest comprises a new metro rail line, approximately 16 kilometres long, between Chatswood and Sydenham. New metro stations would be provided at Crows Nest, Victoria Cross, Barangaroo, Martin Place, Pitt Street and Waterloo, as well as new underground metro platforms provided at Central Station.

Section 7.10.9 of the Environmental Impact Statement (EIS) identified and assessed the location of construction sites at Central Station.

SSI Mod 2: Given the modifications that have been approved, the Chatswood to Sydenham component of Sydney Metro City and Southwest SSI is now approved to operate to Sydenham Station and includes the upgrade of Sydenham Station and the delivery of Central Walk. The Central Station Main (CSM) works are a major element of the Sydney Metro City and Southwest project, which include the construction of a new metro station underneath Central Station's existing heavy-rail platforms 13, 14 and 15, work to the existing Central Station and Central Walk, which includes a new eastern entrance and concourse running below the suburban rail platforms (existing platforms 16 to 23).

A new Northern Concourse will provide a new surface level interchange concourse linking the Metro to Suburban and Intercity Platforms as well as providing a new entrance for Central and extension to the Main Concourse to create an integrated and generous concourse commensurate with the status of Central Railway Station as the largest railway station and transport interchange in NSW.

The modified canopy design and associated removal of raked roof and bridging structures at the northern end of Platforms 8/9 and 10 was not identified or assessed in the EIS or the SSI Mod 2.

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

- The Sydney Metro City and Southwest – Development Consent – Determination, dated 9th January 2017
- The Sydney Metro City and Southwest - Environmental Impact Statement, dated 3rd May 2016
- The Sydney Metro City and Southwest Chatswood to Sydenham Submissions and Preferred Infrastructure Report dated October 2016

All proposed works identified in this assessment would be undertaken in accordance with the mitigation measures identified in the EIS, PIR and the Infrastructure Approval, as modified.

2.0 Description of proposed development/activity/works

Describe ancillary activities, duration of work, working hours, machinery, staffing levels, impacts on utilities/authorities, wastes generated or hazardous substances/dangerous goods used.

This Environmental Consistency Assessment has been prepared to address the removal of raked roof and bridging structures including supporting columns at the northern end of Platforms 8/9 and 10, followed by the construction of an arched steel canopy, which is for the purpose of improved heritage interfaces and visibility to key elements of Central Station.

The ancillary activities, duration of work, working hours, machinery, staffing levels, impacts on utilities / authorities, wastes generated will be similar to the approved scope of work. It is not anticipated that hazardous substances/dangerous goods will be used.

Associated activities including notifications, environmental controls, site establishment and fencing and hoarding would be undertaken in accordance with the Revised Environmental Management Measures (REMM) in the Preferred Infrastructure Report, the Conditions of Approval (CoA) and an Environmental Control Map (ECM) that will be developed for the proposed works.

3.0 Timeframe

When will the proposed change take place? For how long?

Construction of the works, including the installation of temporary works such as Class B hoarding will commence in the first quarter of 2020 and would take approximately three months to complete.

All of the works in this assessment would form part of the construction of the CSM Works. Approved, standard working hours for the Project are as follows:

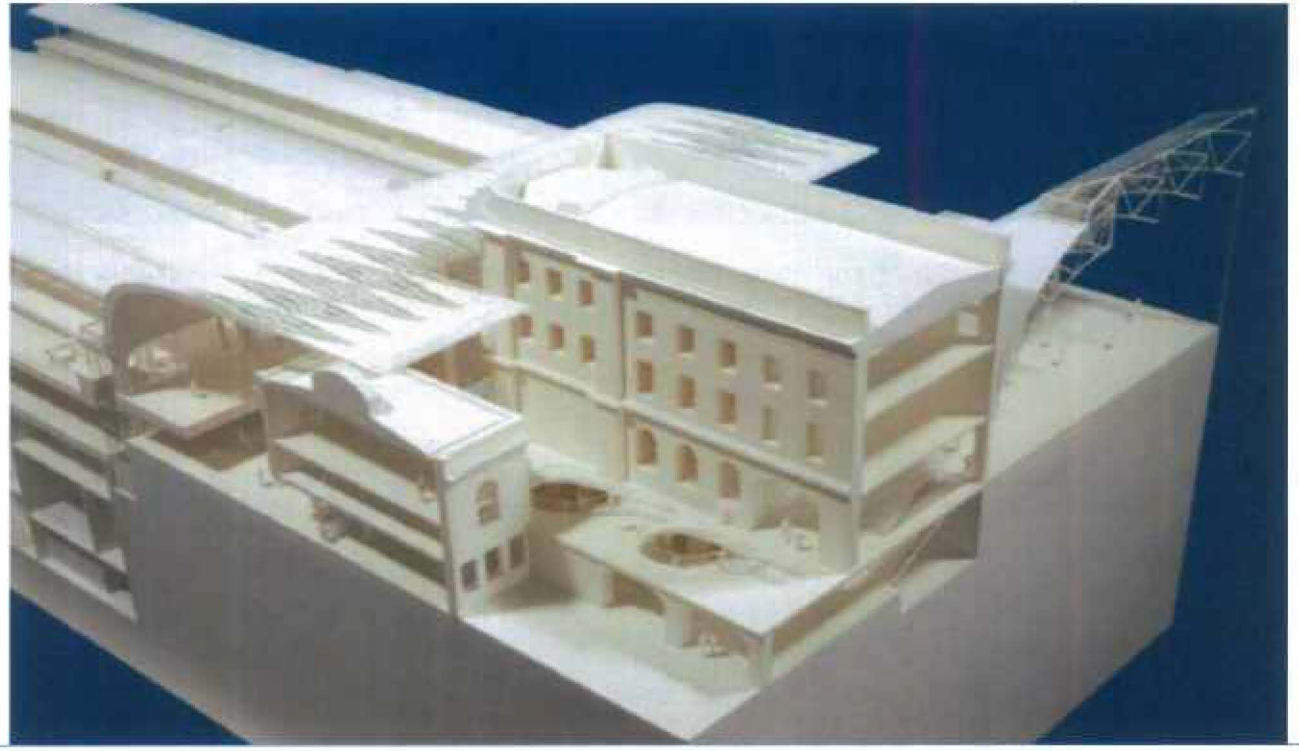
- 0700 – 1800 Monday to Friday
- 0800 – 1300 Saturdays
- No works Sundays or Public holidays

Works to be undertaken in standard construction hours. Any out of hours' work will be subject to separate assessment/ approval, and in accordance with the LOR CSM EPL21148.

4.0 Site description

Provide a description of the site on which the proposed works are to be carried out, including, Lot and Deposited Plan details, where available. Map to be included here or as an appendix. Detail of land owner.

The site is owned by RailCorp and located on Lot 118 of Deposited Plan 1078271. The fabric specifically affected comprises the raked beams, bridging structures and the temporary works including the Class B hoardings at the northern end of Platforms 8/9 and 10/11 within the Central Station Precinct, the footprint of which is identified below. Refer to Item 2, Section 3.2 of the Stage 3 HIA for full detail of the single vault structure as well as the indicative extent of the new canopy designs over this proposed work area.



5.0 Site Environmental Characteristics

Describe the environment (i.e., vegetation, nearby waterways, land use, surrounding land use), identify likely presence of protected flora/fauna and sensitive area.

The site is a built up environment located within the state heritage listed Sydney Terminal and Central Railway Stations Group (01255), on Eddy Avenue, Sydney. The area comprises a major thoroughfare for pedestrian traffic moving through Central Station.

The Sydney Terminal precinct includes the Main Terminus building with its Main Concourse and the Intercity Platforms situated behind the Main Concourse, with a covered platform access area situated in between. The built fabric is characterized by brick and sandstone masonry buildings and associated shelters constructed with iron trusses supported on iron columns. The floor of the Main Concourse is constructed of mass concrete held up by a brick vaulted support system on wrought iron beams, spanning between brick piers at basement level, and is finished with terrazzo paving. The adjacent platform access area is finished with brick floor pavers.

There are no waterways or vegetation within 50 meters of the site.

See photographs in Appendix A.

6.0 Justification for the proposed works

Address the need for the proposed works, whether there are alternatives to the proposed works (and why these are not appropriate), and the consequences with not proceeding with the proposed work.

During the early stages of design development, a notable change from the original design concept was the decision to raise the northern edge of the new canopy, effectively establishing a single vaulted roof (Section 3.2 of the NC HIA). The driver of the change was consideration for improved heritage interfaces and visibility to key elements that define the character of Central Station, including the Main Concourse vaulted roof, the Clock Tower and the Main Terminus East Wing.

resultant positive heritage impacts are manifold as the change facilitates:

- Increased glazing on the west side, with raised roof edge enhancing views to the Clock Tower;
- Glazing to the northern edge and views through to the Main Concourse Roof, including enhanced presentation of curved lattice fringe;
- Natural light into the space, which is currently gloomy;
- Rationalisation of the current presentation in this area, including cluttered arrangement of early structures and services accretions;
- Enhanced presentation of the East Wing

Through Heritage Working Group and Design Review Panel processes, consultation has been undertaken with a range of stakeholders who are supportive of the direction of design development for the new Northern Concourse canopy.

Refer to attached Heritage Impact Assessment (Appendix B).

The DRP has supported the design changes. Comments can be seen on Page 2 of the HWG 03 – Attached in Appendix E.

7.0 Environmental Benefit

Identify whether there are environmental benefits associated with the proposed works. If so, provide details:

As addressed in the attached Heritage Impact Assessment (Appendix B), the proposed works will allow for greater natural lighting into the Northern Concourse area, in addition to facilitating more efficient movement of foot traffic and equipment within the site area.

8.0 Control Measures

Will a project and site specific EMP be prepared? Are appropriate control measures already identified in an existing EMP?

There are no additional control measure required to those identified in the current CEMP.

9.0 Climate Change Impacts

Is the site likely to be adversely affected by the impacts of climate change? If yes, what adaptation/mitigation measures will be incorporated into the design?

The proposed single vaulted roof has been designed with slope suitable to address hailstorm considerations in order to handle storms of increased intensity associated with climate change. Relative to the approved design, the proposed works are unlikely to be adversely affected by impacts of climate change.

10.0 Impact Assessment – Construction

Attach supporting evidence in the Appendices if required. Make reference to the relevant Appendix if used.

Aspect	Nature and extent of impacts (negative and positive) during construction (if control measures implemented) of the proposed/activity, relative to the Approved Project	Proposed Control Measures in addition to project COA and REMMs	Minimal Impact Y/N	Endorsed	
				Y/N	Comments
Flora and fauna	No flora and fauna will be impacted by the design changes and removal of the existing structures.	Not applicable	Y	Y	
Water	As the proposal involves partial removal of roof structures and nominated columns which act as channels for downpipes, the work will require storm water management which will be similar to the management provisions to be implemented for removal of other existing canopies in the Northern Concourse area as approved.	No additional mitigation is required.	Y	Y	
Air quality	The impacts of these works will be similar to those described in Approved Project.	No additional mitigation is required.	Y	Y	
Noise vibration	The nature of noise and vibration impacts will be similar to those described in the SSI EIS, and consistent with those assessed in Scenario 34 of the CNVIS Rev 05. T	No additional mitigation is required.	Y	Y	
Indigenous heritage	No change to impacts as described in the Approved Project.	Not applicable	Y	Y	

Aspect	Nature and extent of impacts (negative and positive) during construction (if control measures implemented) of the proposed/activity, relative to the Approved Project	Proposed Control Measures in addition to project COA and REMMs	Minimal Impact Y/N	Endorsed	
				Y/N	Comments
Non-indigenous heritage	The proposed works will involve the permanent removal of heritage fabric, consisting of raked roof and bridging structures at the northern end of Platforms 8/9 and 10/11 and the installation of a new steel canopy structure. The removal of the nominated bridging structures and platform access area roof within the Northern Concourse will have moderate heritage impact associated with the removal of original structure. The impact of this will be mitigated by the positive outcomes associated with the work and associated mitigation strategies. The impact of these works on Non-indigenous heritage is discussed at length in the attached Heritage Impact Assessment. See Appendix B.	Temporary protection measures for retained heritage fabric will be implemented in accordance with the requirements of CAS-C Temporary Protection of Retained Elements – in Appendix C. Works will be implemented in accordance with CAS-E Northern Concourse Enabling Work – in Appendix D. Further control measures will be implemented as per the Stage 3 HIA in Appendix B.	N	Y	
Community and stakeholder	No change to impacts as described in the Approved Project.	Not applicable	Y	Y	
Traffic	No change to the operational impacts described in the Approved Project.	Not applicable	Y	Y	
Waste	The impacts of these works will be similar to those described in Approved Project.	No additional mitigation is required.	Y	Y	
Social	The impacts of these works will be similar to those described in Approved Project.	No additional mitigation is required.	Y	Y	
Economic	The impacts of these works will be similar to those described in Approved Project.	No additional mitigation is required.	Y	Y	

Aspect	Nature and extent of impacts (negative and positive) during construction (if control measures implemented) of the proposed/activity, relative to the Approved Project	Proposed Control Measures in addition to project COA and REMMs	Minimal Impact Y/N	Endorsed	
				Y/N	Comments
Visual	The impacts of these works will be similar to those described in Approved Project.	No additional mitigation is required.	Y	Y	
Urban design	The impacts of these works will be similar to those described in Approved Project.	No additional mitigation is required.	Y	Y	
Geotechnical	No additional geotechnical investigations are proposed.	Not applicable	Y	Y	
Land use	No change to impacts as described in the Approved Project.	Not applicable	Y	Y	
Climate Change	There would be no climate change related impacts.	No additional mitigation is required.	Y	Y	
Risk	The environmental risks of this work will be similar to those described in the Approved Project.	Mitigation measures similar to as required for Approved project will be applied to the additional area of works.	Y	Y	
Other	No change to impacts as described in the Approved Project.	Not applicable	Y	Y	
Management and mitigation measures	Additional management and mitigation is required to protect heritage items in the vicinity of proposed works and to salvage nominated heritage items proposed for removal.	Temporary protection measures for retained heritage fabric will be implemented in accordance with the requirements of CAS-C Temporary Protection of Retained Elements. Works must be implemented in accordance with CAS-E Northern Concourse Enabling Work. Salvage items from the Northern Concourse in accordance with the updated Sydney Metro Salvage Register 190718, TB SMCSWCSM-LOR-SMC-EM-REG-005888	Y	Y	

11.0 Impact Assessment – Operation

Attach supporting evidence in the Appendix if required. Make reference to the relevant Appendix if used.

Aspect	Nature and extent of impacts (negative and positive) during operation (if control measures implemented) of the proposed activity/works, relative to the Approved Project	Proposed Control Measures in addition to project COA and REMMs	Minimal Impact Y/N	Endorsed	
				Y/N	Comments
Flora and fauna	No change to the operational impacts described in the Approved Project.	No additional mitigation measures are to be implemented	Y	Y	
Water	No change to the operational impacts described in the Approved Project.	No additional mitigation measures are proposed.	Y	Y	
Air quality	No change to the operational impacts described in the Approved Project.	No additional mitigation measures are proposed.	Y	Y	
Noise vibration	No change to the operational impacts described in the Approved Project.	No additional mitigation measures are proposed.	Y	Y	
Indigenous heritage	No change to the operational impacts described in the Approved Project.	No additional mitigation measures are proposed.	Y	Y	
Non-indigenous heritage	The proposed works will involve the permanent removal of heritage fabric, including 3 cast iron columns at the northern end of Platforms 8/9 and 10. This will enhance pedestrian movement through the site, including from the Main Concourse and Metro Station and improve the operational efficiency of this high traffic area.	As described above, control measures will be implemented at construction stage. No additional mitigation measures are proposed at operational stage.	N	Y	
Community and stakeholder	No change to the operational impacts described in the Approved Project.	No additional mitigation measures are proposed.	Y	Y	
Traffic	No change to the operational impacts described in the Approved Project.	No additional mitigation measures are proposed.	Y	Y	

Aspect	Nature and extent of impacts (negative and positive) during operation (if control measures implemented) of the proposed activity/works, relative to the Approved Project	Proposed Control Measures in addition to project COA and REMMs	Minimal Impact Y/N	Endorsed	
				Y/N	Comments
Waste	No change to the operational impacts described in the Approved Project.	No additional mitigation measures are proposed.	Y	Y	
Social	No change to the operational impacts described in the Approved Project.	No additional mitigation measures are proposed.	Y	Y	
Economic	No change to the operational impacts described in the Approved Project.	No additional mitigation measures are proposed.	Y	Y	
Visual	When compared with the approved project, the visual impact of the proposed works is positive. The single vaulted design is designed to enhance the visual relationships with the existing heritage fabric of the station.	No additional mitigation measures are proposed.	Y	Y	
Urban design	No change to the operational impacts described in the Approved Project.	No additional mitigation measures are proposed.	Y	Y	
Geotechnical	No change to the operational impacts described in the Approved Project.	No additional mitigation measures are proposed.	Y	Y	
Land use	No change to the operational impacts described in the Approved Project.	No additional mitigation measures are proposed.	Y	Y	
Climate Change	No change to the operational impacts described in the Approved Project.	No additional mitigation measures are proposed.	Y	Y	
Risk	No change to the operational impacts described in the Approved Project.	No additional mitigation measures are proposed.	Y	Y	
Other	N/A	N/A	Y	Y	

Aspect	Nature and extent of impacts (negative and positive) during operation (if control measures implemented) of the proposed activity/works, relative to the Approved Project	Proposed Control Measures in addition to project COA and REMMs	Minimal Impact Y/N	Endorsed	
				Y/N	Comments
Management and mitigation measures	The proposed works will involve the permanent removal of heritage fabric at the northern end of Platforms 8/9 and 10.	As described above, control measures will be implemented at construction stage. No additional mitigation measures are proposed at operational stage.	Y	Y	

12.0 Consistency with the Approved Project

Based on a review and understanding of the existing Approved Project and the proposed modifications, is there is a transformation of the Project?	No. The proposed works would not transform the project. The Approved Project would continue to provide a new metro line between Chatswood and Sydenham, within the Central Station precinct. The proposed works provided for a new Northern Concourse, involving removal of nominated heritage fabric now proposed over a small additional area.
Is the project as modified consistent with the objectives and functions of the Approved Project as a whole?	Yes. The proposed works will assist the Approved Project to achieve its objectives and functions.
Is the project as modified consistent with the objectives and functions of elements of the Approved Project?	Yes. The proposed works are consistent with the objectives and functions of the Northern Concourse area within the Approved Project.
Are there any new environmental impacts as a result of the proposed works/modifications?	Yes. There will be a minor increase in removal of heritage fabric localised at the northern end of Platforms 8/9 and 10. The nature of impacts are consistent with the broad scope of approved demolition work and appropriate mitigation and management measures have been documented (refer Appendix B).
Is the project as modified consistent with the conditions of approval?	Yes. The HIA submitted with the EIS identified that there would be impacts associated with demolition of significant fabric at Central Station (refer Technical Paper 4, p.211, and Mod 2, Appendix E, p. 3). The EIS also acknowledged that design of the Northern Canopy was subject to further development (refer EIS Chapter 6, p. 164) and the demolition works subject of this Consistency Assessment are the result of detailed design resolution of the approved scope of work.
Are the impacts of the proposed activity/works known and understood?	Yes. The impacts of the proposed works are known and understood. Detailed site plans and construction methodologies will be in place to outline the proposed works and specialist reports have been prepared to assess the impacts and to guide the works, including the attached Heritage Impact Assessment (Appendix B) and CAS-E Northern Concourse Enabling Work.
Are the impacts of the proposed activity/works able to be managed so as not to have an adverse impact?	Yes, appropriate management and mitigation strategies will be implemented to minimise the impact. The removal of the nominated bridging structures and platform access area roof within the Northern Concourse, and installation of a new steel canopy will have moderate heritage impact associated with the removal of the original structure. The impact of this will be mitigated by the positive outcomes associated with the work and the salvage of nominated components for potential reuse in the future. The heritage impact of the work is further mitigated by the retention of similar elements

	within the station, including bridging structures to the west of Platform 8 and the ironwork of the awning structure at the western entrance, in addition to archival photographic recording of the area. The impacts would not adversely affect the heritage significance of Central Station overall or its primary elements. Refer to attached Heritage Impact Assessment (Appendix B). The relevant conditions of approval, revised environmental management measures and control measures identified in this assessment would be implemented before and during the proposed works to ensure they do not have an adverse impact on the surrounding environment.

13.0 Other Environmental Approvals

Identify all other approvals required for the project:	Out of hours works approval.

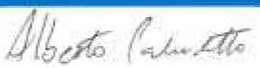
Author certification

To be completed by person preparing checklist.

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 Revision; and • Examines the consistency of the Proposed Revision with the Approved Project; is accurate in all material respects and does not omit any material information.			
Name:	Hussain Nilar	Signature:	
Title:	Environmental Advisor		
Company:	Laing O'Rourke	Date:	18/10/2019

Environmental Representative Review

(Additional step for City & Southwest projects only – if this is a CA against a Northwest Project or REF delete this table)

As an approved ER for the Sydney Metro City & Southwest project, I have reviewed the information provided in this assessment. I am satisfied that mitigation measures are adequate to minimise the impact of the proposed work.			
Name:	Alberto Paludetto	Signature:	
Title:	Environ. Representative	Date:	18/10/19

This section is for Sydney Metro only.

Application supported and submitted by			
Name:	Yvette Buchli	Date:	18/10/19
Title:	Planning Approvals Manager	Comments:	
Signature:			

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

Yes ☒ The proposed activity/works are consistent and no further assessment is required.

No ☐ The proposed works/activity is not consistent with the Approved Project. A modification or a new activity approval/ consent is required. Advise Project Manager of appropriate alternative planning approvals pathway to be undertaken.

Endorsed by			
Name:	FIL CRONE	Date:	29/10/19
Title:	~~Principal Manager~~ DIRECTOR ~~Northwest~~/City & Southwest, Sustainability, Environment & Planning	Comments:	
Signature:			

Appendix A

Figure 1: Platform access area between the Main Concourse and Intercity Platforms showing bridging structure at the northern end of Platforms 8/9.

Figure 2: Detail view of truss structure of platform access area roof adjacent to the East Wing of the Main Terminus.

Appendix B Heritage Impact Assessment NC

OCP ARCHITECTS

SYDNEY METRO CITY & SOUTHWEST

CENTRAL STATION MAIN WORKS

HERITAGE IMPACT ASSESSMENT

STAGE 3 SUBMISSION: NORTHERN CONCOURSE

Prepared for Laing O'Rourke Australia

Revision C – 3 July 2019

Job No. 18014

Studio 7, Level 1, 35 Buckingham Street, Surry Hills 2010 | 02 9319 4126 | www.ocp.net.au | Otto Cserhalmi NARN 4079

Cover Image

Central Station Northern Concourse.
Source: Sydney Metro Design Team

Report Register

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

Document status:

Revision	Date	Purpose	Written
A	18 June 2019	Issue for review of Stage 3 documentation	KU
B	28 June 2019	Minor revision for LOR	KU

CONTENTS

1 INTRODUCTION

This heritage impact assessment (HIA) has been prepared to assess the impact of Stage 3 design works required to facilitate construction of the Central Station Main Works, approved under the Sydney Metro City & Southwest Chatswood to Sydenham project (SSI 15_7400, approved 9 January 2017 and Modification 2 approved on 21 December 2017). It has been prepared in accordance with the requirements of SWTC Appendix B06 (Item 2.2(a)(ii)) and structured in accordance with the Transport for NSW *Management Requirements – Technical Management – Central Station Main Works (MR-T)*, 22 February 2018, Annexure C: Specific Design Documentation, Item C7 Heritage Works.

This report specifically addresses design works associated with the Northern Concourse, which is one design package of the overall Central Station Main Works project. The Northern Concourse design provides a new surface level interchange concourse linking the Metro to Suburban and Intercity Platforms as well as providing a new entrance for Central and extension to the Grand Concourse to create an integrated and generous concourse commensurate with the status of Central Railway Station as the largest railway station and transport interchange in NSW.

The HIA has been prepared to identify the overall trend of heritage impact associated with the project as the detailed design is progressively resolved. It does not address heritage impacts to known or potential archaeological resources.

1.1 Assessment Methodology

This HIA has been prepared on the basis of the NSW Heritage Division guideline *Statements of Heritage Impact*, which forms part of the NSW Heritage Manual prepared by the then Heritage Office and Department of Urban Affairs and Planning in 1996. The principles contained in the Australian ICOMOS *Charter for the Conservation of Places of Cultural Significance (The Burra Charter)* 2013 are also used as a methodology for assessing heritage impact.

The assessment of heritage significance is based on consideration for the assessments provided in the *Central Station Conservation Management Plan*, prepared by Rappoport P/L and the NSW Government Architect's Office in June 2013 (*Central Station CMP*), which included gradings of significance for the major elements of the site and some components. It is noted, however, that the CMP has not been endorsed by the NSW Heritage Council and while it provides a foundation for the assessment and grading of significance, some revisions to the gradings are required and measures have been taken to address this in specific instances. Reassessment of gradings of significance has already occurred for some specific areas of Central Station in consultation with the Office of Environment and Heritage during the course of preparing documentation for the CSMW project to date.

1.2 Basis of Assessment

This HIA has been informed by a review of the following CSMW documentation prepared by Woods Bagot and John McAslan+Partners:

Drawing Set: ***Central Station Main Works Architecture*** **Dwg. No. Prefix: SMCSWCSM-WBA-BD-70-DWG-AT-**					
Drawing Title	**Dwg. No.**	**Revision**	**Drawing Title**	**Dwg. No.**	**Revision**
Existing Site Plan - Northern Concourse Level	007010	C, 31/05/19	*Section 1*	740001	C, 31/05/19
Overall General Arrangement Plan - Northern Concourse Level	007020	C, 31/05/19	*Section 2*	740002	C, 31/05/19
Reflected Ceiling Plan - Northern Concourse Level	007030	C, 31/05/19	*Section 3*	740003	C, 31/05/19
Existing Site Plan - Intercity Platform Level	009010	C, 31/05/19	*Section 4*	740004	C, 31/05/19
Overall General Arrangement Plan - Intercity Platform Level	009020	C, 31/05/19	*Section 5*	740005	D, 31/05/19
Reflected Ceiling Plan -Intercity Platform Level	009030	C, 31/05/19	*Section 6*	740006	D, 31/05/19
Existing Site Plan - Roof Level	009110	C, 31/05/19	*Section 7*	740007	D, 31/05/19
Overall General Arrangement Plan - Roof Level	009120	C, 31/05/19	*Central Electric Building_Northern Concourse Level Plan*	827001	C, 31/05/19
Demolition Plan - Northern Concourse Level - Sheet 1 of 3	117001	C, 31/05/19	*Central Electric Building_NC_Level Reflected Ceiling Plan*	827003	C, 31/05/19
Demolition Plan - Northern Concourse Level - Sheet 2 of 3	117002	C, 31/05/19	*Eastern Range_Northern Concourse Level Plan*	827001	A, 31/05/19
Demolition Plan - Northern Concourse Level - Sheet 3 of 3	117003	C, 31/05/19	*Lantern Roof Level*	829101	C, 31/05/19
Demolition Plan - Intercity Platform Level - Sheet 1 of 3	119001	C, 31/05/19	*Fall Arrest Systems details*	829104	A, 31/05/19
Demolition Plan - Intercity Platform Level - Sheet 2 of 3	119002	C, 31/05/19	*Central Electric Building Elevation_East*	837011	C, 31/05/19
Demolition Plan - Intercity Platform Level - Sheet 3 of 3	119003	C, 31/05/19	*Central Electric Building Elevation_West*	837012	C, 31/05/19
Demolition Plan - Roof Level - Sheet 1 of 3	119101	C, 31/05/19	*Central Electric Building Elevation_South*	837013	D, 31/05/19
Demolition Plan - Roof Level - Sheet 2 of 3	119102	C, 31/05/19	*Eastern Range_Northern Concourse Level Elevations*	837021	C, 31/05/19
Demolition Plan - Roof Level - Sheet 3 of 3	119103	C, 31/05/19	*Service Riser Layout Details*	837031	C, 31/05/19

Drawing Set: ***Central Station Main Works Architecture*** **Dwg. No. Prefix: SMCSWCSM-WBA-BD-70-DWG-AT-**					
Demolition South Elevation	130001	C, 31/05/19	*Northern Screen Plans and Elevation*	837051	D, 31/05/19
Demolition East Elevation	130002	C, 31/05/19	*Eastern Louvre Elevation - Detail*	839001	C, 31/05/19
Demolition West Elevation	130003	C, 31/05/19	*Western Louvre Elevation - Detail*	839002	C, 31/05/19
Demolition North Elevation	130004	C, 31/05/19	*Northern Louvre Elevation - Detail*	839003	A, 31/05/19
Demolition Section 1	140001	C, 31/05/19	*Canopy to Existing Platform Interface*	839011	C, 31/05/19
Demolition Section 2	140002	C, 31/05/19	*Central Electric Building_Section 1*	847011	C, 31/05/19
Demolition Section 3	140003	C, 31/05/19	*Central Electric Building_Section 2*	847021	C, 31/05/19
Demolition Section 4	140004	C, 31/05/19	*Canopy Typical Section*	849001	C, 31/05/19
General Arrangement Plan - Northern Concourse Level - Sheet 1 of 2	317001	C, 31/05/19	*Western and Eastern End Lower Canopy Sections*	849002	C, 31/05/19
General Arrangement Plan - Northern Concourse Level - Sheet 2 of 2	317002	C, 31/05/19	*Transitional Roof Section*	849003	C, 31/05/19
General Arrangement Plan - Intercity Platform Level - Sheet 1 of 3	319001	C, 31/05/19	*Concrete Soffit Detail*	857002	C, 31/05/19
General Arrangement Plan - Intercity Platform Level - Sheet 2 of 3	319002	C, 31/05/19	*Central Electric Building Wall Details*	857011	C, 31/05/19
General Arrangement Plan - Intercity Platform Level - Sheet 3 of 3	319003	C, 31/05/19	*Central Electric Building Plinth Details*	857012	C, 31/05/19
Heritage Plan – Northern Concourse Level	319061	C, 31/05/19	*Central Electric Building Glazed Screen details*	857015	A, 31/05/19
Heritage Plan - Intercity Platform Level	319062	C, 31/05/19	*Eastern Range_NC Level Wall Details*	857021	C, 31/05/19
General Arrangement Plan - Roof Level - Sheet 1 of 3	319101	C, 31/05/19	*Typical Platform Edge Details*	859007	A, 31/05/19
General Arrangement Plan - Roof Level - Sheet 2 of 3	319102	C, 31/05/19	*Lantern Heritage Interface - Detail 1*	859011	C, 31/05/19
General Arrangement Plan - Roof Level - Sheet 3 of 3	319103	C, 31/05/19	*Northern Concourse Lift Details – Sheet 1*	870001	C, 31/05/19

Drawing Set: ***Central Station Main Works Architecture***					
Dwg. No. Prefix: SMCSWCSM-WBA-BD-70-DWG-AT-					
Heritage Plan - Roof Level	319163	C, 31/05/19	*Northern Concourse Lift Details – Sheet 2*	870002	A, 31/05/19
Reflected Ceiling Plan - Northern Concourse Level - Sheet 1	517001	C, 31/05/19	*Escalator Details - Sheet 1*	870011	C, 31/05/19
Reflected Ceiling Plan - Northern Concourse Level - Sheet 2	517002	C, 31/05/19	*Escalator Details - Sheet 2*	870012	C, 31/05/19
Reflected Ceiling Plan - Intercity Platform Level - Sheet 1	519001	C, 31/05/19	*Escalator Details - Sheet 3*	870013	C, 31/05/19
Reflected Ceiling Plan - Intercity Platform Level - Sheet	519002	C, 31/05/19	*Stair Details - Sheet 1*	870021	D, 31/05/19
Reflected Ceiling Plan - Intercity Platform Level - Sheet 3	519003	C, 31/05/19	*Stair Details - Sheet 2*	870022	C, 31/05/19
South Elevation	630001	C, 31/05/19	*Stair Details - Sheet 3*	870023	D, 31/05/19
East Elevation	630002	C, 31/05/19	*Stair Details - Sheet 4*	870024	A, 31/05/19
West Elevation	630003	C, 31/05/19	*Roller Shutter Door Details*	880201	A, 31/05/19
North Elevation - Sheet 1 of 2	630004	C, 31/05/19	*Roller Shutter Door Details – Sheet 2*	880202	A, 31/05/19
North Elevation - Sheet 2 of 2	630005	C, 31/05/19			

OTHER DOCUMENTS
Central Station Main Works, Grand and Northern Concourse - Design Report, Revision D1, 26 April 2019 - SMCSWCSM-WBA-BD-70-REP-AT-700001
Central Station Main Works, Grand and Northern Concourse - Design Report Appendices *Package 3 Architectural Fitout*, Package 70, Revision A01, 26 April 2019 - SMCSWCSM-WBA-BD-70-REP-AT-700002
Central Station Main Works, Specification, Revision A3, Woods Bagot, 23 April 2019 (reviewed in part)
Presentation for HWG 37 on 15 January 2019
Presentation for HWG 39 on 8 April 2019
Presentation for DRP 07 on 4 June 2019

2 DESCRIPTION OF THE PLACE

The Northern Concourse design package extends through two precincts of the site - Sydney Terminal (Precinct 3) and Central Electric (Precinct 5), as described in the *Central Station Conservation Management Plan*, prepared by Rappoport P/L and the NSW Government Architect's Office in June 2013 (*Central Station CMP*).

2.1 Sydney Terminal & Intercity Platforms (Precinct 3)

The Sydney Terminal precinct is largely characterised by the iconic Neo-Classical Main Terminus building with its Grand Concourse, and also includes the 'country and interstate platforms' (Intercity Platforms) situated behind the concourse. The precinct demonstrates the hierarchy of building materials used across the site, with the Main Terminus being built almost entirely of sandstone, with the exception of a small portion of the first floor level of the East Wing, which was constructed in brick, albeit with sandstone details. The north, east and west elevations of the Grand Concourse (effectively at the rear of the Main Terminus building) are of red brickwork with sandstone detailing.

FIGURE 2.1: GRAND CONCOURSE IN CENTRAL STATION, LOOKING EAST.
SOURCE: PETER MILLER, 8 JULY 2013,
HTTPS://WWW.FLICKR.COM/PHOTOS/64210496@N02/9255114826

FIGURE 2.2: VIEW OF EAST WING OF THE MAIN TERMINUS BUILDING, WITH INTERCITY PLATFORM CANOPIES AT RIGHT FORE AND MID GROUND.
SOURCE: OCP ARCHITECTS, 2018

Adjacent to the Main Terminus, the Grand Concourse is surmounted by a wide-span barrel vaulted roof containing exposed painted metal arch truss supports which are original features. The space between the Main Concourse and the platforms to the south is open but fringed by an arched, decorative iron lattice work grille on columns, original to the construction of the concourse. The floor of the concourse is constructed of mass concrete held up by a brick vaulted support system relying on wrought iron beams, spanning between brick piers at basement level.

The platform access areas was built between the Main Concourse and the platforms in order to provide a sheltered link between the two. It extends from Platforms 4 to 11 and then wraps around the East Wing of the Main Terminus. Shelter is provided by way of a raked roof and a series of bridging structures extending to the canopies of the Intercity Platforms. The roof is supported by raked steel trusses, connected to the iron lattice of the Grand Concourse at one end, and transverse trusses supported on decorative cast iron columns. The roof is clad in corrugated sheeting of modern origin and the roof edges are clad with decorative timber valences consistent with other historic elements of the station.

FIGURE 2.3: PLATFORM ACCESS AREA BETWEEN THE GRAND CONCOURSE AND INTERCITY PLATFORMS SHOWING BRIDGING STRUCTURE AT THE NORTHERN END OF PLATFORMS 8/9.

FIGURE 2.4: DETAIL VIEW OF TRUSS STRUCTURE OF PLATFORM ACCESS AREA ROOF ADJACENT TO THE EAST WING OF THE MAIN TERMINUS.

2.2 Central Electric (Precinct 5)

The Central Electric Station is located to the east of the Sydney Terminus. At the northern end of the precinct, the six tracks are carried on a viaduct towards the Terminal, with bridges over Campbell Street, Hay Street and Eddy Avenue. To the south of the Central Electric Station the tracks are carried by flyovers to link up the lines which serve the Terminal.

Accessed from Eddy Avenue and the associated ramped forecourt is the main northern entry to the precinct in an area that was excavated for construction of Central Electric Station in 1926. The Northern Concourse is entered through a central sandstone arch in the northern façade of the Central Electric building, a sandstone building of Neo-classical architectural style. The continued use of sandstone for this station exemplifies the distinctive and predominant use of this material for important public sites in the early twentieth century.

FIGURE 2.5: NORTH FAÇADE OF THE CENTRAL ELECTRIC BUILDING SHOWING THE CENTRAL ARCH WHICH FORMS THE MAIN ENTRY TO THE NORTHERN CONCOURSE.

FIGURE 2.6: CENTRAL ELECTRIC BUILDING (LEFT) ADJACENT TO THE MAIN TERMINUS EAST WING, VIEWED FROM THE EDDY AVENUE FORECOURT.

3 PROPOSED DESIGN AND IMPACT ASSESSMENT – NORTHERN CONCOURSE

The Northern Concourse forms the entrance to the Metro and provides a unifying concourse with access for the whole of Central, linking the Metro to Suburban and Intercity Platforms as well as providing a new entrance for Central and extension to the Main Concourse. The CSMW works for the Northern Concourse are localised at the northern end of the Intercity Platforms (8 to 15) adjacent to the Main Concourse, East Wing and Central Electric Building at the upper level and also include works at the lower concourse level in the vicinity of the Eddy Avenue entrance to the station. The works will connect with nominated Intercity Platforms and the new North-South Concourse for the Metro Box, which have been documented in separate design packages (Packages 12 & 13 and Metro Box Package 10 respectively). This HIA focuses specifically on the works for the Northern Concourse, which includes the following key components that are part of the approved scope of work:

1. New canopy over the Northern Concourse, extending around the East Wing of the Main Terminus and over the Central Electric Building at the northern end of Platforms 8 to 15.
2. Demolition and excavation work to the south of the Central Electric Building to establish a void adjacent to the building at the upper concourse level.
3. Demolition works affecting a range of elements, including:
   - existing vertical transport elements (escalators and stairs between upper and lower concourse including bounding wall, including stairs in Central Electric Building and stairs to Olympic Tunnel);
   - modern steel canopy at the northern end of Platforms 9 and 10;
   - portion of Olympic Tunnel;
   - canopies and structure over the Northern Concourse (upper concourse level) including partial demolition of platform canopy structures (Platforms 8 to 15), TCAC loft and office building above Platform 14/15, infill awnings between Platform 11 & Platform 12 and Platform 13 & Platform 14;
   - platform control box and retail outlet (northern end Platforms 8/9 and 10/11);
   - select OHWS;
   - existing floor finishes.
4. New infill floor between Platform 9 and 10 and Platform 11 and 12 to increase concourse circulation and associated demolition of buffer stops, 'pool' fencing and part rail tracks.
5. New vertical transport facilities to connect the upper and lower concourse levels.
6. Removal / relocation of existing barrier gates (lower concourse level).

3.1 Northern Concourse Design Development

The previously submitted architectural design Stages 1 and 2 developed the following aspects of the approved proposal:

Lower Concourse Level

- Additional excavation and demolition of existing upper concourse floor to the south of the Central Electric Building and extending around the southern end of the Main Terminus East Wing; consequent revealing of the lower structure of these buildings for new finishes and an increase in void area at the upper concourse level.
- Demolition of select columns in the lower concourse to enhance circulation, enhanced structural support for Central Electric Building and architectural treatment to the base of the building.
- Consolidation of services at lower concourse level within the south west corner of the East Wing.

Upper Concourse Level (Intercity Platforms)

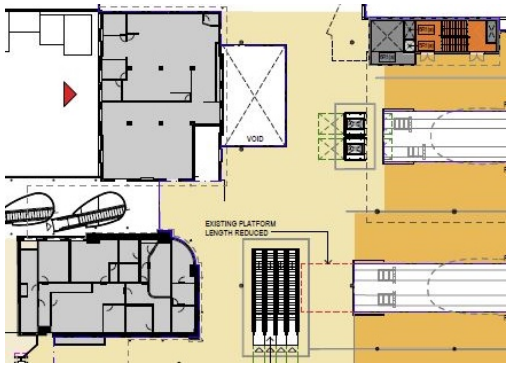
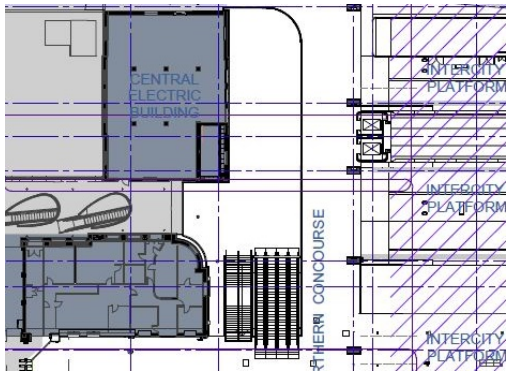
- Modification of existing openings on Central Electric Building involving substitution of window and door openings on south and east facades of the Central Electric building to respond to the new arrangement adjacent to the void. Work includes salvage of 1/No. window and fanlight from the eastern elevation for reinstatement within existing door opening on south elevation, making good stonework to match existing and enlarging affected east window opening as a doorway.
- Enclosure of opening on west façade of Central Electric Building (entrance to stairway to be demolished).
- Removal of annex and suspended awning over existing door opening, south façade Central Electric Building.
- Extension of screen between East Wing and Central Electric Building for rain protection.
- Development of the relationship between the existing platform canopy roof structures and new Northern Concourse canopy, including proposed reuse of salvaged platform canopy columns, relocated in alignment with existing platform columns at the north end of Platforms 8/9 and 10/11.
- Development of wall geometry at upper concourse level to enhance connection between vertical transport elements connecting the Grand Concourse to the Metro Concourse.

Roof Level

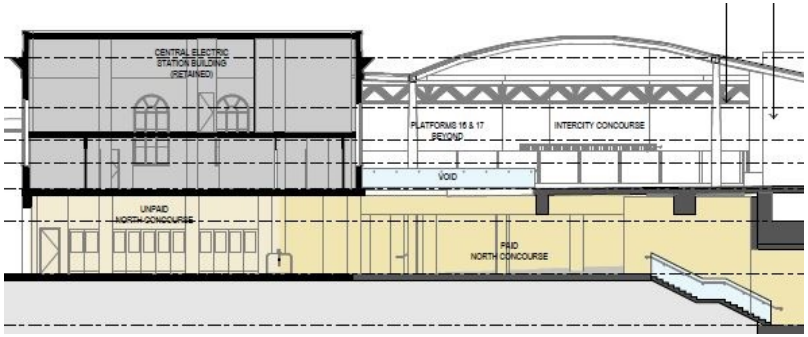
- Development of the new Northern Canopy to be a single vaulted design to enhance visual relationships with the existing heritage fabric of the station; increase in the slope of roof canopy to address hail storm considerations.
- Development of the architectural treatment of the new canopy roof junction with the East Wing.
- Localised demolition of roof of the Central Electric building to allow for new columns and transfer beams to support new canopy.
- Addition of a projecting spoiler extending from the new canopy over the platform canopies to provide continuous weather protection.

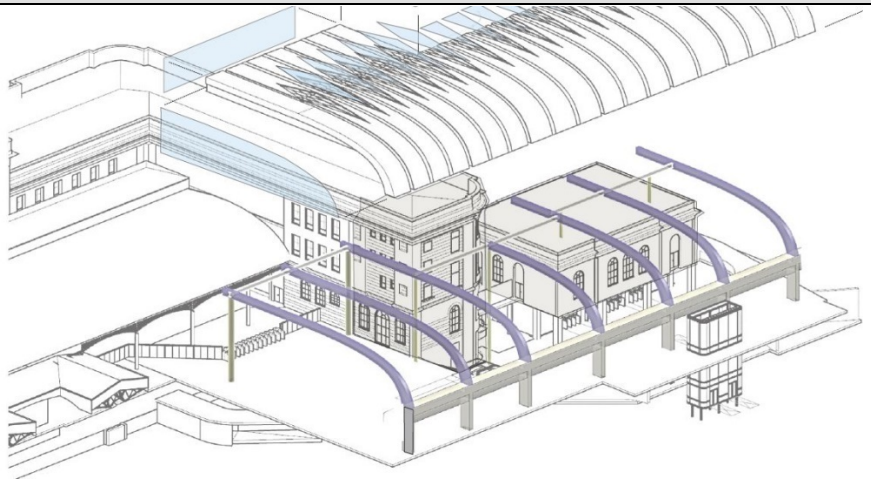
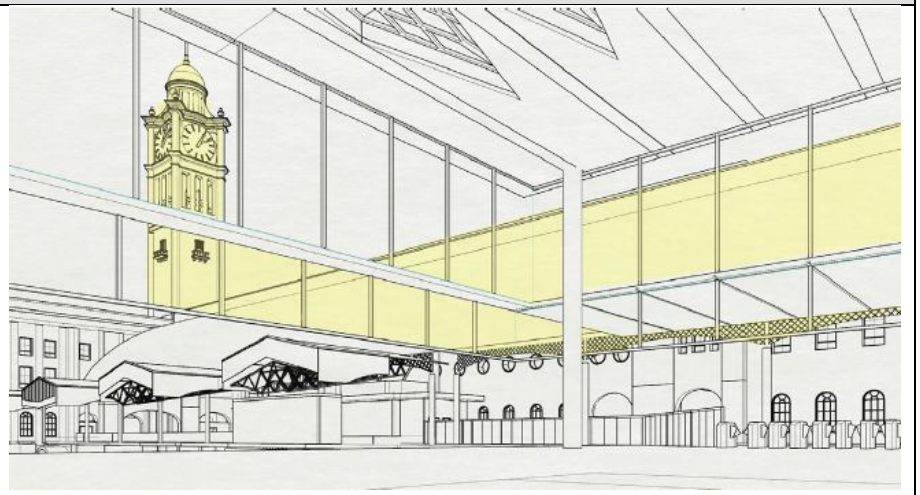
The previous design work demonstrated progressive resolution of detailed aspects of the proposal with consideration for avoiding unnecessary heritage impacts while complementing and enhancing the heritage values of Central Station. The Stage 3 design works have continued to resolve aspects of the detailed design, which are assessed in this HIA in addition to heritage implications of earlier design changes not previously subject to specific heritage assessment. While some additional heritage impacts have been identified as a result of design development, these are balanced against positive outcomes that have resulted from the changes in addition to the functional considerations. In specific instances in accordance with best practice, options have been considered to determine the best approach with regard to heritage significance, the functional requirements and existing constraints at the site.

3.2 Northern Concourse – Assessment of Previous Design Changes

Description of New Design Work Developed During Previous Design Stages				
NORTHERN CONCOURSE				
Item	**Work**	**Image**	**Significance**	**Heritage Impact Assessment**
1	Additional excavation and demolition of upper concourse floor adjacent to Central Electric Building and Main Terminus East Wing.	 Detail from Reference Drawing *Surface Platform Level – Zone D* showing localised void around Central Electric, Dwg. 838334.  Detail from Stage 3 Architectural Drawings *General Arrangement Plan – Intercity Platform Level* showing proposed void (shaded red), Dwg. 009020	**Exceptional** (Main Terminus overall, including East Wing) **High** (Central Electric overall) **Little** (brick paved concourse surfaces)	The inclusion of a large void adjacent to the Central Electric Building was part of the approved design. Much of the void occupied an area that was already open at the lower concourse level, with stair and escalator also installed, however some excavation works would be required at the western end. As such, the increased demolition of the concourse floor and excavation works in principal will not greatly alter the nature of heritage impact to those approved, although this is now also proposed directly adjacent to a building of Exceptional heritage significance – the Main Terminus East Wing. Works are not proposed to affect the existing masonry fabric of the buildings as they will occur from the 'ground' (upper concourse level) down, however the work must be undertaken with due care to avoid damage to the heritage fabric, including: - Temporary protection measures for retained heritage fabric should be implemented in accordance with the requirements of CAS-C *Temporary Protection of Retained Elements*. - Measures to limit vibration must be implemented to avoid impacts to surrounding fabric, including saw cutting set back from the building edges to isolate vibration from the structures prior to bulk

Description of New Design Work Developed During Previous Design Stages				
NORTHERN CONCOURSE				
Item	**Work**	**Image**	**Significance**	**Heritage Impact Assessment**
				excavation works. Vibration impacts must be managed in accordance with the CSMW *Construction Noise and Vibration Management Plan*. - Any demolition or excavation work within close proximity to the foundations of the adjacent structure, e.g. footings, floor slabs, abutting walls, is to be undertaken with particular care and in accordance with appropriate structural engineering and geotechnical advice so as to not undermine the stability of the structure. - Demolition is to be carried out by specialist construction personnel, with experience working with heritage fabric. - This area of the site is denoted 'CS 2' in the *Central Station Main Works – Station Box and Sydney Yards Archaeological Method Statement*, Artefact Heritage, August 2018, part of the former Devonshire Street Cemetery site. Archaeological mitigation measures must be undertaken in accordance with the recommendations of this AMS. The design has been developed with consideration for the presentation of the existing buildings (refer Items F and G below) and the desire to improve the architectural response to the space overall and is not anticipated to have an adverse heritage impact when implemented in accordance with the above recommendations.

Description of New Design Work Developed During Previous Design Stages				
NORTHERN CONCOURSE				
Item	**Work**	**Image**	**Significance**	**Heritage Impact Assessment**
2	Development of new canopy to be a single vaulted design.  Early design section through Grand Concourse and double vaulted roof (from concept design Dwg. 838502, February 2017)  Early design section showing double vaulted roof adjacent to Central Electric Building (from concept design Dwg. 838581, February 2017)		**Exceptional** (Main Terminus overall, including East Wing) **High** (Central Electric overall) More detailed gradings of elements are included for relevant components with the assessments provided below.	During the early stages of design development, a notable change from the original design concept (as shown in the adjacent images) was the decision to raise the northern edge of the new canopy, effectively establishing a single vaulted roof. This was presented at early Heritage Working Group meetings in 2018. The driver of the change in roof design was consideration for improved heritage interfaces and visibility to key elements that define the character of Central Station, including the Main Concourse vaulted roof and the Clock Tower. The resultant positive heritage impacts are manifold as the change facilitates: • increased glazing on west side, with raised roof edge enhancing views to the Clock Tower; • glazing to the northern edge and views through to the Main Concourse roof, including enhanced presentation of curved lattice fringe; • natural light into the space, which is currently gloomy; • rationalisation of the current presentation in this area, including cluttered arrangement of early structures and services accretions; • enhanced presentation of the East Wing.

Description of New Design Work Developed During Previous Design Stages		
NORTHERN CONCOURSE		
	 Axonometric view showing early design development of Northern Canopy roof. Source: Presentation for HWG 03, 6 August 2018, Woods Bagot / John McAslan+Partners	 Perspective showing view to Clock Tower and Grand Concourse roof available from single vaulted canopy design. Source: Presentation for HWG 03, 6 August 2018
2a	The adverse heritage impacts of raising the northern edge of the new canopy roof are identified below along with an assessment of the heritage impact. 1. New columns through the roof of Central Electric Building to support the canopy, which extends partially over the existing building. While the Central Electric Building overall is assessed to be of **High** significance, the roof fabric is not original and its form has also been modified by the addition of a lantern to operate as a mechanical vent in conjunction with introduced services. The current corrugated roof cladding is of **Little** significance, while exposed services are **Intrusive**. The general hipped form of the roof is of **Moderate** significance. The minor localised penetration into the roof fabric for two new support columns will affect fabric of low heritage significance that is not visually prominent, noting that the roof is concealed by a parapet on all four sides of the building. This change will not alter the general form of the roof. The new structure is to be positioned in accordance with structural engineering advice in alignment with the column supports of the existing building to minimise changes to the building interior. The impact of this work is minor and it will not adversely affect the overall significance of the Central Electric Building.	

Description of New Design Work Developed During Previous Design Stages		
NORTHERN CONCOURSE		
	 Aerial view of the Central Electric Building Roof showing central ventilation lantern. (Google Maps 2019)	 Stage 3 axonometric view to the south façade of Central Electric building at the upper concourse level showing penetrations for new columns supports. (Detail from Stage 3 Dwg. 319062)
2b	2. Views to Central Electric Building The following assessment of current views to the Central Electric Building is used as a basis for assessing the heritage impact on views to the building associated with the change in roof design.	
	 Views to north façade from Eddy Avenue entrance and surrounds: **High** The primary entrance façade of the building remains largely unaltered and clear views to it remain available.	 Views to the east façade from service access ramp and Suburban rail lines: **Moderate** While the east façade remains largely unencumbered by later additions, views to it are not readily accessible and are considered to be secondary in nature.

Description of New Design Work Developed During Previous Design Stages

NORTHERN CONCOURSE

Views to the south façade from the northern concourse area:

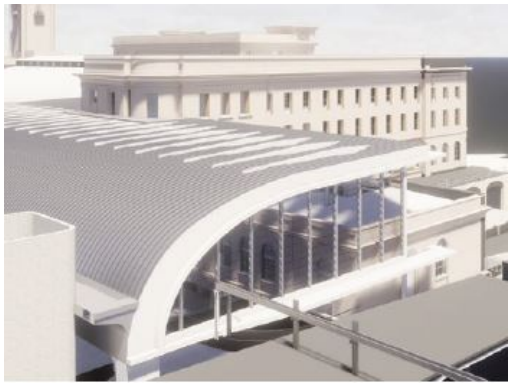
Moderate

Views to the south façade of the building are readily available to the travelling public, however these have been compromised by various awning structures and service additions constructed adjacent to it.

Views to the west façade:

Moderate

Views to the west façade from the concourse area are filtered by an Intrusive perforated metal screen. Available views from the East Deck have been compromised by construction of the Intrusive awning constructed above the deck.



3D rendering of new Northern Concourse canopy roof over Central Electric Building, showing new structure adjacent to the east façade.

The approved design would have a negligible effect on existing views, with all new structure confined to the south of Central Electric, below the parapet level (refer image on Page 13 above). The development of a single vaulted canopy that sails above Central Electric affects existing views to the building in the following ways:

- Views to north façade: There will be no obstruction of existing views to the north façade of the Central Electric Building arising from the change in the roof design. The view will be altered to a degree by the new canopy effectively providing a backdrop where it is above the existing building, however the new development has been designed to ensure that Central Electric remains prominent so that the impact of this change is minor. Mitigating design strategies include:

  a. Setting the front edge of the canopy well behind the front edge of the building.

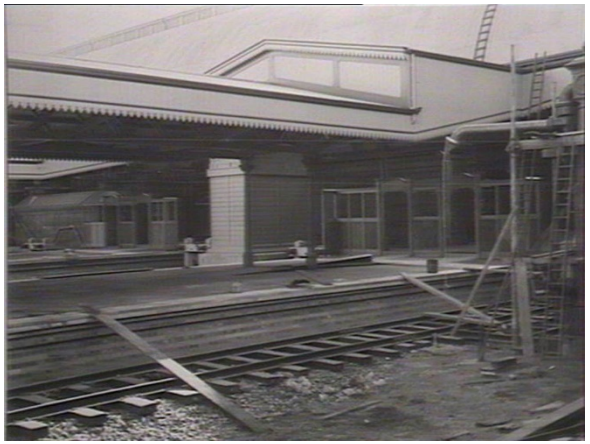
  b. Adopting a simple geometry that is light in colour and not heavily adorned.

- Views to east facade: The impact on existing views to the east façade, where one new canopy support column and awning edge will be positioned adjacent, will be minor. The new structure will be set with sufficient clearance from the sandstone wall to allow access for maintenance and the column is not aligned with any openings in the façade.

Description of New Design Work Developed During Previous Design Stages		
NORTHERN CONCOURSE		
	 3D rendering of new Northern Concourse canopy roof over Central Electric Building, showing exposed south façade.	- Views to the west façade: The impact on existing views to the west façade associated with the altered roof design will be negligible. One new canopy support column will be positioned to the west of Central Electric at a distance of several metres from the façade. - Views to the south façade: The altered roof design enables the full extent of the south façade of the building to be revealed, thus enhancing visual access to this façade in conjunction with removal of existing canopies as approved. This results in considerable positive impact, facilitating greater appreciation of the building and enhancing its presentation to the concourse area.
2c	3. Removal of raked roof and bridging structures at the northern end of Platforms 8/9 and 10. In raising the northern end of the new canopy roof to achieve an improved design and heritage outcome as described above (page 13), some of the existing structures within the platform access area adjacent to the Main Concourse will need to be removed. The fabric specifically affected comprises the bridging structures at the northern end of Platforms 8/9 and 10, including: • raked roof over platforms access area; • timber valences to bridging structures and edge of platform access area; • raked and transverse truss structure supporting affected bridging structures; and • 3/No. cast iron columns with integrated downpipes. The platform access area roof and bridging structures are part of the original design solution to ensure continuous cover over the area between the Main Concourse and the Intercity Platforms. An early image dating to 1906 shows one of the newly completed bridging structures with original details intact (refer below). A comparison with the current presentation of these structures indicates a number of modifications to the bridging structures, however it is evident that the overall form and primary structure remain intact.	

Description of New Design Work Developed During Previous Design Stages

NORTHERN CONCOURSE



General view of Platforms, newly constructed at Central Station 1906. (Source: NSW State Library, NSW Government Printing Office 1 – 10621).

Current view of bridging structure at the northern end of Platforms 8/9, showing a number of modifications that have occurred over time.

Bridging and roof structure to be removed at the northern end of Platforms 8/9, including supporting trusses and paired cast iron columns at the junction with platform awnings.

As original components of the design solution for Central Station with a reasonable degree of original fabric (in particular steel truss and column structure), the bridging structures may be regarded as being of **High** significance overall. It is noted, however, that the structures do not present a well-resolved design outcome in the context of the grand aesthetic character of the major features of the station and their overall significance has been compromised by intrusive alterations, including truncation of the end detail of timber valences in some areas, replacement of gable end cladding to non-traditional detail and removal of original finishing details. With these considerations in mind, the bridging structures may be regarded as having a moderate tolerance for change and while there will be direct physical impacts in removing nominated original fabric, the new canopy roof design provides an improved outcome that responds to heritage features on the site that are of higher (Exceptional) significance, enhancing the presentation of and visibility to the Clock Tower and Main Concourse roof and the grand spatial quality of the concourse area.

Identification of items of heritage value affected by the work is required by the conditions of approval (E15). Accordingly, the affected iron trusses and cast iron columns with integrated downpipes have been added to the Sydney Metro Salvage Register. The condition specifically requires that such items are to be salvaged and assessed for '*reuse on the project or other options for repository, reuse and display*'.

Description of New Design Work Developed During Previous Design Stages		
NORTHERN CONCOURSE		
	Options for Reuse of Salvaged Cast Iron Structure Options to reuse the salvaged cast iron fabric within the CSMW project area are limited by the functional requirements of the spaces as high traffic areas and the architectural language of the new Metro works i.e. opportunities to reuse fabric of this nature in new structures is limited. The following reuse options have been considered: 1. Reuse for original purpose The scale and bespoke quality of the raked and curved truss work supporting the bridging structures limits the ability to reuse them in a similar application within the station. While there are other examples of original curved and raked trusses within Central Station, including the awning support structure at the western entrance, these have been designed to support roofs of a different scale and pitch and it is unlikely that salvaged trusses could be reused in a different location. The most feasible way to reuse the truss structures would be for repair or replacement of other bridging structures retained to the west on other Intercity Platforms, including individual componentry, if required in the future. In the particular case of the columns, these have been specifically designed to provide a range of functions, namely structural support, a point of transition between the metal and timber structures and stormwater management. The integration of downpipes in the columns demonstrates the specific rainwater management solution for roofs over the platform access area. The bespoke nature of the columns limits to a degree the ability for them to be reused for the same purpose within Central Station in an alternate location, with the exception of other bridging structures to the west. It is noted, however, that there are similar integrated column downpipes used to support the awning at the western entrance to the Main Concourse that are contemporary with those supporting the bridging structures. As such, there is also opportunity for the salvaged columns to be retained for repair or replacement of the western forecourt columns should this be required in the future. This may involve reuse of componentry only e.g. capitals, as the height of the columns and bases differ, however reuse of salvaged columns may be facilitated by a well-planned design solution and/or modification of the columns. It is noted that the scale of the column bases where exposed above the ground surface already differs markedly across the western entrance.	 Integrated column supporting bridging structure to be salvaged.  Example of integrated column supporting awning at western entrance.

Description of New Design Work Developed During Previous Design Stages

NORTHERN CONCOURSE

Regardless, the presence of similar columns in an area unlikely to be subject to change is a mitigating factor in removal of nominated columns at the northern end of Platforms 8 to 10.

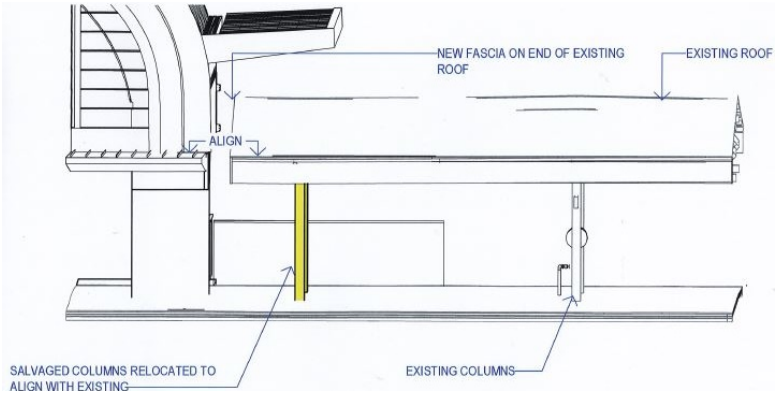
Detail view of column capital at north end of Platform 8.

Detail view of column capital at beneath awning of western entrance.

2. Reuse salvaged columns as columns only (without stormwater management function)

The potential to reuse the salvaged columns at the northern end of platform canopies subject to modification as part of the project works has been assessed. While the reuse of the fabric within the project footprint would provide a positive heritage outcome, the following factors affect the feasibility of this option, and similar reuse potential in alternate locations:

- Only 3 columns are to be salvaged (paired applications required for canopies).
- The columns were designed to support the cast iron truss structures, with a transitioning function to support one end of the timber ladder trusses. They were not designed to solely support timber structure and are not ideal / compatible for reuse as part of a traditional timber structure.
- Relocation of the columns in an alternate application would likely confuse the historical record, including via the redundancy of the downpipe moulding, which is a prominent feature of the capitals.



Description of New Design Work Developed During Previous Design Stages

NORTHERN CONCOURSE

The cast iron columns do not extend to the underside of the timber trusses. Their specific design provides support, a point of transition and stormwater management.

Timber platform canopy structure, with column extending the full height of the truss and other structural components attached to it via notching and brackets.

Detail view of column capital showing prominent moulding for integrated capital.

3. Reuse for interpretive purposes

Opportunities to reuse large scale structural elements for interpretive purposes are highly limited by the functional requirements of the Metro areas as high traffic zones. Themes for interpretation and suitable zones within the project footprint have been determined and are being coordinated with the public art program and reuse of the cast iron structures for this purpose are not currently foreseen. There may be opportunities for this to be pursued in the future, including within other areas of Central Station, which would require the input of an artist specialising in reuse of recycled materials to determine and appropriate and visually engaging arrangement.

Description of New Design Work Developed During Previous Design Stages

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4. Other options for repository, reuse and display

Cast iron structures, including columns with integrated downpipes, were imported from Britain and represent an example of standard British architecture from the late Victorian period. There are many other examples of this type of work within NSW as identified below, including at other railway stations:

- Werris Creek Railway Station
- Albury Railway Station
- Wagga Wagga Station (railway museum)
- Victoria Barracks residences

It is, however, unlikely that there are reuse options for salvaged trusses and columns at other railway stations given the range of different designs as evidenced in comparative examples.

Reuse options for the salvaged fabric at other NSW railway stations is not considered to be a viable option, in particular given the limited quantity available for salvage.

Werris creek Railway Station, NSW

Albury Railway Station, NSW

Conclusion

The removal of nominated bridging structures and platform access area roof within the Northern Concourse will have moderate heritage impact associated with the physical removal of original structure. The impact of this will be mitigated by the positive outcomes associated with the work and the salvage of nominated components for potential reuse in the future. The heritage impact of the work is further mitigated by the retention of similar elements within the station, including bridging structures to the west of Platform 8 and the ironwork of the awning structure at the western entrance. The work must be undertaken with due care to avoid damage to fabric to be retained, including the East Wing, Grand Concourse (roof structure and floor) and Intercity Platform canopies. Specific recommendations are as follows:

Description of New Design Work Developed During Previous Design Stages	
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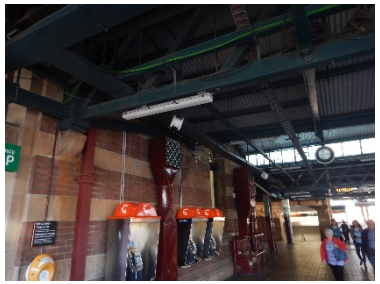
	• Temporary protection measures for retained heritage fabric should be implemented in areas of identified risk in accordance with the requirements of CAS-C *Temporary Protection of Retained Elements*. • Works must be implemented in accordance with CAS-E *Northern Concourse Enabling Work*. While a number of options have been considered for fabric to be salvaged, specific reuse strategies are not known at this stage. Given that potential opportunities for reuse within Central Station have been identified e.g. repair or replacement of other retained fabric both for bridging structures to the west of the project footprint and integrated column and downpipes at the western entrance, the fabric should be salvaged for storage. As no feasible reuse options have been identified within the Metro project footprint, it may be more appropriate for items to be stored in the Sydney Trains Heritage store. Identification of the most suitable repository should be determined by Sydney Metro and Sydney Trains. In storing the items, it is essential for them to be treated appropriately with a protective coating to ensure long term protection in the event of their future reuse at the station. Rust on the ironwork should be treated prior to storage, including areas newly exposed as a result of dismantling works, using a rust inhibitive primer with a high zinc content e.g. Galmet or similar. Subject to the above recommendations, the heritage impact of this work will be manageable as it achieves a balance between heritage conservation objectives and appropriate redevelopment that ensures the ongoing viability of the station as a major transport interchange, which in itself is a fundamental aspect of its significance.
2d	4. Views within the Northern Concourse area The following assessment of current views within the Northern Concourse area is used as a basis for assessing the heritage impact on associated with the change in roof design.
	 Views to East Wing west and south façades from within Northern Concourse / platform access area: **Moderate to Little** These views are restricted by both early structures and later additions.
	 View of Main Concourse roof from within the Main Concourse: **Exceptional**

Description of New Design Work Developed During Previous Design Stages	
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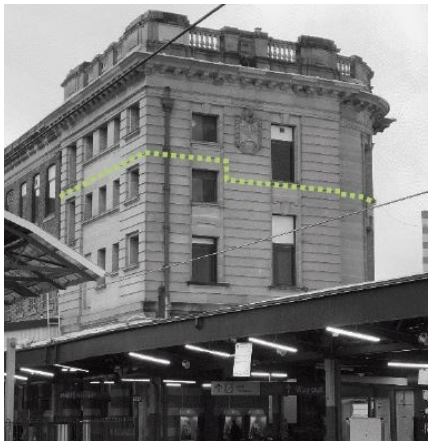
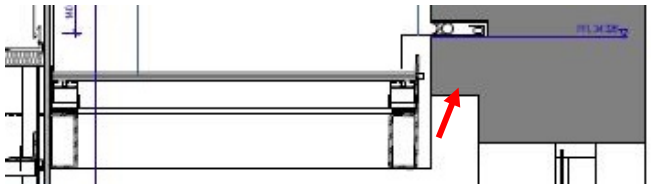
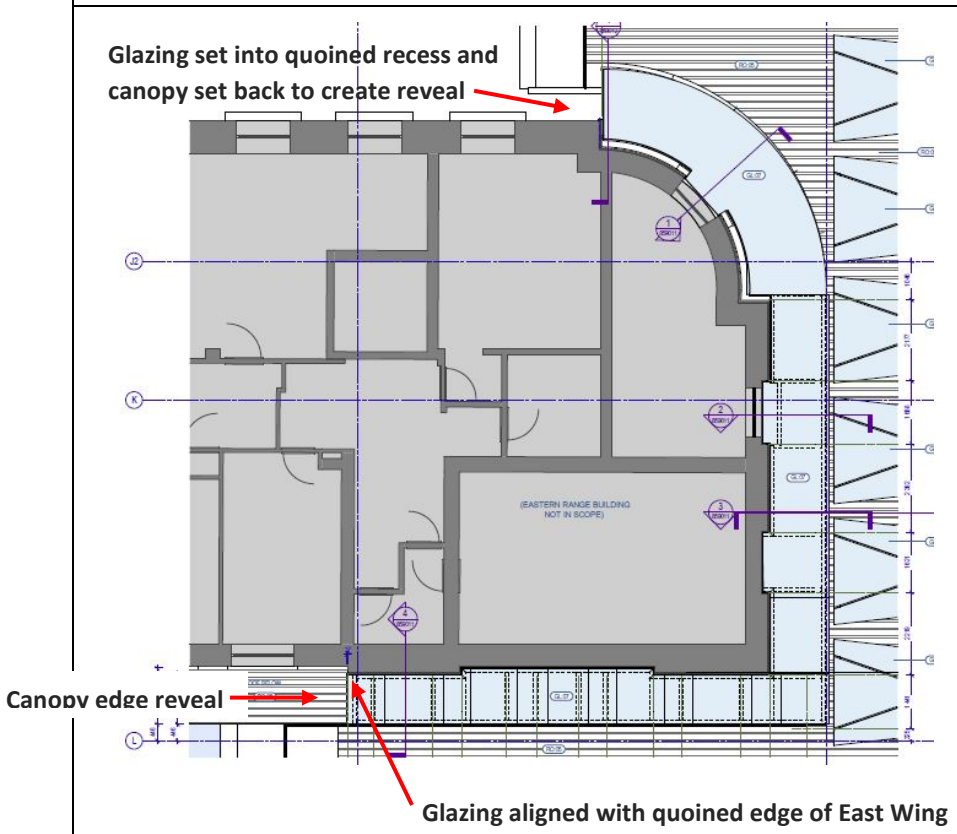
	The development of a single vaulted canopy and associated demolition works would have a positive impact on views within the Northern Concourse as identified below: - Main Concourse views: Views within the existing Main Concourse area beneath the existing barrel vaulted roof will not be adversely affected by the removal of the bridging structures and roof over the platform access area. Views toward the Main Concourse from the Northern Concourse will be greatly enhanced through the establishment of a grand volume adjacent to the Main Concourse. The design change facilitates clear views of the Main Concourse, including views of the vaulted roof that are not currently available. - Views towards the East Wing: Removal of the nominated bridging structures will assist to rationalise the current cluttered appearance of the East Wing (west façade) and reveal brick and masonry heritage fabric, thus enhancing visual access to the building in conjunction with removal of existing canopies to the south. This will facilitate greater appreciation of the building and enhance its presentation to the concourse area.
	 Current view to East Wing (west façade) from platform access area.
	 Section through Main Concourse and new canopy roof showing greater exposure of the East Wing (west façade) (Detail from Stage 3 Dwg.740003).

Description of New Design Work Developed During Previous Design Stages				
NORTHERN CONCOURSE				
Item	**Work**	**Image**	**Significance**	**Heritage Impact Assessment**
3	Modification of existing openings on Central Electric Building	 Existing window opening on east elevation to be converted to door opening (left in image).  Existing door opening on south elevation to be converted to a window.	**High** (Central Electric overall) **High** (sandstone facades) **High** (original windows, including fanlight above doorway) **High** (remnant components of suspended awning) **Little** (modern cladding and enclosure of suspended awning) **Little** (modern timber framed doorset)	The increase in void area to the south of Central Electric has generated the need for this work (as described at Item 1 above) as there will be no adjacent ground surface at the upper concourse level. The proposal is for a simple substitution, converting the existing doorway on the south façade to a window and one window on the east façade to a doorway to provide access. The sill and associated stonework below it is comprised of a number of joints that facilitate it being carefully cut out and reinstated within the existing door opening. This should be the first option pursued. Alternatively, it will be necessary to reconstruct stone to form the window opening, in matching stone and detail. In both cases, work must be undertaken with due care to avoid damage to the heritage fabric, including: - Implementation of temporary protection measures for retained heritage fabric in accordance with CAS-C *Temporary Protection of Retained Elements*. - Work to sandstone fabric should be carried out by experienced heritage stonemasons. - The existing window (east façade) and fanlight (south façade) should be carefully salvaged for reinstatement, in addition to the existing doorset. Refer Item H below for assessment of work to suspended awning. There overall heritage impact of this work will be minor.

3.3 Northern Concourse Stage 3 Design

NORTHERN CONCOURSE			
Item	**Work and Images**	**Significance**	**Heritage Impact Assessment**
A1	Alignment of new canopy with Main Terminus East Wing  Canopy line Option 1 (HWG 04)  Canopy line Option 2 (HWG 05, 15.01.2019)	**Exceptional** (East Wing overall) **Exceptional** (East Wing stonework, except where otherwise noted, and banded brick masonry of original facades) **High** (stone parapet and sills and brick masonry – upper west façade) **Exceptional** (fenestration pattern east façade) **High-Moderate** (fenestration	The new canopy extends around the south and west facades of the Main Terminus East Wing, with the existing building extending above the canopy by one floor level. While the edge of the canopy is physically separate from the East Wing there is a need for a weatherproof connection in the form of a flashing. Owing to inconsistent datums of the fenestration of the East Wing on affected facades, a number of options were investigated in Stage 2 (including those shown adjacent as Option 1 to 3). In addition to options to dress glazing around existing windows (Option 2) or to 'split' the canopy as it extended around the facades (Option 3), other options considered included establishing blind windows in nominated locations to facilitate a consistent height canopy edge. The simplicity of establishing a consistent edge height was seen as a positive outcome in terms of design aesthetic and simplifying construction. It was preferable, however, to avoid the associated adverse impacts of either partially covering existing openings or creating blind windows. The option of dressing glazing down around the windows was not preferred owing to potential waterproofing issues, given the troughs that this solution created.

NORTHERN CONCOURSE			
Item	**Work and Images**	**Significance**	**Heritage Impact Assessment**
	  Canopy line Option 3 (HWG 05, 15.01.2019)  Stage 3 design development of new Northern Concourse canopy.	pattern south & west façades) **Exceptional** (multi pane timber windows) **High-Moderate** (arched timber windows) **Intrusive** (al. windows and louvres) **Exceptional** (original gunmetal/c.i. rainwater goods) **Moderate** (reporduction rainwater goods) **Intrusive** (exposed services)	The Stage 3 design solution has developed Option 1 to establish the new canopy edge at a consistent height. The canopy edge is positioned below the sill level of windows on the south elevation (refer also Item B below for flashing detail) and on the west elevation where the canopy edge sits slightly below the window head height, the edge is set back to effectively create a hood above the affected windows (refer detail below, with recess identified by red arrow).  Detail 4, *Lantern Heritage Interface – Detail 1* (Stage 3 Dwg. 859011) Direct interface of the new Northern Canopy with the East Wing was always anticipated as part of the scope of work and as such, the developed Stage 3 design does not generate additional impacts - the interface simply occurs at a higher level. This is regarded as a positive outcome in that it will reveal more of the façade of the East Wing for public appreciation at the upper concourse level. The design solution does not alter the existing fenestration pattern or create blind windows and consideration is being given to reconstructing nominated windows of the East Wing to further enhance the presentation of the building.

NORTHERN CONCOURSE			
Item	**Work and Images**	**Significance**	**Heritage Impact Assessment**
B	Glazed edge of Northern Concourse canopy  Detail plan showing Lantern Roof Level around the East Wing (Stage 3 Dwg. 829101)	**Exceptional** (East Wing) **Exceptional** (East Wing stonework, except as noted otherwise) **High** (stone parapet and sills and brick masonry – upper west façade) **High-Moderate** (fenestration pattern south & west façades) **Intrusive** (al. windows and louvres) **Exceptional** (original gunmetal/c.i. rainwater goods)	The Stage 3 design retains a glazed ribbon in the order of 1500mm wide where the canopy adjoins the south and west façade. The glazing is supported by a steel framework that is cantilevered from the main canopy edge, and will not be fixed to the existing building. This solution addresses both heritage considerations and the need to allow for movement of the canopy. Existing heritage downpipes will be retained, with flashings supported on angles dressed around these. As documented in the Stage 2 HIA, the glazed treatment of the edge is a positive design outcome as it effectively creates a visual separation between the existing and new work and at the documented width, will allow for views up to the façade where above the canopy, which are not currently available. Also, where the canopy extends further east, the Stage 3 design documents a reveal adjacent to the East Wing to create further separation between the old and new work in accordance with accepted good practice. On the west façade, the glazing is aligned with the quoined edge of the stone at its junction with the brick façade, while on the east it is set into the quoined recess where the corner curves. As such, it is being designed sensitively to respond directly to the architectural features of the existing building.

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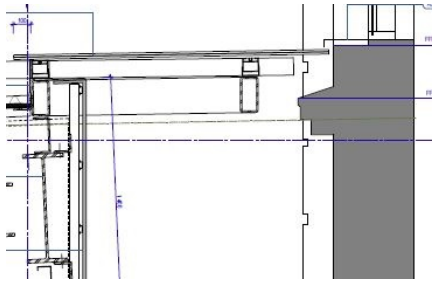
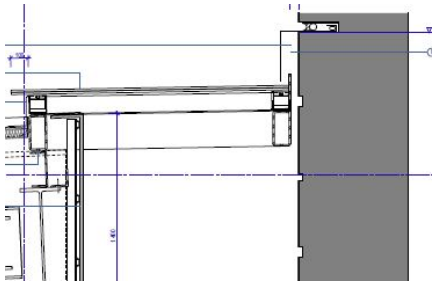
Item	**Work and Images**	**Significance**	**Heritage Impact Assessment**
			The Stage 3 detailing further documents the glazed edge dressed to fall away from the building to a gutter within the main canopy to protect the existing building from the effects of water (refer images Item C below). The overall heritage impact of this work will be positive.
C	Connection of new canopy to Main Terminus East Wing  Detail 2, *Lantern Heritage Interface – Detail 1* showing flashing over existing sill (Stage 3 Dwg. 859011)  Detail 3, *Lantern Heritage Interface – Detail 1* showing flashing set into existing joint (Stage 3 Dwg. 859011)	As above	A physical connection to the existing building is required to create a weathertight seal. This has been addressed by the use of zinc flashings. Where adjacent to existing window sills, new flashings are dressed over the existing sill. In other areas, flashings are dressed into the joint of the stonework above the canopy edge. The heritage impact of this work will be negligible.
D	New transitional roof between the existing Main Concourse canopy and new Northern Concourse canopy	**Exceptional** (East Wing overall) **Exceptional** (Main Concourse and roof overall) **Exceptional** (Barrel vaulted	Where the canopy roof edge extends past the East Wing west façade stonework, it is set back from the brick façade, creating a recess at the point where the roof transitions to a lower level. The reveal establishes a separation from existing similar to as previously described on the eastern side of the building (refer Item B above). The transitional roof is a low pitch roof set below the sill level of the second level windows (East Wing) so as not

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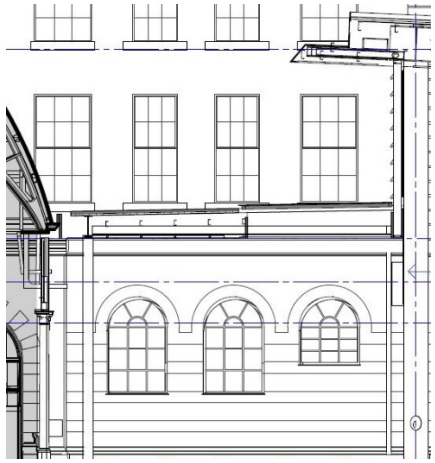
Item	**Work and Images**	**Significance**	**Heritage Impact Assessment**
	 Design study image showing transitional roof junctions.  Section through Main Concourse and new canopy roof showing transitional roof (Detail from Stage 3 Dwg.740003).  View showing junction of existing metal roofs adjacent to the west façade of the East Wing.	roof form and trusses) **High** (cast iron lattice screens and columns) **Moderate** (aluminium roof sheeting of Main Concourse) **Intrusive** (exposed services)	to impact on their fabric or function. It falls towards the Main Concourse and terminates at a height approximating the existing gutter height of the barrel vaulted roof. The roof includes its own gutter adjacent to the existing so that stormwater can be managed separately without increasing the load on the existing Main Concourse roof. The roof is glazed where adjoining the new canopy, transitioning to a metal deck roof, which will allow services in this area to be concealed, which is a positive outcome that will assist rationalisation of intrusive services in this area. The transitional roof will be flashed against the brick masonry of the East Wing where adjacent to it, in a similar manner to the existing roof. The approved scope of work included new canopy roofing adjacent to the west façade of the East Wing and while the extent of adjoining roofing has increased owing to design development as previously addressed, the nature of impacts are similar. The transitional roof has been designed to minimise impact on the existing heritage fabric in its vicinity, including its physical relationship to existing fenestration and the Main Concourse roof.

NORTHERN CONCOURSE			
Item	**Work and Images**	**Significance**	**Heritage Impact Assessment**
E	Security screen to Northern Concourse  Screen Option 1 Design Study  Screen Option 2 Design Study	**Exceptional** (East Wing overall) **High** (Central Electric overall) **High** (form of East Deck) **Moderate** (East Deck overall) **Moderate** (views north south along deck) **Little** (East Deck terrace and paving) **Intrusive** (awning roof over deck)	The need to include a security screen between the East Wing and Central Electric was raised at Stage 2, at which time the design solution had not been resolved. During Stage 3 design works, a number of options were considered to investigate how best to address relevant issues including: - Performance requirements (separation of paid and unpaid areas, need to provide maintenance access and rain protection) - Impact on heritage values, including physical and visual - Implications of working within the project footprint - Design outcomes and cost implications. In order to achieve 35 degree rain shadow protection as required by Sydney Metro standards, several of the options required extension of the existing roof over the East Deck, despite it being external to the project area. These are outlined below. **Option 1:** Screen to balustrade height at upper concourse level **Option 2:** As per option 1 with upturn on extended roof for additional weather protection **Option 3:** Screen to full height of Central Electric. Review of these options found that any proposal to extend the design life of an intrusive element i.e. the

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Item	**Work and Images**	**Significance**	**Heritage Impact Assessment**
	 Screen Option 3 Design Study  Screen Option 4 Design Study		awning roof, to be unacceptable, given that the ultimate goal should be its removal. In particular it was noted that the existing roof is not sealed against the sandstone, thereby causing it to spall owing to water ingress and trapping, and this should not be perpetuated by extension. **Option 4:** A fourth option extending the screen full height without modification of the roof was explored. While this afforded rain protection to the south of the screen, the area of the East Deck north of the screen was unprotected. This option was also deemed undesirable as: - the screen would not be glazed owing to cost limitations, which would have impede visibility to the heritage buildings; - the height of the screen would require greater physical contact with the heritage buildings.

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Item	**Work and Images**	**Significance**	**Heritage Impact Assessment**
	 Stage 3 design solution for operable security screen. Maintenance access is provided at the lower level.		In reviewing the requirements of the screen and the identified constraints, it was agreed by Sydney Metro to adopt 25 degree, rather than 35 degree, rain shadow, which is the standard accepted by Sydney Trains. This would have a number of benefits, including: - facilitating a lower height screen, to minimise its presence and contact with the heritage buildings; - facilitating the use of glazing, the transparency of which would allow views through to the heritage fabric and also from the East Deck; - negating any need to modify an existing intrusive element, namely the awning roof. The screens are required to be blast proof and as such will be set into frames with minor fixings into the joints of the masonry buildings to minimise adverse impacts (refer also summary recommendations for mitigation strategies for new fixings). Additional support for screens will be provided from the floor as required which will have only minor impact on fabric modern fabric of Little significance. Adjacent to the facades of both the East Wing and Central Electric, the screen is documented with a reveal to provide vertical articulation between the existing and new fabric. The overall impact of this work, which will be reversible in the longer term if required, will be minor.

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Item	**Work and Images**	**Significance**	**Heritage Impact Assessment**
F	Base Treatment of Central Electric Building  Design of base to Central Electric explored during Stage 3 (DRP June 2019). 	**High** (Central Electric overall) **High** (sandstone facades)	The Stage 2 design explored ideas of horizontal articulation to ensure legibility between the existing and new fabric, including use of a splayed soffit to differentiate between the character of the materials on the upper and lower levels. During Stage 3 design documentation, articulation of the base was further explored, with the three bay base developed in Stage 2 defined by differentiating the treatment of the stonework above the openings, drawing on the language of the voussoirs over existing openings in a non-traditional manner. This subtle distinction responds well to the traditional language of the building and the overall proportions of the base, including supporting columns, are compatible with the existing building. The idea of interpreting the use of arches at Central was also explored in Stage 3, which is supported in principle as an appropriate response to the heritage character. The adoption of a major arched entrance would also have the benefit of providing a single large opening to facilitate movement of pedestrian traffic. In pursuing development of an arched design, consideration should be given to the proportions of the arch and base storey elements to ensure that these convey a robustness commensurate with the qualities of the existing building.

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Item	**Work and Images**	**Significance**	**Heritage Impact Assessment**
	Option of arched opening, identified during Stage 3 (DRP June 2019).		The final solution is subject to further design development and should be subject to heritage assessment at this time.
It is noted that on site structural investigations have been undertaken which have confirmed that the existing beam at the upper concourse floor level supporting the external façade of Central Electric must be retained and that the floor is tied in to existing structure. As such, regardless of the final design aesthetic, there will be minimal intervention to the existing structure (other than columns nominated in Stage 2 HIA) and new structure will be introduced below.			
G	Base treatment of East Wing  South west corner of the East Wing, existing upper concourse level, showing sandstone banding of brick façade.  South west corner of the East Wing, existing upper concourse level, showing existing Sydney Trains service ducts.	**Exceptional** (East Wing overall) **Exceptional** (East Wing stonework, except as noted otherwise)	Commensurate with its post federation date of construction, the red brown brickwork of the East Wing at the upper concourse level is of stretcher bond profile. The distinct stone banding is a prominent design feature that draws on the character of the sandstone fabric of the Main Terminus and defines key features of the East Wing, such as arched openings, sills and moulded base. The new base storey adopts traditional materials of matching brick and stone cladding, however these are employed with simple detailing comprising stone accents, including moulded base, and brick walls laid in

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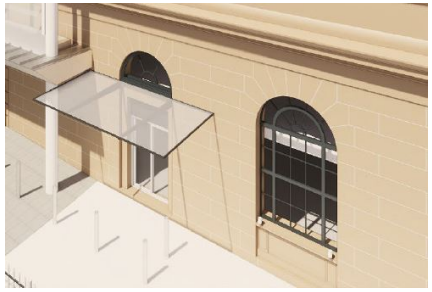
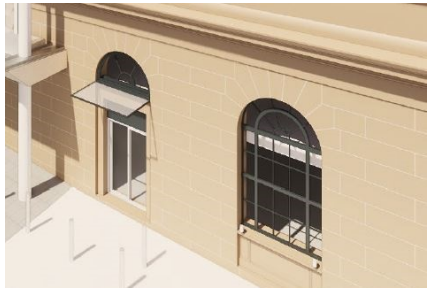
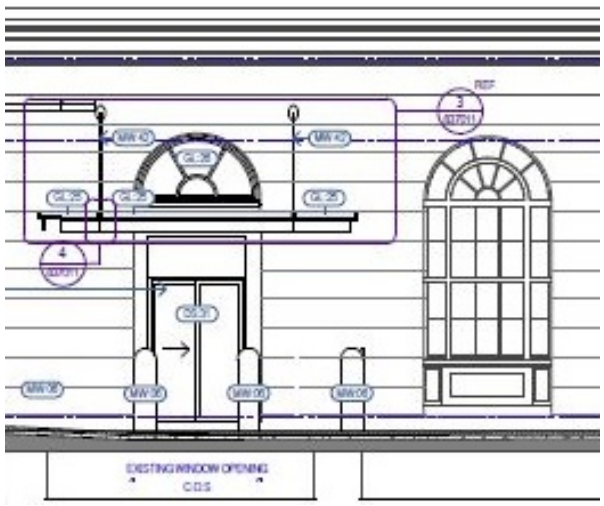
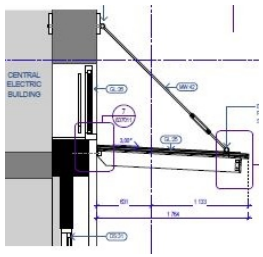
Item	**Work and Images**	**Significance**	**Heritage Impact Assessment**
	 Axonometric view of the East Wing base storey (Stage 3 Dwg. 317061)	**Exceptional** (banded brick masonry)	stretcher bond, subtly articulated via a corbelled profile. The top of the base storey, a wide band of smooth faced sandstone cladding, defines the interface between the original fabric above and new fabric below. The base storey does not include new openings but is articulated by a niche on the curved south east corner. The design strategies and materiality proposed are complementary to the heritage fabric while being readily identifiable as new work. The base treatment effectively defines a new façade revealed via excavation and does not alter existing heritage fabric. The overall impact of this work will be negligible, subject to discreet rationalisation of necessary services and facilities.
H	New TCAC Shelter  TCAC awning option for new awning.  TCAC awning option for new awning, set into existing reveal.	**High** (Central Electric overall) **High** (sandstone facades) **High** (pattern of fenestration) **High** (existing original windows)	The existing awning above the door opening currently on the south façade consists of a modified early awning (refer Item 3 above for assessment of opening modification and image of existing awning). Physical inspection and documentary research (locating an early plan of the awning) confirmed that despite modification some original awning elements remained. An awning is required above the east façade opening to provide shelter for train drivers who access the building. A number of options for including an awning above the new door opening on the east façade were considered,

NORTHERN CONCOURSE			
Item	**Work and Images**	**Significance**	**Heritage Impact Assessment**
	 Elevation showing proposed TCAC awning (Detail from Stage 3 Dwg. 837011)  Detail section showing proposed TCAC awning (Detail from Stage 3 Dwg. 837011)	**Moderate** (remnant original awning componentry) **Little-Intrusive** (modifications to awning)	as identified below: **Option 1:** Salvage and reuse existing awning. Despite reuse of original components, this option did not achieve a desirable aesthetic in reusing fabric of little/ intrusive significance. **Options 2/3:** These options proposed a new lightweight awning, one that extended over the opening on the face of the building and one recessed into the reveal, without reuse of original components. **Option 4:** The final option as currently proposed comprises a hybrid option that utilises the existing suspension rods and escutcheon plates combined with new glazed awning. This option balances out functional, heritage and aesthetic considerations and is therefore the preferred response. It provides an interpretation of the original suspended awning.
	The detail incorporates new stainless steel elements to minimise corrosion occurring adjacent to the stone fabric. Minor new penetrations to the stone for fixing the suspension rods will be required in a similar manner to the existing installation, which will have a minor heritage impact. The following recommendations are made to mitigate impacts: - where suspension rods and plates etc. are fixed into the stonework, these should use chemical anchors, not friction; - if the final intention is to paint the steelwork, exposed fixings should be brass, which will colour up to blend in with the neutral colour of the stone over time, for example, fixings into stonework be stainless steel, capped with brass nuts (accord head nuts recommended). If painting is not intended, then exposed fixings should match the structure in stainless steel; - the details should ensure that a stainless steel or brass washer is included between stonework and new plates; - existing stonework should be made good to match existing following removal of the awning from the south façade; - the awning should be carefully dismantled for salvage. Should any additional early fabric be uncovered, it should be archivally recorded prior to removal.		

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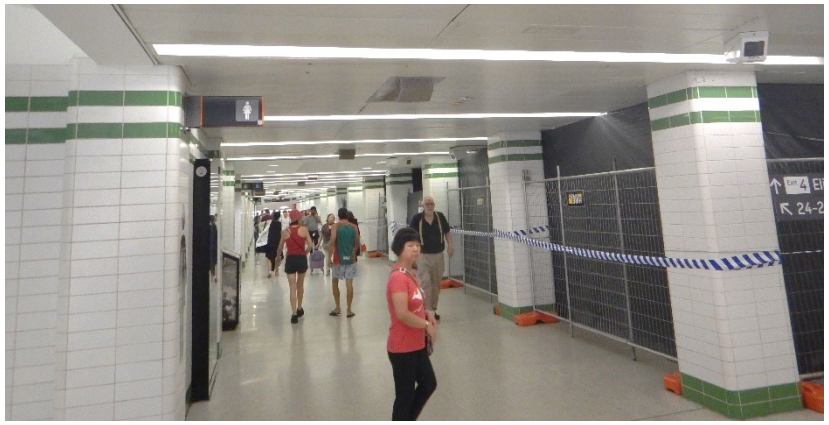
Item	**Work and Images**	**Significance**	**Heritage Impact Assessment**
	The proposed option is being developed as a lightweight shelter that is less permanent so that it is ultimately reversible. The salvage of the suspension rods in conjunction with a modern glazed canopy satisfies broad objectives of the approval conditions to reuse salvaged material where feasible without compromising design outcomes. The overall heritage impact of this work will be minor.		
I	Minor adjustment of floor levels at lower concourse level  Tiled columns at lower concourse level.	**High** (Central Electric overall) **Moderate** (terrazzo flooring) **Moderate-Little** (c.1980s ceramic wall tiles) **Intrusive** (ceiling linings)	Adjustment of the lower concourse floor levels is required to accommodate positive drainage in the lower concourse area where accessed from Eddy Avenue. This will mask the part of the lower skirting tile of a number of columns in this area (up to one half height of a single tile). This work will have a minor visual impact in concealing part of the skirting tile which is associated with the detailed design resolution of the broad scope of approved work. With consideration for tiling being a non-original upgrade of finishes, this minor impact is acceptable and will not unduly affect the overall significance of the area.
J	New electrical conduit in lower concourse	As above	The introduction of a new ticket gate line at the lower concourse level requires the introduction of new electrical conduit. As with other aspects of the design development, this work is associated with the detailed design resolution of the broad scope of approved work, in this case the new ticket gate line. A number of options were considered during Stage 3 to determine the best approach as follows: - Chase into columns. This option would be acceptable in principle given that the original

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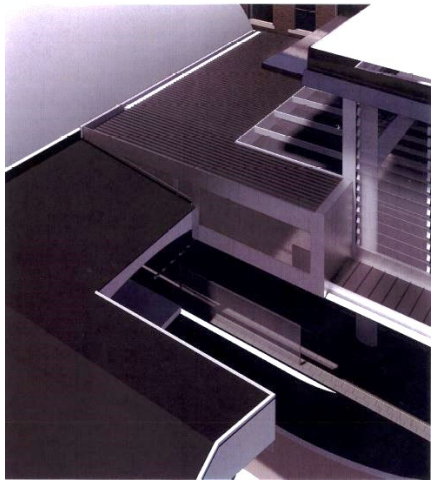
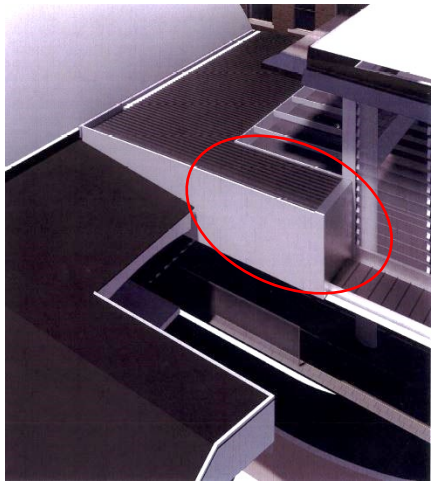
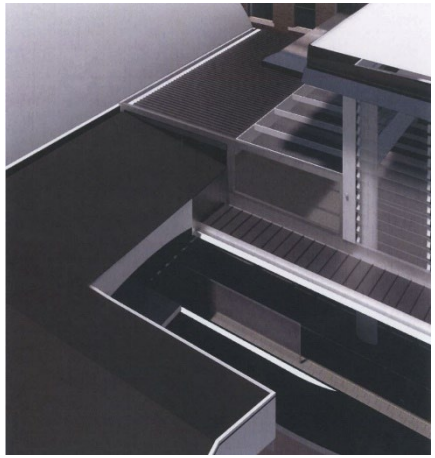
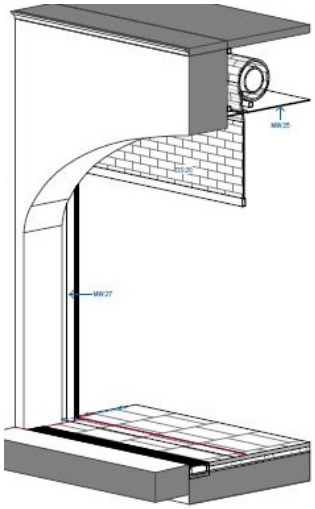
Item	**Work and Images**	**Significance**	**Heritage Impact Assessment**
			columns were always intended to be clad. It would, however, require matching tiles to make good and while this may be readily achieved for the white tiles, the green tiles may be more difficult to match. - Surface mount on columns. While this would offset the need for chasing, this approach is not preferred owing to adverse visual impacts that it would create. - Chase into floor. While the depth in the floor is limited for trenches and would need intervention to slab, chasing into the floor is feasible as floor strengthening works are occurring. This is the preferred option as it will not give rise to additional impacts given the strengthening works and upgrading of floor finishes as approved.
K	New duct adjacent to East Wing	**Exceptional** (East Wing overall)	Stage 3 design development has identified the need to transition the existing essential services in the floor of the East Deck (main hydraulic and fire hydrant services); to the lower concourse level. To achieve this, it is proposed to construct a new duct from the soffit of the East Deck to the lower concourse level, adjacent to the East Wing. The duct will be located adjacent to a rendered section of masonry walling in an area where there are existing surface mounted services. While this work will have some visual impacts, this can be mitigated by high quality design. The proposed location for the duct is relatively discreet, being adjacent to an engaged pier in the vicinity of the escalators to the East

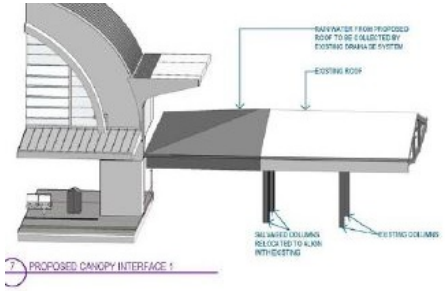
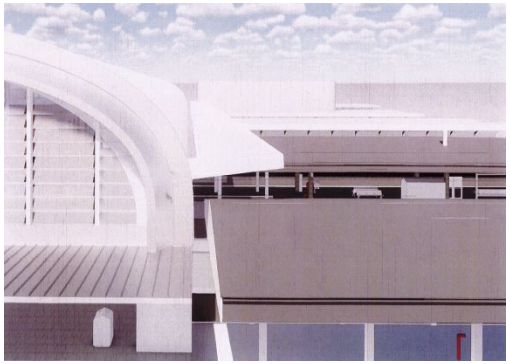
NORTHERN CONCOURSE			
Item	**Work and Images**	**Significance**	**Heritage Impact Assessment**
	 View towards engaged pier where new services duct will be located.		Wing and behind the new security screen (refer Item E), which will further mitigate visual impacts. In accordance with good heritage practice, another option was considered to fulfil the functional requirements which involved running the services within the East Wing to conceal the riser from public view. The major structural intervention to fabric of Exceptional heritage significance was considered to provide a worse, less-reversible outcome and was therefore discounted. The overall impact of this work will be minor visual impact.
L	Interface with existing roof over platform access area, adjacent to Main Concourse roof.	**Exceptional** (Main	Intervention to existing roofs over the platform access area north of Platforms 8 to 10 has been addressed at

NORTHERN CONCOURSE			
Item	**Work and Images**	**Significance**	**Heritage Impact Assessment**
	 Roof junction Option 1.  Roof junction Option 2.  Roof junction Option 3 as proposed.  Proposed Option 3 showing views west.	Concourse and roof overall) **High** (cast iron lattice screens and columns) **High** (steel columns and trusses of bridging structures) **Moderate** (aluminium roof sheeting, Main Concourse) **Little** (roof sheeting over platform access area) **Little** (existing box gutters)	Item 2c above, including the junction of the transitional roof and the Main Concourse roof. This section addresses the design resolution where new roofs over the platform access area adjoin existing roofs to be retained to the west. The design solution must respond to a complex junction of roof forms including the new canopy roof, new transitional roof, platform access area and bridging structure roofs. Given the complexity of the task, a number of design options have been investigated as identified below: **Options 1 & 2:** These options extended the transitional roof beyond the western edge of the new Northern Concourse canopy roof, effectively creating an additional three dimensional enclosure (outlined at left for option 2). The options were differentiated by the inclusion of glazing (Option 1) to facilitate views west to the Clock Tower versus an unglazed option, the latter in particular having an adverse visual impact. **Option 3:** This option documents the transitional roof finishing in line with the western edge of the new canopy roof, thereby providing a 'cleaner', tidier form that is preferred to the previous options. This option also has the positive heritage outcome of retaining more of the existing platform access roof and associated structure and includes glazing on the western edge for views west. Overall it provides an appropriate resolution that responds to the heritage issues.

3.3.1 Other Minor Works – Stage 3 Design

Description of New Design Work Developed During Stage 3				
NORTHERN CONCOURSE				
Item	**Work**	**Image**	**Significance**	**Comment on Stage 3 Heritage Impact**
M	Relocation of gate on east side of CEB	 Existing view of east façade of Central Electric showing existing gate to be relocated.	**High** (Central Electric Building overall) **High** (sandstone facades) **Little** (existing security gate)	For operational reasons, this gate will be located further north on the east façade of Central Electric. It is recommended that: - the gate be setback from the front façade (behind the quoins) to ensure that it remains a recessive element; - new fixings into the stonework (if required) should use chemical anchors, not friction; - existing stonework should be made good to match existing following removal of the gate from its current position. On the above conditions, this work will have only minor heritage impacts associated with new fixings into the stone.

Description of New Design Work Developed During Stage 3				
NORTHERN CONCOURSE				
Item	**Work**	**Image**	**Significance**	**Comment on Stage 3 Heritage Impact**
N	Roller shutters in existing openings of Central Electric	 View towards Eddy Avenue entrance showing existing ceiling linings around the arch.  Axonometric view of Eddy Avenue Roller Shutter (from Stage 3 Dwg. 880201)	**High** (Central Electric Building overall) **High** (sandstone facades) **Little** (modern ceiling linings around openings)	New roller shutters are required in the event of an emergency to close the station and these have been included with the Stage 3 documentation. Two new aluminium shutters are proposed at the lower concourse level in the following locations: - main entrance from Eddy Avenue; - opening on western edge between existing columns. In each location, the new roller shutters and associated mechanisms will be concealed within bulkheads located behind the top section of existing sandstone walls above the respective openings. At present these areas are already concealed by later ceiling linings so the visual impact of this work will effectively be negligible, also given the relatively discreet location and enclosure in metal clad bulkheads compatible with the high quality palette of materials proposed for new Metro works. The doors will be supported on new steel framing, with associated minor impact on the existing fabric from new fixings (refer summary recommendations for mitigation strategies for new fixings). The roller doors will provide a security function that is essential to the operational requirements of the station. This work is associated with the detailed design resolution of the broad scope of approved work and the physical and visual impact of this work will be negligible.

Description of New Design Work Developed During Stage 3				
NORTHERN CONCOURSE				
Item	**Work**	**Image**	**Significance**	**Comment on Stage 3 Heritage Impact**
O	Treatment of platform canopy roofs where modified at northern end	 Canopy interface study, Stage 2, showing hipped roof at northern end.  Stage 3 proposed gable end treatment of modified platform canopies at the northern end of Platforms 8 to 11.	**High** (platform canopies overall)	Modification of Platform 8 to 11 canopy roofs at northern end was assessed in principle as part of Stage 2 HIA, at which stage a hipped roof was proposed as a subtle differentiation between the existing gabled canopies. During Stage 3 design, the roof treatment has reverted to a gable end, effectively comprising a reconstruction at the affected ends, which will not adversely affect the heritage character of the fabric or area. As previously proposed, reuse of salvaged timber posts would have a positive heritage outcome in providing a consistent appearance at the Intercity Platform level and reinstating removed fabric.

Description of New Design Work Developed During Stage 3				
NORTHERN CONCOURSE				
Item	**Work**	**Image**	**Significance**	**Comment on Stage 3 Heritage Impact**
P	Enclosure of existing opening on west façade of Central Electric (beneath Entrance to City Railway signage).	 View to opening subject to future enclosure.	**High** (Central Electric building overall)	The enclosure of this opening was assessed in principle as part of Stage 2 HIA, where it was noted that the impacts of the change would be mitigated by retention of original signage and scrolled brackets and by architectural treatment. While this remains the case for Stage 3, the infill material has not yet been finalised. The final material should be reviewed by the Heritage Architect once determined to ensure that it is compatible with the high significance of the Central Electric Building.

4 CONDITIONS OF APPROVAL & REVISED ENVIRONMENTAL MANAGEMENT MEASURES

This section identifies relevant conditions of approval and the revised environmental management measures (REMMs) that identify the mitigation measures documented in the Environmental Impact Statement.

Approval Condition	Requirement	Comment
E10	The Proponent must not destroy, modify or otherwise physically affect any Heritage item not identified in documents referred to in Condition A1.	Works for the Northern Concourse are in accordance with the nature of approved works overall, with the majority of items identified in this heritage impact assessment resulting from the detailed design resolution of the broad scope of approved work. One major aspect of design development is the removal of the bridging structures and platform access area roof north of Platforms 8 to 10, and introduction of new transitional roof which interfaces with fabric to be retained. Associated issues have been identified and the impacts assessed in this report. This work will also be subject to submission of a consistency assessment to Sydney Metro.
E13	The Proponent must prepare a Heritage Archival Recording Report, including photographic recording of the heritage items in documents referred to in Condition A1.	Archival photographic recording prepared in accordance with NSW Heritage Division published guidelines has been implemented in the Northern Concourse in the area of works and the adjacent context. It is noted that some archival recording of this area was completed separately prior to design documentation works. The Heritage Archival Recording Report will be submitted on completion to nominated authorities as required by the approval condition.
E15	The Proponent must salvage items of heritage value from heritage listed buildings and structures to be demolished before demolition, and assess options for its sympathetic reuse (including integrated heritage	Affected items from the Northern Concourse have been included on the Sydney Metro *Salvage Register*. Nominated elements will be salvaged in accordance with this document as relevant. Reuse of salvaged material is proposed for the TCAC awning on Central Electric Building (refer item H) and for support of platform canopies where modified at their northern ends

Approval Condition	Requirement	Comment
	displays) on the project or other options for repository, reuse and display.	(refer Item O). The cast iron columns of the bridging structures will also be salvaged for potential reuse in the future as described in this report.
E16	The Proponent must prepare a Salvage Report, including photographic recording of the heritage items identified for salvage in documents referred to in Condition A1.	Sydney Metro have prepared a Salvage Register in conjunction with the input of heritage specialists, which includes photographs of items identified for salvage, including from the Northern Concourse.

REMM	Requirement	Comment
NAH1	Archival recording and reporting of the following heritage items would be carried out in accordance with the NSW Heritage Office's How to Prepare Archival Records of Heritage Items (1998a), and Photographic Recording of Heritage Items Using Film or Digital Capture (2006): The Rolling Stock Officers' Garden, Rolling Stock Officers' Building and Cleaners' Amenities Building in Sydney Yard and any other component of the Sydney Terminal and Central Railway Stations group to be removed or altered.	Archival photographic recording and archival measured drawings prepared in accordance with NSW Heritage Division published guidelines have been prepared for the Northern Concourse and surrounding context, including the East Wing and Central Electric Building where it the vicinity of works.
NAH2	An archaeological research design would be prepared and implemented to identify the need for archaeological testing or monitoring. Archaeological mitigation measures recommended in the archaeological research design would be carried out in	This area of the site is denoted 'CS 2' in the *Central Station Main Works – Station Box and Sydney Yards Archaeological Method Statement*, Artefact Heritage, August 2018, part of the former Devonshire Street Cemetery site. Construction works within the Northern Concourse will be implemented in accordance with the requirements of the documented Archaeological

REMM	Requirement	Comment
	accordance with Heritage Council guidelines, and where identified in the archaeological research design, would be supervised by a suitably qualified Excavation Director with experience in managing State significant archaeology.	Methodology for this area under the guidance of a suitably qualified Excavation Director.
NAH3	An Exhumation Policy and Guideline would be prepared and implemented. It would be developed in accordance with the Guidelines for Management of Human Skeletal Remains (NSW Heritage Office, 1998b).	Refer to Sydney Metro Project Exhumation Management Plan
NAH4	The method for the demolition of existing buildings and / or structures at Chatswood dive site, Victoria Cross Station, Martin Place Station, Pitt Street Station, Central Station and Waterloo Station would be developed to minimise direct and indirect impacts to adjacent and / or adjoining heritage items.	Contractor obligation. Works should be carried out by the Contractor in accordance with this requirement and with regard for the requirements of: - CAS-C *Temporary Protection of Retained Elements* (OCP Architects, Rev.A 24 October 2018); and - CAS-E *Northern Concourse Enabling Works* (OCP Architects, Rev.A 16 May 2019)
NAH7	The project design would be sympathetic to heritage items and, where reasonable and feasible, minimise impacts to the setting of heritage items. The detailed design for Martin Place Station and Central Station would be developed with input from a heritage architect.	The design of the Northern Concourse package has been developed with consideration for the characteristics of its heritage context and seeks to provide a positive contribution through well-considered articulation of new elements and a neutral palette of high quality materials that relate to the existing context. The input of a heritage architect has been provided in the various design development stages, including via staged heritage impact assessments which

REMM	Requirement	Comment
		have provided the opportunity to provide recommendations to minimise physical and visual impacts.
NAH13	The design and detailed construction planning of work at Central Station would consider the requirements of the Central Station Conservation Management Plan (Rappoport and Government Architects Office, 2013) and include consideration of opportunities for the retention, conservation and / or reuse of original and significant heritage fabric and movable heritage items. Consultation would be carried out with Sydney Trains and the Heritage Council of NSW during design development.	The CSMW respond to the CMP requirements for Central Station to maintain an ongoing role as a major transport hub in NSW. The works have been guided from their inception by the input of heritage specialists and relevant statutory authorities acting in accordance with accepted best conservation practice, including via regular meetings by the Heritage Working Group. The design proposals in the area of the Northern Concourse are in accordance with the intent of the CMP to retain and conserve the significant heritage values of Central Station. Specific policies in this area include: <u>Sydney Terminal Precinct</u> *Seek advice from a suitably qualified archaeologist prior to undertaking any excavation work in identified areas of archaeological potential, particularly the Western Forecourt. Approval may be required pursuant to s57(1) of the* NSW Heritage Act, 1977. Excavation works within the Northern Concourse will be implemented in accordance with the requirements of the documented Archaeological Methodology for this area under the guidance of a suitably qualified Excavation Director as previously described. <u>East Deck</u> *Continue to use the East Deck as a pedestrian access point to the main concourse area. Ensure the sense of progression from the deck to the main concourse and on to the platforms is maintained*.

REMM	Requirement	Comment
		The East Deck is not within the project footprint, however it is noted that the security screen to be installed adjacent to the deck will not impede its function as a pedestrian access point to the Main Concourse. *Demolition of, or changes to, the existing intrusive building services should be allowed without formal approval provided no significant fabric is impacted on by the change*. Works in the area of the East Deck and the Northern Concourse will rationalise the existing intrusive services and enhance the presentation of the heritage fabric in the vicinity. In the particular case of the duct extending from the East Deck to the lower concourse (refer Item K), this option is proposed in order to avoid physical impact on heritage fabric of Exceptional significance i.e. the East Wing. <u>Main Terminus Upper Concourse and Related Spaces</u> *Continue to use the area as the main concourse for intercity and country trains at Central Station. Ensure the sense of progression from the porte-cochere to the main concourse to the platforms is maintained including use of the existing wide linking corridors*. The works in the Northern Concourse will not adversely affect the sense of progression through the station. The upper concourse will provide a new grand space that is complementary to the Main Concourse and will enhance the sense of progression through the station, including to the new metro Concourse. *Do not allow negative impacts on significant fabric, spatial qualities and setting for short term gain. e.g. commercial or advertising signage*. This HIA has assessed the impact of removal of significant fabric in the Northern Concourse and concludes that the moderate heritage impacts are

REMM	Requirement	Comment
		balanced by substantial gains (refer Item 2). The work is proposed as part of a long term strategy to upgrade facilities at the station to facilitate its use as NSW's major transport interchange into the future. All of the proposed works as documented in this report are supporting this outcome and will not give rise to adverse impacts for short-term gain. <u>Country and Interstate Platforms</u> *Continue to use the area as passenger rail platforms. Ensure the sense of progression from the main concourse to the platforms is maintained*. All of the Intercity Platforms will continue to be use as passenger rail platforms. Works in the Northern Concourse will enhance the sense of progression from the Main Concourse to the platforms and will have a positive overall impact. <u>Central Electric</u> *Continue to use the Eddy Avenue entrance to Central Electric as a major pedestrian entry.* *Ensure vistas to Eddy Avenue entrance when approaching form Belmore Park are not obscured*. Works at the lower concourse level will enhance the Eddy Avenue entrance as a major pedestrian entry to the station. There will be no obstruction of existing views to the north façade of the Central Electric Building associated with the new work as assessed at Item 2b above.

5 CONCLUSION

This Heritage Impact Assessment has reviewed Stage 3 works documented for the Northern Concourse and concludes that the proposal will not unduly impact on the heritage significance of the place, which is significant as the unifying concourse with access for the whole of Central, linking the Metro to Suburban and Intercity Platforms as well as providing a new entrance for Central and extension to the Main Concourse. The work interfaces with the Main Terminus precinct and the Central Electric precinct and the Stage 3 architectural design demonstrates a compatible response to the heritage character of these areas, where the traditional design aesthetic of the major features are retained and enhanced while introducing a contemporary aesthetic that is coordinated with other design packages to demonstrate the evolution of Central Station.

Overall, the Stage 3 design for the Northern Concourse package is consistent with approved impacts in this area under SSI 15_7400, and has been developed to resolve detailed aspects of the design. A minor increase in the trend of heritage impacts has been identified additional to the approved impacts that for the most part is the inevitable result of detailed design resolution of the approved work. One major aspect of design development is the change to the main canopy to be a single vaulted design, which necessitates the removal of some heritage fabric, resulting in moderate physical impact. This proposal has, however, been generated with consideration for enhancing the presentation of the main heritage features of the station and its operational efficiency with resultant positive outcomes and implementation of mitigating strategies will ensure that the heritage impacts are manageable.

For all components of work identified in this HIA, measures have been taken to minimise the extent of heritage impacts and for major elements, consideration of options to determine the best heritage outcome while satisfying operational requirements has occurred in accordance with best practice. As such, no major issues adversely affecting the trend of heritage impacts in this area have been identified and the primary heritage values of Central Station will be retained. A number of additional mitigating strategies have also been identified in this report, as summarised below, to ensure that important heritage values that contribute to the character and significance of the place will be retained as far as possible.

5.1 Recommendations

- The following recommendation should be adopted to ensure that appropriate mitigation strategies are implemented:
- Nominated fabric of the bridging structures to be removed should be salvaged for storage and potential reuse in the future. Identification of the most suitable repository should be determined by Sydney Metro and Sydney Trains.
- Salvaged metal fabric from the bridging structures should be treated with a protective coating to ensure long term protection in the event of their future reuse at the station. Rust on the ironwork should be treated prior to storage, including areas newly exposed as a result of dismantling works, using a rust inhibitive primer with a high zinc content e.g. Galmet or similar.

- Every effort should be made to reinstate stonework salvaged from the existing east opening of central Electric Building to form the window to the south. If it is necessary to reconstruct stonework, this must be of matching stone and detailing. This work should be implemented by appropriately qualified and experienced stonemasons.
- The existing window (east façade) and fanlight (south façade) of Central Electric should be carefully salvaged for reinstatement, in addition to the existing doorset.
- New fixings where required into masonry fabric must be installed in a neat and consistent manner and comprise stainless steel fixings.
- New fixings should be in to mortar joints wherever possible.
- Existing openings should be used in lieu of additional penetrations wherever possible. The size, number and extent of new fixings and penetrations into existing fabric should be restricted to the minimum necessary for the new installation/s.
- If an arch is proposed for the final design for the base of Central Electric, consideration should be given to the proportions of the arch and base storey elements to ensure that these convey a robustness commensurate with the qualities of the existing building. The final solution should be subject to heritage assessment.
- Construction of the new TCAC shelter should observe the following recommendations:
  - where suspension rods and plates etc. are fixed into the stonework, these should use chemical anchors, not friction;
  - if the final intention is to paint the steelwork, exposed fixings should be brass, which will colour up to blend in with the neutral colour of the stone over time, for example, fixings into stonework be stainless steel, capped with brass nuts (accord head nuts recommended). If painting is not intended, then exposed fixings should match the structure in stainless steel;
  - the details should ensure that a stainless steel or brass washer is included between stonework and new plates;
  - existing stonework should be made good to match existing following removal of the awning from the south façade;
  - the awning should be carefully dismantled for salvage. Should any additional early fabric be uncovered, it should be archivally recorded prior to removal.
- The minor visual impact of introducing a new duct adjacent to the East Wing should be mitigated by high quality design.
- Relocating the existing gate to the east of Central Electric should observe the following recommendations:
  - the gate should be setback from the front façade (behind the quoins) to ensure that it remains a recessive element;
  - new fixings into the stonework (if required) should use chemical anchors, not friction;
  - existing stonework should be made good to match existing following removal of the gate from its current position.

- The final solution, both materials and detailing, for enclosure of the opening on the west façade of Central Electric should be subject to heritage assessment.

Beyond design documentation, implementation of works must adopt the following recommendations:

- Management of the site's archaeological potential must be in accordance with recommendations of the archaeologists as documented in the *Central Station Main Works – Station Box and Sydney Yards Archaeological Method Statement*, Artefact Heritage, August 2018.
- Vibration impacts must be managed in accordance with the CSMW *Construction Noise and Vibration Management Plan* (by ERM) to ensure that vibration levels remain below appropriate limits. Measures to limit vibration must be implemented to avoid impacts to surrounding fabric, including saw cutting set back from the building edges to isolate vibration from the structures prior to bulk excavation works.
- Excavation must be undertaken with consideration for geotechnical assessment of the site and the input of structural engineers to ensure the structural integrity of the existing built fabric in the vicinity of the site.
- To ensure the retention, preservation and conservation of elements and items that are to be retained in the vicinity of the work, works must be implemented in accordance with:
    - CAS-C *Temporary Protection of Retained Elements* (OCP Architects, Rev.A 24 October 2018); and
    - CAS-E *Northern Concourse Enabling Works* (OCP Architects, Rev.A 16 May 2019)

Appendix C – CAS – C Temporary Protection of Retained Elements.

OCP ARCHITECTS

SYDNEY METRO CITY & SOUTHWEST

CENTRAL STATION MAIN WORKS

CONSERVATION ACTIONS SCHEDULE C

TEMPORARY PROTECTION OF RETAINED ELEMENTS

Prepared for Laing O'Rourke Australia

Revision A – 24 October 2018

Job No. 18014

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Report Register

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

Document status:

Revision	Date	Purpose	Written
A	24 October 2018	Draft Issue to Client	KU

CONTENTS

Conservation Actions Schedule C - Temporary Protection of Retained Elements

1 INTRODUCTION

This Conservation Actions Schedule establishes the requirements for the protection of fabric to be retained that is located within, adjacent to or in the vicinity of the Project Works (the Works). It has been prepared so that the principles contained in the Australia ICOMOS Charter for the Conservation of Places of Cultural Significance (the Burra Charter) can be adhered to, and that the actions required to be carried out are clearly set down for all personnel working on the site.

When undertaking conservation or development works to heritage places, there is the potential to impact upon the heritage values of the place. For the Central Station Main Works project, a range of significant items and elements that are to be retained are in close proximity to the works and will require the implementation of temporary protection measures. The need for this protection applies both within and also to items beyond the Central Station SHR curtilage that are in the vicinity of works and have the potential to be affected by it.

Effective planning and protective measures initiated prior to specific construction activities can prevent damage to built fabric that is to be retained. Protection measures must be established prior to and for the duration of works around structures and elements that have not been identified for impact in the vicinity of the Works to ensure compliance with CSSI 15_7400 condition of approval E10 and E58 as listed respectively below:

E10: *The Proponent must not destroy, modify or otherwise physically affect any Heritage item not identified in documents referred to in Condition A1*.

E58: *The CSSI must be designed and constructed with the objective of minimising impacts to, and interference with, third party property and infrastructure, and that such infrastructure and property is protected during construction*.

Protection works are not limited to the building works but include construction methodology, materials handling and support systems. All protection work is to be carried out under the guidance and instructions of the Heritage Architect, Structural and Geotechnical Engineers. If there is any doubt about whether an item requires protection, when to implement a protection measure or implementation of appropriate protection methodologies, instructions should be sought from the Heritage Architect.

2 AIMS OF THIS CONSERVATION ACTIONS SCHEDULE

This Conservation Actions Schedule C (CAS-C) applies to the methodology involved for the temporary protection of buildings, elements and fabric to be retained at Central Railway Station and adjacent sites that are within the area or in the vicinity of the Works. It has been prepared in accordance with the requirements of the Construction Heritage Management Sub-plan (CHMP) and SWTC Appendix B06 (Section 3.5) to identify actions that must be taken to ensure that assets at Central Railway Station and in the vicinity of project works are protected from damage during the progress of the Works.

The aims of this CAS-C are to:

- Ensure the retention, preservation and conservation of elements and items that are not approved for impact in the vicinity of the Works.
- Broadly identify elements that are within the project footprint or in the vicinity of the Project Works that are to be retained and require temporary protection.

- Outline the requirements for temporary protection of retained elements consistent with the principles of the Burra Charter.
- Detail the actions and procedures to be carried out prior to commencement of work to ensure that appropriate mitigation and protection measures are implemented.
- Ensure that appropriate protection measures are developed so that the Works will not result in any irreversible damage to heritage and other fabric to be retained.
- Ensure that appropriate protection measures are developed so that accidental impacts on fabric to be retained are avoided.

This CAS-C does not describe specific requirements for protection and management of archaeological resources, which are addressed in work specific Archaeological Method Statements (AMS) prepared by Artefact, or detailed requirements for vibration monitoring, which are addressed in the *Construction Noise and Vibration Management Plan* prepared by ERM.

3 ALTERNATE METHODOLOGIES

Where the Contractor finds any specific action set out below difficult to fully implement, whether for practical construction reasons, as a result of latent site conditions, or arising from any other legitimate reason, the Contractor shall refer the matter to the Heritage Architect. The Heritage Architect shall confer with the Contractor and devise an alternate methodology which will enable the Contractor to carry out the specific area of work effectively and productively while minimising impact upon heritage fabric.

4 CENTRAL STATION & CENTRAL STATION MAIN WORKS

Central Station is the largest railway station and transport interchange in NSW, the whole of which is listed on the NSW State Heritage Register (SHR). The site is significant for aesthetic, historic, social, spiritual and technical reasons. Its monumental sandstone buildings, grand clock tower and ramped approaches make the site a well-known landmark in Sydney. In general terms, the site has buildings concentrated towards its north boundary with platforms and large open space rail yards located behind.

The Central Station Main Works are the permanent works for a new underground Metro Station for the Sydney Metro City and Southwest at Central Station. The work is broadly described below:

A. Central Station Works

- redeveloped northern concourse and northern entrance area
- adjustments to the existing Grand Concourse, Intercity Concourse and baggage tunnels
- new underground metro platforms situated below rail service platforms 13, 14 and 15 (north-south concourse within Metro Station Box)

B. Central Walk Works:

- new eastern entry on the east side of Chalmers street
- new east-west concourse (Central Walk) below existing suburban Platforms 16 to 23 to provide an accessible connection to the suburban and metro platforms from the new entry

The above works are located within the curtilage of the SHR site, with the exception of the new eastern entry which is located on the site of a locally listed heritage item (to be demolished) with other locally listed items adjacent and in its immediate vicinity (refer Figure 1 and Figure 2).

5 INTERFACES WITH ELEMENTS TO BE RETAINED

Demolition, excavation and construction activities for the CSMW project will be carried out directly adjacent to and in the vicinity of heritage (and other) fabric that is to be retained. It is noted that all fabric that has not been identified for removal under the CSSI approval must be protected from damage, regardless of its individual level of heritage significance.

The CSMW site within the Central Station precinct is shown in Figure 1 below. Areas of interface between the Works and adjacent areas are broadly identified in Figure 2 and the table below for general information. It is the responsibility of the Contractor, however, with their detailed knowledge of construction activities, plant and machinery to be used, to assess whether there are any assets adjacent to the Works that may possibly be affected by any activities related to the Works.

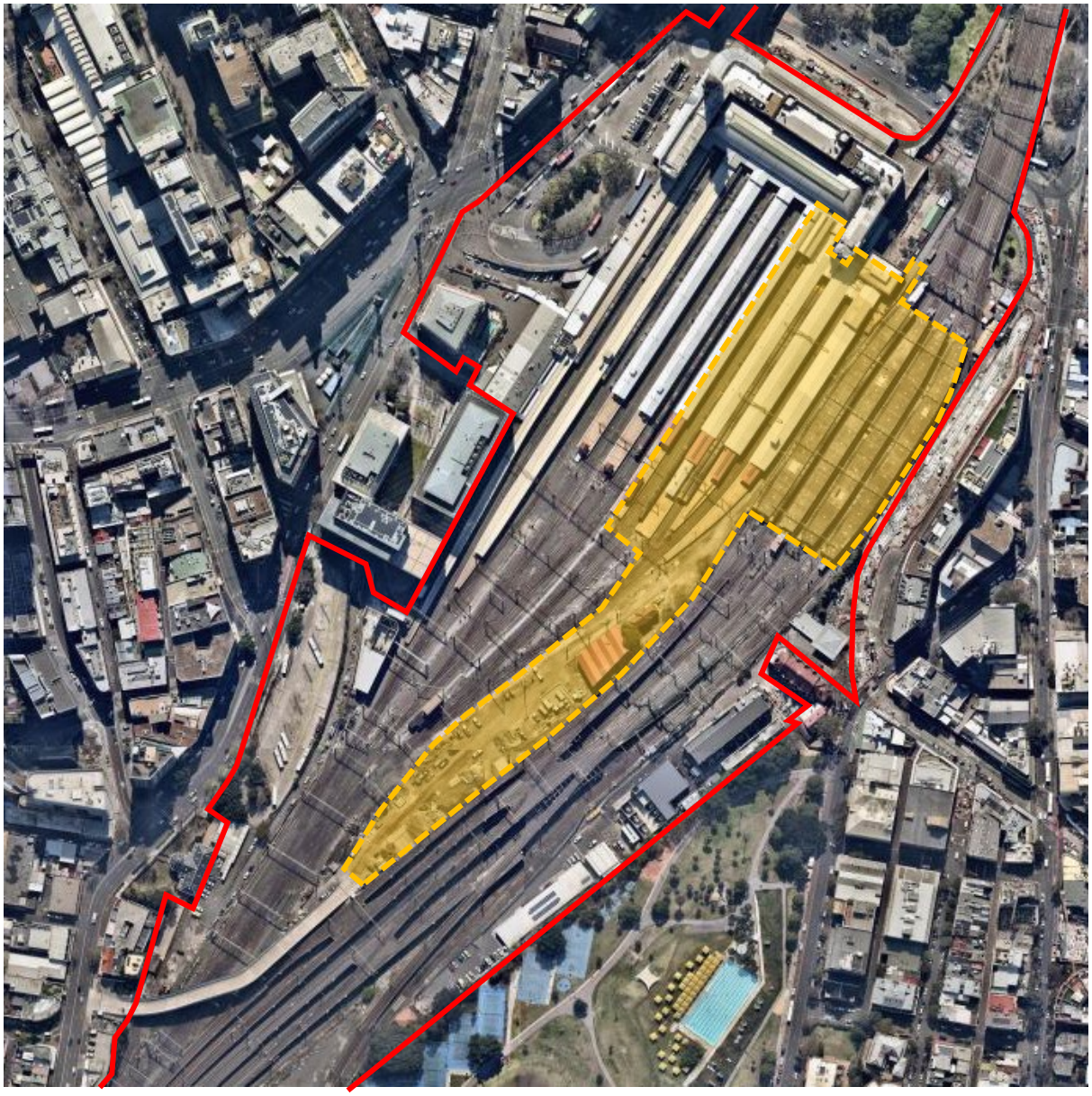


FIGURE 1: CSMW SITE WITHIN THE SHR LISTED CENTRAL STATION PRECINCT - THE APPROXIMATE SHR BOUNDARY FOR THE CENTRAL STATION SITE IN THE VICINITY OF THE WORKS IS OUTLINED IN RED. AREAS WHERE APPROVED IMPACTS WILL OCCUR WITHIN THE SHR BOUNDARY ARE SHADED YELLOW, WHILE ELEMENTS OF CENTRAL STATION THAT HAVE NOT BEEN APPROVED FOR IMPACT ARE UNSHADED.
SOURCE: ANNOTATED IMAGE FROM NEARMAP, SEPTEMBER 2018.

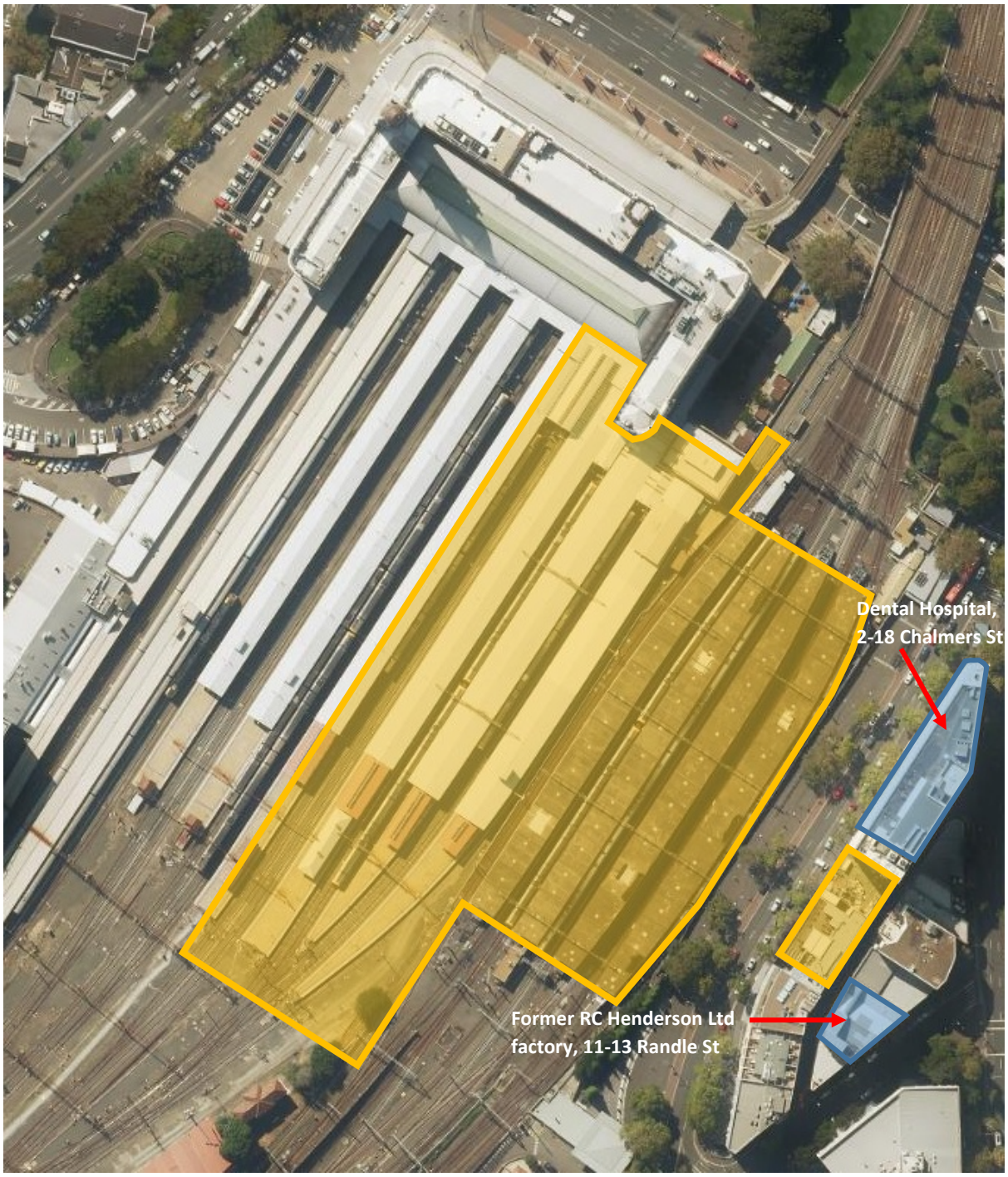


FIGURE 2: DETAIL VIEW (PARTIAL) OF THE PROJECT WORKS SITE BROADLY ILLUSTRATING AREAS OF INTERFACE BETWEEN CSM WORKS AND AREAS OF FABRIC TO BE RETAINED BOTH WITHIN THE CENTRAL STATION SHR SITE AND ADJACENT AREAS ON CHALMERS STREET. NOTE THAT THE NATURE OF APPROVED DEMOLITION AND EXCAVATION WORKS IN SYDNEY YARD LIMITS INTERFACES WITH FABRIC TO BE RETAINED AND AS SUCH THIS AREA HAS NOT BEEN SHADED IN THIS FIGURE (THE SYDNEY YARD AREA IS INCLUDED IN FIGURE 1).

GENERAL AREAS WHERE APPROVED IMPACTS HAVE AN INTERFACE WITH FABRIC TO BE RETAINED ARE SHADED YELLOW.

HERITAGE ITEMS OF LOCAL SIGNIFICANCE TO BE RETAINED THAT ARE IN THE VICINITY OF THE PROJECT WORKS BUT EXTERNAL TO THE SHR BOUNDARY ARE SHADED BLUE AND LABELLED.

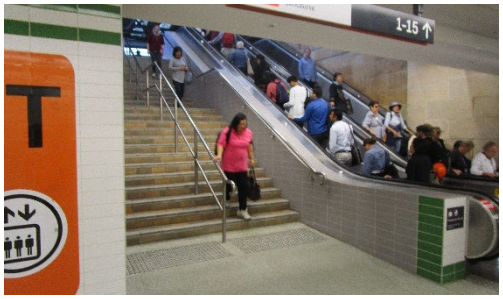
SOURCE: ANNOTATED IMAGE FROM NEARMAP, SEPTEMBER 2018

TABLE 1: INDICATIVE INTERFACES OF PROJECT WORKS WITH FABRIC TO BE RETAINED, PROVIDED FOR GENERAL INFORMATION ONLY

A. CENTRAL STATION WORKS – Northern Concourse & Intercity Platforms			
General Work Activities	**Indicative Interfaces**	**Significance of Retained Fabric**	**Images**
Demolition of existing platforms 13 and 14/15 including canopies (12/13 & 14/15) and any rooms located on the platforms. Construction of new Platforms 13 to 15. Demolition and construction plant and machinery on and in vicinity of retained fabric, including adjacent concourse areas.	Platform and infill canopies adjacent to brick and stone masonry facades of the Central Electric Building and east wing of Main Terminus. Junction with section of Platform 12 to be retained.	Main Terminus: **EXCEPTIONAL** Central Electric Building: **HIGH** Country & Interstate Platforms Overall: **HIGH**	  

A. CENTRAL STATION WORKS – Northern Concourse & Intercity Platforms			
General Work Activities	**Indicative Interfaces**	**Significance of Retained Fabric**	**Images**
Shortening to northern end of Platforms 9 to 11 to extend the Intercity Concourse. Construction plant and machinery on and in vicinity of retained fabric.	Junction with platforms including corbelled platform edges (with concrete topping) and brick paved floors to be retained. Intervention to Platform 8/9 and 10/11 canopies to be confirmed through design development.	Country & Interstate Platforms Overall: **HIGH** Platforms (original 1906 brick supporting walls): **HIGH** Brick Paving: **MODERATE**	
Extension to southern end of Platforms 9 to 11. Construction plant and machinery on and in vicinity of retained fabric.	Junction with c.1990s extensions to platforms.	Concrete extension to Platforms: **MODERATE** Brick Paving: **MODERATE**	
Infill of existing stair located north of Platforms 9 & 10. Construction plant and machinery on and in vicinity of retained fabric.	Junction with c.1990s brick paved floors.	Brick Paving: **MODERATE**	

A. CENTRAL STATION WORKS – Northern Concourse & Intercity Platforms			
General Work Activities	**Indicative Interfaces**	**Significance of Retained Fabric**	**Images**
Installation of temporary stanchions on Platform 11. Construction plant and machinery on and in vicinity of retained fabric.	Intervention to platform surface for stanchion footings. Extension of stanchion through canopy. Works in vicinity of platform canopies including various fixtures e.g. heritage signage.	Country & Interstate Platforms Overall: **HIGH** Platform awning & 'Central' signage: **HIGH** Brick Paving: **MODERATE**	
Demolition of portions of the retaining wall between Platforms 15 & 16 and demolition of generator room adjacent to retaining wall. General construction activities adjacent to retaining wall e.g. piling and excavation works, general vehicular activity, construction plant and machinery.	Intervention to and work in vicinity of brick masonry retaining wall to be retained.	**HIGH**	
Construction of a new canopy between the Central Electric Building and the northern end of existing Platforms 8 to 11 and new Platforms 12-15. Construction of new floors for northern concourse. Construction plant and machinery on and in vicinity of retained fabric.	Works in vicinity of the Central Electric Building, east wing of Main Terminus and roof of Main Terminus Upper Concourse. Interface of canopy supports to existing roof of Central Electric.	Main Terminus: **EXCEPTIONAL** Central Electric Building: **HIGH** Main Terminus Upper Concourse, including roof: **EXCEPTIONAL**	

A. CENTRAL STATION WORKS – Northern Concourse & Intercity Platforms			
General Work Activities	**Indicative Interfaces**	**Significance of Retained Fabric**	**Images**
	Potential connections to brick and stone masonry facades to be resolved during design development. Junction of new floors in Northern Concourse with terrazzo floor of Grand Concourse.	Terrazzo flooring (Mid c.20th): **MODERATE**	 
Demolition of escalators and stair in North Concourse. Construction plant and machinery on and in vicinity of retained fabric.	Demolition of existing fabric directly adjacent to Central Electric Building.	Central Electric Building: **HIGH**	 

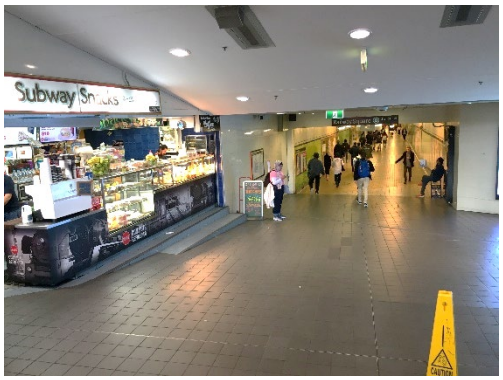
A. CENTRAL STATION WORKS – Northern Concourse & Intercity Platforms			
General Work Activities	**Indicative Interfaces**	**Significance of Retained Fabric**	**Images**
Construction of void in the North Concourse. Construction works for Northern Concourse (to link Metro station with existing northern entrance and north concourse). Construction plant and machinery on and in vicinity of retained fabric.	Demolition of existing concrete floor fabric directly adjacent to Central Electric Building. Construction works in vicinity of Main Terminus (east wing) and Central Electric Building.	Central Electric Building: **HIGH** Brick Paving: **MODERATE** Main Terminus: **EXCEPTIONAL**	
Excavation in Sydney Yard and construction of new underground Metro platforms.	Potential impacts on archaeological resource (to be managed in accordance with activity specific Archaeological Method Statement prepared by Artefact). Potential indirect impacts associated with vibration from excavation and construction activities (to be managed in accordance with *Construction Noise and Vibration Management Plan* prepared by ERM).	Various	

B. CENTRAL WALK WORKS			
General Work Activities	**Indicative Interfaces**	**Significance of Retained Fabric**	**Images**
Demolition of existing building at 20-28 Chalmers Street, Surry Hills (former MGM Building and Bounce Hostel), excavation and construction of a new station entrance.	Demolition, excavation and construction activities in close proximity to heritage items (Sydney Dental Hospital, 2-18 Chalmers Street and Former RC Henderson Ltd Factory, 11-13 Randle Street) Demolition, excavation and construction activities directly adjacent to existing buildings on Chalmers Street.	Locally significant item.	
Excavation and subsequent construction activities for Central Walk. Construction plant and machinery on and in vicinity of retained fabric.	Excavation and construction works directly below existing Suburban Platforms 16 to 23 and Central Station boundary wall on Chalmers Street. Demolition of existing ESR concrete side walls at concourse level and ghost platform level and formation of new connections to the eastern entry. Work in vicinity of war memorial honour boards in ESR concourse.	Suburban Platforms overall: **HIGH** Corbelled platform walls: **HIGH** Concrete platform roofs, columns and trusswork: **HIGH** Chalmers Street boundary wall: **HIGH** Underground Platforms & ESR Concourse Overall: **MODERATE** War memorial honour boards: **HIGH**	 

B. CENTRAL WALK WORKS			
General Work Activities	**Indicative Interfaces**	**Significance of Retained Fabric**	**Images**
New vertical transport from the Central Walk to Suburban Platforms 16 to 23. Platform voids for new escalators (Platforms 16 to 23) and temporary stairs (northern end of Platforms 20/21 and 22/23). Construction plant and machinery on and in vicinity of retained fabric.	Localised penetration of platform surfaces and canopies (1/No. penetration per paired platform for lift installation). Localised penetration of platform surfaces for construction of voids and interface with platforms surfaces for installation of temporary floors to maintain access during construction.	Suburban Platforms Overall: **HIGH** Platforms and original asphalt platform surfaces: **HIGH** Brick Paving: **MODERATE** Concrete platform roofs, columns and trusswork: **HIGH**	
Temporary support of Suburban Platform canopies (to enable demolition and construction activities). Construction plant and machinery on and in vicinity of retained fabric.	Interface with existing platform canopies.	Concrete platform roofs, columns and trusswork: **HIGH** Brick Paving: **MODERATE**	

B. CENTRAL WALK WORKS			
General Work Activities	**Indicative Interfaces**	**Significance of Retained Fabric**	**Images**
Demolition of existing platform sheds and furniture on Platforms 16 to 23 and general platform refresh works. Construction plant and machinery on and in vicinity of retained fabric.	Works directly on Suburban Platforms 16 to 23 and in vicinity of platform canopies, heritage signage, iron balustrades and brackets.	Suburban Platforms Overall: **HIGH** Platforms and original asphalt platform surfaces: **HIGH** Brick Paving: **MODERATE** Concrete platform roofs, columns and trusswork: **HIGH** Iron balustrades and sign brackets: **HIGH** Platform sheds and furniture: **LITTLE**	

C. OTHER WORKS			
General Work Activities	**Indicative Interfaces**	**Significance of Retained Fabric**	**Images**
Modification of former baggage tunnels below platforms, including demolition of some sections. Construction plant and machinery on and in vicinity of retained fabric.	Works adjacent to portions of tunnels to be retained.	Luggage tunnels (Platforms 16-23 / 1-15): **MODERATE - HIGH**	
Removal of attached fixtures, services and elements from existing buildings.	Fixtures, services and elements attached to south façade of Central Electric Building and south and west facades of Main Terminus Building.	Main Terminus: **EXCEPTIONAL** Central Electric Building: **HIGH**	
Construction activities and vehicular movement in Sydney Yard generally.	Shunters Hut located at southern most end of yard.	Shunters Hut: **MODERATE**	

C. OTHER WORKS			
General Work Activities	**Indicative Interfaces**	**Significance of Retained Fabric**	**Images**
Ancillary / temporary works throughout the construction period, including: - temporary wayfinding and signage; - temporary arrangements for public access; - construction of hoardings, fencings, access gates and barriers around the site; - temporary site facilities, infrastructure, services etc. as required	Various	Various	-
Interventions to Devonshire Street Tunnel.	Nature of intervention to be resolved during design development.	Devonshire Street Tunnel overall: **HIGH**	

6 TYPES OF PROTECTION

Protection can be implemented in a variety of ways in response to different conditions, construction activities and type of plant and machinery proposed for use. Some examples include:

- **Physical protection** to prevent physical contact with and access to fabric, which may include wrapping, hoarding and/or barriers e.g. plywood or other structural building board to isolate fabric and prevent mechanical damage, polyethylene sheeting to protect fabric from spillages.
- **Physical protection from extraneous matter** beside and above the built works, for example, protection from falling debris and dust. This protection may be achieved by screening, hoarding or netting.
- **Protection of excavations and undermining of footings**, which must be undertaken in accordance with appropriate structural engineering and geotechnical advice.
- **Protection from geotechnical changes**, for example potential impacts to foundations associated with settlement from lowering of the water table, in accordance with appropriate geotechnical advice.
- **Protection from vibration** or other indirect construction activities.
- **Making good finishes** on newly constructed or altered surfaces.

It is the responsibility of the Contractor to determine what types of protection are required to address the various interfaces of retained fabric with the Project Works with consideration for the nature of construction activities that will be implemented in various locations.

Depending on the nature of the work and the adjacent fabric, protective measures may be limited to documenting and monitoring the retained fabric, or may encompass a broader plan that includes a range of physical protection measures.

7 PROCESSES FOR TEMPORARY PROTECTION & APPROVAL CONDITIONS

Providing adequate protection during construction involves a number of steps, which should be followed to ensure the best outcomes. Necessary steps are described below.

7.1 Step 1: Consultation & Documentation

Consultation between owners of property identified as being at risk of damage and the Contractor's team provides all parties with an opportunity to provide input into the process of managing the risk. Investigation of the condition of the fabric to be retained provides a 'baseline' from which changes to the building or structure during adjacent construction can be identified, monitored and assessed. It may also inform development of appropriate protective measures and appropriate locations for monitoring equipment.

Documentation should be objective and accurate and should be agreed by relevant parties to avoid potential dispute. Consultation and documentation must be undertaken in accordance with CSSI_7400 conditions of approval E59, E60 and E62 as listed respectively below:

E59: *Before commencement of construction, all property owners of buildings identified as being at risk of damage must be offered a building condition survey. Where an offer is accepted a structural engineer must undertake the survey. The results of the surveys must be documented in a* ***Building Condition Survey Report*** *for each building surveyed. Copies of* ***Building Condition Survey Reports***

must be provided to the owners of the buildings surveyed, and if agreed by the owner, the Relevant Council within three (3) weeks of completing the Survey Report and no later than one (1) month before the commencement of construction.

E60: *Within three (3) months of the completion of construction, all property owners of buildings for which a building condition survey was carried out in accordance with Condition E59 must be offered a second building condition survey. Where an offer is accepted, building condition surveys must be undertaken by a structural engineer. The results of the surveys must be documented in a* ***Building Condition Survey Report*** *for each building surveyed. Copies of* ***Building Condition Survey Reports*** *must be provided to the owners of the buildings surveyed within one (1) month of the survey being completed*.

E62: *The Proponent must establish an* ***Independent Property Impact Assessment Panel*** *before relevant works commencing. The Secretary must be informed of the Panel Members and the Panel must comprise geotechnical and engineering experts independent of the design and construction team. The Panel will be responsible for independently verifying surveys undertaken under conditions E59 and E60, the resolution of property damage disputes and the establishment of ongoing settlement monitoring requirements.*

Either the affected property owner or the Proponent may refer unresolved disputes arising from potential and/or actual property impacts to the Panel for resolution. All costs incurred in establishing and implementing the Panel must be borne by the Proponent.

7.2 Step 2: Identification of Risks & Implementation of Protective Measures

Proximity to works and nature of works are primary variables associated with potential impact from construction works. Other factors influencing the degree of likely impact include the age, construction type and structural integrity of the existing fabric, as well as foundation conditions. As such, every construction project is defined by its own particular characteristics and measures for temporary protection, both within the site and for adjacent fabric to be retained, need to be tailored in response to these.

Some of the typical risks to adjacent retained fabric during construction and general considerations for their management are identified below.

7.2.1 Vibration

The tools and methods used in demolition and excavation works produce vibrations that may be transmitted to adjacent buildings and structures.

Historic fabric may be particularly vulnerable to the effects of vibration from adjacent construction works, for example deferred maintenance and past alterations may have resulted in structural weak points. Historic finishes may lack flexibility to accommodate additional movement, while shallow foundations may be less resistant to vibration induced movement.

Measures to mitigate the effects of vibration should be developed in accordance with the *Construction Noise and Vibration Management Plan* prepared by ERM. Hand demolition may also be employed: a) when conventional demolition activities are assessed as likely to cause excessive vibrations; and b) when work is undertaken directly adjacent to fabric to be retained.

Once construction is underway, regular crack and vibration monitoring should be implemented. Any damage should provide a warning that established safe levels have been exceeded and necessitate a revision to procedures.

Monitoring must be undertaken in accordance with CSSI_7400 conditions of approval E61 and E63 as listed respectively below:

E61: *The Proponent must install appropriate equipment to monitor areas in proximity to construction sites and the tunnel route during construction and for a period of not less than six (6) months after settlement has stabilised with particular reference to risk areas identified in the building and infrastructure condition surveys required by conditions E59 and E60 and/or the geotechnical analysis as required. If monitoring during construction indicates exceedance of the criteria, then all construction affecting settlement must cease immediately and must not resume until fully rectified or a revised method of construction is established that will ensure protection of affected buildings*.

E63: *The Proponent must monitor settlement for any period beyond the minimum timeframe requirements of condition E61 if directed so by the Independent Property Impact Assessment Panel following its review of the monitoring data from the period not less than six (6) months after settlement has stabilised, consistent with Condition E61. The results of the monitoring must be made available to the Secretary on request*.

7.2.2 Movement

Existing buildings, in particular historic buildings with shallow footings, may experience displacement during adjacent excavation and foundation work that can result in major structural damage. The approach to controlling movement of an existing building or structure during adjacent excavation and foundation work should be developed by Structural Engineers with consideration for the unique characteristics and vulnerabilities of the adjacent structures and with a view to restricting even incidental movement.

7.2.3 Water

A well-functioning water drainage system is essential to the protection of any historic structure. This system can be rendered ineffective by adjacent construction and demolition work. For example, dewatering, where groundwater or stormwater is removed from an adjacent site during excavation, can result in settlement of an adjacent structure. Construction activities should maintain the existing water table for adjacent structures.

All concealed pipes should be traced from their origins at adjacent structures to ensure implementation of appropriate management procedures during construction.

Regular visual inspections should be undertaken as part of a monitoring program to ensure the adequacy of water drainage systems during construction. This should include checking gutters, valleys and exposed drains for obstructions and any indications of dampness or water damage where construction activities meet other built surfaces.

Construction site runoff should be managed in accordance with the CEMP and should not flow towards adjacent structures that are to be retained. Final grading patterns should also not be routed towards adjacent structures.

7.2.4 Fire Protection

Fire protection systems should be established by the Contractor to minimise risk of fire damage to retained fabric. Appropriate fire protection equipment should be supplied relevant to the scope of work and potential hazards as identified by the Contractor. In addition to active fire protection measures, protection measures could include routine inspections of cutting and welding locations,

temporary heating devices in operation, existing fire protection systems and equipment and exits. The following conditions should be satisfied:

- The area should be surveyed prior to commencement of work to ensure that works can be safely conducted at the desired location.
- Wherever possible, combustible and flammable materials should be moved away from the works zone or safely covered with fire blankets.
- Accumulated dust should be removed on a regular basis to reduce fire hazard.
- Adequate supervision and emergency fire protection equipment should be provided for the duration of work and for a period following completion of work as deemed appropriate relative to fire safety risk of the fabric to ensure that sparks, hot metal or heating equipment do not cause fires to start.

7.2.5 Security

Adequate security measures should be implemented during construction to avoid incidents of vandalism and theft both within the footprint of the Works and also for adjacent structures.

7.2.6 Physical Impact

Construction and demolition activities can cause direct physical damage to neighbouring buildings, structures and materials. Such impact can be mitigated by the placement of protective barriers over any adjacent fabric deemed to be at risk.

Particular care should be taken for elements that are directly exposed to adjacent construction sites. For example, it may be necessary to erect scaffolding with debris netting placed on the outside of the scaffolding. Debris netting may be used to prevent physical impact from falling objects in specific applications and may be applied both horizontally and vertically.

The following areas should be considered:

- Protection of whole facades exposed to the Works e.g. Main Terminus and Central Electric.
- Protection of windows exposed to the Works.
- Protection of rail infrastructure to be retained, including platforms and canopies.
- Protection of adjacent buildings and structures.

7.2.7 Dirt and Dust

The effects of dirt and dust can impact on adjacent structures and dust suppression measures should be employed at the work site. It may be necessary, however, to employ additional measures to the retained structures, for example temporary sealing of windows and service ducts and provision of mats at entrances to reduce dirt tracking

7.3 Step 3: Monitoring

Regular monitoring for damage during the construction period should be undertaken to evaluate the adequacy of protective measures implemented and to identify and implement additional corrective steps if required. A monitoring program to detect, gauge, record and interpret structural movement, the effects of vibration, damage and other changes to fabric to be retained should be established and implemented for the duration of the Project to monitor:

- Settlement
- Movement
- Vibration

- Deterioration
- Changes in water level
- Shoring and temporary support

Physical monitoring, including as identified in Section 7.2.1 Vibration above, should be supplemented by visual inspections to identify newly opened cracks, other signs of settlement and movement and evidence of increased damp or water infiltration. Visual inspections must also ensure that temporary protective measures are secure.

8 GENERAL REQUIREMENTS FOR TEMPORARY PROTECTION

8.1 Structures and properties adjacent to and within the area of Works must be protected when performing any type of construction activity. During the progress of the Works, all existing fabric to be retained shall be maintained in its pre-existing condition.

8.2 The Contractor shall provide reasonable protection to prevent damage to or loss of other property at the site or adjacent to it that is not designated for removal, relocation or replacement in the course of implementing the Project Works as approved.

8.3 It is the responsibility of the Contractor to assess whether there are any assets adjacent to the Works that may possibly be affected by any activities related to the Works, which should be determined with consideration for the nature of the works, structural and geotechnical issues as relevant.

8.4 The Contractor is responsible for the planning, installation, management and ongoing maintenance of protection measures to safeguard fabric to be retained.

8.5 The Environmental Manager must ensure that this CAS-C for temporary protection of elements to be retained is reviewed with the Subcontractors responsible for carrying out the protection work activities to ensure they understand and can implement work.

8.6 The guidelines provided in this CAS-C are performance based and must be supplemented by detailed methodologies, prepared by the relevant subcontractor with specific engineering and geotechnical input as relevant, for the protection of all buildings, structures and fabric to be retained that have the potential to be damaged by the project works (refer Section 9 WORK PLAN FOR TEMPORARY PROTECTION).

8.7 Implement protection measures for fabric to be retained prior to the commencement of specific Project Works that have the potential to affect it.

8.8 Protective measures must remain in place until completion of the work and removed at the completion of construction activity when no further risk associated with implementation of the Works remains to fabric to be retained.

9 WORK PLAN FOR TEMPORARY PROTECTION

9.1 Submit a Work Plan for Temporary Protection of any assets that may be impacted by the Works prior to commencement of work which sets out the means of protecting the existing fabric and structure relevant to the nature of construction activities and proximity to retained fabric.

9.2 The Work Plan should describe all necessary details of the planned protection measures to enable proper assessment of the proposed measures. **(Witness Point – methodologies for protection of retained fabric must be reviewed and approved by the Heritage Architect prior to implementation)**.

9.3 The Work Plan should include at minimum:

- Identification of construction procedures in the vicinity of heritage items to be retained, including:
  - identification of timing and specific location of work activities;
  - procedures for transporting equipment and materials to and from site;
  - demolition and construction methodologies;
  - plant and equipment required to implement work;
  - storage of equipment and materials.
- Identification of potential impacts and risks to retained fabric and features associated with the Works.
- Specification of the proposed methods and locations of protection to be used during construction, including a description of materials and methodology proposed to carry out the protection activity for nominated areas.
- Identification of potential impacts and risks associated with the proposed protection methodology and any mitigation measures.

9.4 Before commencing works, the Environment Manager must advise the Heritage Architect in writing that the protective measures have been installed in accordance with the approved Work Plan for Temporary Protection.

10 WORK METHODS FOR TEMPORARY PROTECTION

10.1 Moveable items, contents or collections should be moved, prior to the commencement of work, out of construction areas to a secured location and safely packaged until work has been completed e.g. War Memorial Honour Boards that have been identified as being at risk of damage owing to their proximity to Project Works.

10.2 Store materials in designated laydown areas and only bring in when ready to install.

10.3 Access by construction personnel to areas of significant historic fabric should be restricted, and limited to personnel specifically implementing work in such areas.

10.4 Ensure careful movement of equipment on site to avoid impact to buildings, elements and fabric to be retained.

10.5 All temporary hoardings must be designed for easy on-site construction to minimise potential damage to fabric of Central Station during movement of components. Careful assembly includes using screw fasteners in order to eliminate hammering during construction, accidental damage and damage during disassembly.

10.6 Fabric to be retained should be protected from damage cause by vibration, abrasion, falling objects, dust dirt and spillages, and other impacts with protective measures suitable to the nature of the hazard in accordance with an approved Work Plan.

10.7 Temporary protection must be installed in a reversible manner that minimises impact on fabric to be retained.

10.8 Works must be executed in a manner that maintains the structural integrity of adjoining fabric, implementing all necessary steps to protect the fabric and structure.

10.9 Elements that have been identified to be at direct risk of damage should be physically isolated from construction operations by means of appropriate protective barriers and coverings in accordance with an approved Work Plan. This may include, but is not limited to walls and flooring, stairways, balustrades, door surrounds and window surrounds.

10.10 Care must be taken in planning the protection assembly to ensure that moisture from spilled liquid or other potentially harmful material is not trapped against retained fabric where it may go undetected for long periods while concealed under the protection assembly.

10.11 Avoid using sheet coverings that have the potential to stain fabric to be retained.

10.12 Protective assemblies should be self-supporting and self-bracing, secured at the base on a base plate or to a floor protection assembly as relevant. Fixings, fasteners and physical intervention into fabric to be retained should be avoided. Any proposal for fixing into retained fabric must be approved by the Heritage Architect prior to installation, however preference will be given to alternatives that do not require such intervention. **(Witness Point: Heritage Architect to be notified of any proposal for direct fixing into fabric)**.

10.13 Where protective assemblies, including frames and panels, directly adjoin fabric to be retained, the rear of the assembly should be padded with material similar to closed cell, cross-linked polyethylene foam.

10.14 Where sections of the adjoining structure and fabric are exposed during the Works and are subject to weather or other damage, these sections are to be suitably protected.

10.15 Works must be carried out with due care, by hand where necessary in the vicinity of significant fabric to be retained to avoid damage.

10.16 Undertake regular monitoring to ensure works are completed as required without impact to retained fabric.

10.17 Where potential vibration impacts associated with demolition, excavation and construction activities have been identified by specialist consultants (refer *Construction Noise and Vibration Management Plan* prepared by ERM) undertake vibration monitoring. Seek advice from the Heritage Architect on methods and location for installation of vibration monitoring equipment. **Witness Point**

10.18 The Contractor must stop construction work at any time when in their opinion the work is causing, or about to cause, damage to fabric that is to be retained. **(Witness Point: Heritage Architect to be notified of any works causing or likely to cause damage to retained fabric)**. In this event, work shall not recommence until any instructions by the Heritage Architect and Project Engineers have been implemented and their written approval to proceed has been obtained.

10.19 Any restoration work must be approved by the Heritage Architect and carried out by approved operators.

Appendix D – CAS-E Northern Concourse Enabling Works

OCP ARCHITECTS

SYDNEY METRO CITY & SOUTHWEST

CENTRAL STATION MAIN WORKS

CONSERVATION ACTIONS SCHEDULE E

NORTHERN CONCOURSE ENABLING WORKS

Prepared for Laing O'Rourke Australia

Revision B – 31 October 2019

Job No. 18014

Studio 7, Level 1, 35 Buckingham Street, Surry Hills 2010 | 02 9319 4126 | www.ocp.net.au | Otto Cserhalmi NARN 4079

Cover Image

View of bridging structure between Grand Concourse roof and Platform Canopies at northern end of Platform 8/9.
Source: OCP Architects, 3 April 2019

Report Register

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

Document status:

Revision	Date	Purpose	Written
A	16 May 2019	First Draft for Information	KU
B	31 October 2019	Revision B	KU

CONTENTS

Conservation Actions Schedule E - Northern Concourse Enabling Works

1 INTRODUCTION

This Conservation Actions Schedule has been prepared in accordance with the requirements of SWTC Appendix B06 so that the principles contained in the Australia ICOMOS Charter for the Conservation of Places of Cultural Significance (the Burra Charter) can be adhered to, and that the actions required to carry this out are clearly set down for all personnel working on the site.

This Conservation Actions Schedule E (CAS-E) applies to the methodology involved to facilitate enabling works in the Northern Concourse at the northern end of Platforms 8/9, 10/11 and 12 in advance of installation of new structure for the new Northern Canopy. Work includes demolition and deconstruction work, in addition to salvage of nominated items.

All demolition and deconstruction work is to be carried out under the guidance and instructions of the Heritage Architect and Structural Engineer. If there is any doubt about whether an item is to be removed, left in situ or salvaged, instructions should be sought from the Heritage Architect.

2 AIMS OF THIS CONSERVATION ACTIONS SCHEDULE

This Conservation Actions Schedule E (CAS-E) applies to the methodology involved to implement enabling works in the Northern Concourse, including demolition and deconstruction of the bridging structures at the northern end of Platforms 8/9 and 10 and timber columns at the northern end of Platforms 8 to 12. It should be read in conjunction with the architectural and structural drawings, CAS-C for Temporary Protection of Retained Elements, CAS-D for Demolition and Deconstruction generally and the Sydney Metro *Salvage Register* (current version dated 13 March 2019, which includes elements of the Northern Concourse and surrounds).

The aims of this CAS-E are to:

- Outline the methodology of conducting demolition or deconstruction of affected structures.
- Ensure the demolition and deconstruction works as proposed will not result in any irreversible damage to adjacent fabric to be retained; and that significant building elements exposed by adjacent removal of fabric are protected from physical damage and from the elements (when undertaken in conjunction with CAS-C).
- Ensure the retention, preservation and conservation of removed original building elements and materials that have been identified for salvage.
- Ensure the methods of dismantling, treatment and storing of the existing cast iron trusses and cast iron downpipes is properly executed to allow for their conservation.
- Ensure that removed elements for salvage are properly labelled and stored.

NOTE: **CAS-C** sets out the requirements for the temporary protection of buildings, elements and fabric to be retained at Central Railway Station and adjacent sites that are within the area or in the vicinity of the Works to ensure that adjacent fabric is not damaged during the work.

CAS-D identifies the general methodology involved for the demolition and deconstruction of components of Central Railway Station.

3 ALTERNATE METHODOLOGIES

Where the Contractor finds any specific action set out below difficult to fully implement, whether for practical construction reasons, as a result of latent site conditions, or arising from any other legitimate reason, the Contractor shall refer the matter to the Heritage Architect. The Heritage Architect shall confer with the Contractor and devise an alternate methodology which will enable the Contractor to carry out the specific area of work effectively and productively while minimising impact upon heritage fabric.

4 INSPECTIONS TO BE CARRIED OUT

Testing is required on the following:

- Paint or applied coatings on timber and metal fabric, especially for lead.

Further investigations required are:

- Detailed inspection of existing TCAC awning to assess the nature of the substructure presently enclosed by timber valence. The substructure is to be inspected by the Heritage Architect prior to removal.

5 NORTHERN CONCOURSE ENABLING WORKS

5.1 General Description of Works Area

The roof of the Grand Concourse upon construction was a special feature of the new Terminus Building, being a focal point from various vantage points around the terminus. When it was first erected, the barrel vaulted roof of the Main Concourse, comprising metal arch truss supports, was one of the largest spans in Sydney.

In addition to the Grand Concourse itself, a small covered platform access area was built between the Main Concourse and the platforms, in order to provide a sheltered link between the platforms and the Main Concourse. The southern edge of the Grand Concourse roof where it adjoins the platform access area is fringed by an arched, decorative iron lattice work grille on columns, original to the construction of the concourse. The platform access area includes the raked bridging structures at the northern end of the Intercity Platforms.

The face brick and sandstone East Wing of the Main Concourse Building is adjacent to the bridging structures in the area of Northern Concourse enabling works. To the south of the East Wing are a number of gabled awnings that extend above the Northern Concourse for its full length, approximately aligning with the eastern edge of the Central Electric Building, a Bradfield designed sandstone structure.

The Grand Concourse roof, including lattice edge and columns, the East Wing and Central Electric Building are elements that are central to the significance of Central Station, the whole of which is listed on the NSW State Heritage Register. Particular care will be required for work in this area owing to proximity to these elements. Methods of protection must be implemented in accordance with **CAS-C**, including terrazzo flooring of the Grand Concourse in the vicinity of work.

5.2 Overview of Northern Concourse Enabling Works

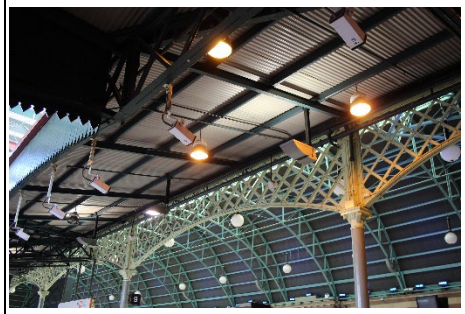
The Northern Concourse enabling works require demolition of specific elements, including deconstruction to facilitate salvage of heritage items that have been identified as part of the strategy to mitigate heritage impacts. The table in this Section 5.2 provides an outline of the work and also broadly identifies sensitive interface areas requiring protection of fabric to be retained. It is noted that:

- The outline of works provided below is for general information only and architectural and engineering drawings should be referred to for the detailed scope of work.
- The sensitive interfaces for protection works identified below are for general information only. It is the responsibility of the Contractor, with their detailed knowledge of construction activities, plant and machinery to be used, to assess whether there are any assets adjacent to the Works that may possibly be affected by any activities related to the Works.

The following definitions apply to the work types identified in the table below:

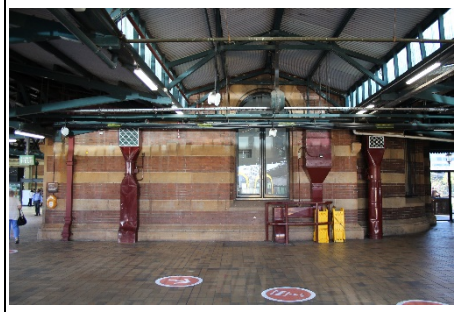
Demolition:	No reuse or salvage of material proposed. As all work is within the SHR curtilage, all demolition work is to be carried out in a manner that will not cause any damage to adjacent fabric which has been identified to be retained or reinstated in the work. Refer general principles of **CAS-D**.
Deconstruction:	Systematic and careful dismantling of a structure to maximise the amount of material recovered for salvage, reuse or recycling.
Selective Deconstruction:	Partial recovery of materials for salvage, reuse or recycling.
Salvage:	Careful removal and recovery of materials to allow for their future reuse or recycling. Salvaged material must be managed in accordance with the Sydney Metro *Salvage and Storage Strategy* and Sydney Metro *Salvage Register*

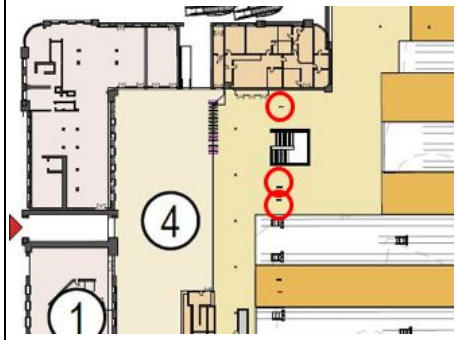
Table 1 – Northern Concourse Enabling Works

Description of Work	Work Type	Image	Sensitive Interface	Reference / Comment
1. Platform Access Area Roof Removal of corrugated sheet, timber rafters, purlins and timber valences of roof to platform access area north of Platforms 8/9 and 10.	Demolition		Platform access area roof west of Platform 8. Remnant good lift west of Platform 8. Grand Concourse roof, including curved iron lattice fringe & columns. Grand Concourse generally, including terrazzo floor. East Wing of Main Terminus, west façade.	CAS-C Temporary Protection Plan CAS-D Demolition and Deconstruction
2. Raked Bridging Structures, Platform Access Area Removal of corrugated sheet roofing, timber valences and fascias from bridging structures at the northern end of Platforms 8/9 and 10.	Demolition (of fabric nominated in the description)		Platform canopy structures. Grand Concourse generally, including terrazzo floor. East Wing of Main Terminus, west façade.	CAS-C Temporary Protection Plan CAS-D Demolition and Deconstruction

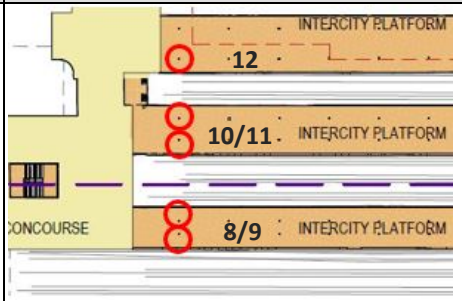
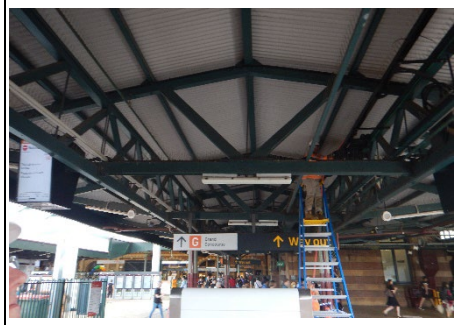
Description of Work	Work Type	Image	Sensitive Interface	Reference / Comment
3. Infill Canopies Removal of modern infill canopies and terminating end of rail lines between Platforms 11 and 12 and Platforms 13 and 14.	Demolition		Central Electric Building East Wing of Main Terminus	CAS-C Temporary Protection Plan CAS-D Demolition and Deconstruction
4. Fencing and Buffer Stops Removal of 'pool' fencing and hardwood buffer stops at northern terminating end of rail lines between Platforms 9 and 10 and Platforms 11 and 12 and	Demolition		Platform edges	CAS-C Temporary Protection Plan CAS-D Demolition and Deconstruction
5. Modern Steel Canopy Removal of modern steel canopy at northern end of Platform 10/11 complete.	Demolition		No direct sensitive interfaces. Care is still required to not damage fabric in the vicinity to be retained, in particular given the scale of the structure.	CAS-C Temporary Protection Plan CAS-D Demolition and Deconstruction

Description of Work	Work Type	Image	Sensitive Interface	Reference / Comment
6. Stair to Olympic Tunnel Removal of balustrade, sign banner and stair to Olympic Tunnel at northern end of Platform 10/11.	Demolition		No direct sensitive interfaces as brick paving is to be replaced. Care is still required to not damage fabric in the vicinity to be retained.	CAS-C Temporary Protection Plan CAS-D Demolition and Deconstruction
7. Escalator Removal of escalators to lower concourse and Eddy Avenue, (adjoining Central Electric Building).	Demolition		Central Electric Building	CAS-C Temporary Protection Plan CAS-D Demolition and Deconstruction
8. Enclosure to Escalator Removal of enclosing masonry wall to escalator and associated supporting structure.	Demolition		Central Electric Building	CAS-C Temporary Protection Plan CAS-D Demolition and Deconstruction

Description of Work	Work Type	Image	Sensitive Interface	Reference / Comment
9. Gabled Awnings Removal of gabled awning structures adjacent to the East Wing and Central Electric	Demolition	 	Central Electric Building East Wing of Main Terminus. Platform canopies to be retained.	CAS-C Temporary Protection Plan CAS-D Demolition and Deconstruction Canopies will be removed after initial phase of enabling works. New bridging structures will be installed to support the canopies for early removal of nominated columns.
10. Cast Iron Trusses of Bridging Structures Removal of raked iron trusses, curved and transverse iron trusses supporting bridging structures for Platforms 8/9 and 10.	Selective Deconstruction Salvage		Grand Concourse roof, including curved lattice fringe and columns. Grand Concourse generally, including terrazzo floor.	CAS-C Temporary Protection Plan CAS-D Demolition and Deconstruction CAS-E Northern Concourse Enabling Sydney Metro *Salvage Register*

Description of Work	Work Type	Image	Sensitive Interface	Reference / Comment
			East Wing of Main Terminus Building.	Salvage truss elements intact by a process of unbuilding at mechanical connections.
11. Cast Iron Columns of Bridging Structures Removal of 3/No. cast iron columns and integrated downpipes in platform access area.	Selective Deconstruction (bridging structure) Salvage	 	Cast iron trusses of bridging structures. East Wing of Main Terminus Building.	CAS-C Temporary Protection Plan CAS-D Demolition and Deconstruction CAS-E Northern Concourse Enabling Sydney Metro *Salvage Register* Salvage intact from base to capital. Ensure provision of stormwater management system as columns act as channel for downpipes.

Description of Work	Work Type	Image	Sensitive Interface	Reference / Comment
12. Platform Signage Removal of 'Central' signs at the northern end of Platforms 8/9 and 10, including curved metal brackets and supporting frames.	Salvage		Platform canopy structures	CAS-C Temporary Protection Plan CAS-D Demolition and Deconstruction CAS-E Northern Concourse Enabling Sydney Metro *Salvage Register* Salvage intact as a single unit.
13. Timber Columns Removal of 5/No. existing hardwood timber columns from platform canopy structures.	Selective Deconstruction Salvage		No direct sensitive interfaces as platform canopy structures are to be removed.	CAS-D Demolition and Deconstruction CAS-E Northern Concourse Enabling Removal of columns will precede removal of canopy structures. Cutting will be required at the base and below the truss bottom chord, including an additional cut at the top to allow manoeuvring. Refer Item 8.4, **CAS-E**. New bridging structures will be installed to support the canopies for early removal of nominated columns.

Description of Work	Work Type	Image	Sensitive Interface	Reference / Comment
				
14. Clock Remove clock and bracket in platform access area	Salvage		No direct sensitive interfaces as canopy structures are to be removed.	CAS-D Demolition and Deconstruction CAS-E Northern Concourse Enabling Sydney Metro *Salvage Register*
15. Timber Trusses Removal of hardwood gable trusses and Howe (ladder) trusses in Northern Concourse (CSMW zone).	Selective Deconstruction Salvage		Platform canopy structures in areas where retained.	CAS-D Demolition and Deconstruction CAS-E Northern Concourse Enabling Sydney Metro *Salvage Register* Trusses cannot be salvaged intact due to pedestrian interface in Northern Concourse and need to lift over live rail. Salvage items as components to

Description of Work	Work Type	Image	Sensitive Interface	Reference / Comment
				maximum size wherever possible as determined by formwork hoist through stair void to Olympic Tunnel.
16. TCAC Enclosure Removal of TCAC enclosure and associate ramp.	Demolition Selective Deconstruction Salvage		Central Electric Building	CAS-D Demolition and Deconstruction CAS-E Northern Concourse Enabling Detailed inspection of existing TCAC awning required prior to removal to assess the nature of the substructure (refer Item 7.9, **CAS-E**). Salvage awning brackets and supports and any remnant early substructure.

6 GENERALLY

6.1 Demolition, deconstruction and salvage work must be implemented in a controlled and careful manner on the areas scheduled for demolition or deconstruction. Adjacent structures shall not be compromised or undermined by the demolition or removal process or method.

6.2 Large scale demolition using machinery or wrecking ball is not permitted.

6.3 Demolition and deconstruction work is to be carried out by specialist construction personnel, with extensive experience working with heritage fabric, especially selective demolition and deconstruction on heritage elements. **(Witness Point – Qualifications are to be confirmed by Heritage Architect. Give 5 working days' notice for Witness Point).**

6.4 Submit a Demolition Work Plan prior to commencement of demolition and deconstruction which sets out the demolition methodology **(Witness Point – demolition methodology to be approved by Heritage Architect. Give 5 working days' notice for Witness Point).**

6.5 Submit a Work Plan for Temporary Protection of any assets that may be impacted by the Works prior to commencement of work which sets out the means of protecting the existing fabric and structure relevant to the nature of construction activities and proximity to retained fabric **(Witness Point – methods of protection of existing fabric to be approved by Heritage Architect. Give 5 working days' notice for Witness Point)**. Refer requirements of **CAS-C**.

6.6 Structures to be retained must be propped, braced and stabilised prior to and throughout the removal and construction period.

6.7 Items must be salvaged in accordance with the Sydney Metro *Salvage Register* where this is required. All building components salvaged are to be carefully removed by hand / hand tools, cleaned, sorted, labelled, palleted and stored within a secure environment out of the elements to ensure the long-term integrity of the items and to allow for future re-use.

6.8 Salvaged materials surplus to the project must either be stored for future use in accordance with the Sydney Metro *Salvage and Storage Strategy* and *Salvage Register*, or where approved by the Principal's Representative, materials may be transferred to an established second hand building material dealer for recycling, such as:

- Ironwood Australia, 21 Unwins Bridge Road, St Peters
- Northern Rivers Recycled Timber, Shed 9, 75 Mary Street, St Peters
- Chippendale Restoration Centre, 26 Parsons Road, Rozelle
- Heritage Building Centre, 432B West Botany Road, Rockdale
- Recycled Building Centre, 402 Liverpool Road, Croydon.

6.9 Displaced building fabric that is not scheduled to be salvaged and cannot be reasonably reused should be transferred to a material recycling facility wherever possible.

6.10 Remaining areas and fabric exposed to the weather during the process of fabric removal are to be suitably protected in a manner that does not significantly impact heritage fabric to be retained **(Witness Point – methods of weather protection and stormwater management to be approved by Heritage Architect. Give 5 working days' notice for Witness Point)**.

7 DECONSTRUCTION AND SALVAGE OF CAST IRON STRUCTURES

7.1 Unbuild the roof structures in the reverse order to which it would have been constructed. Remove purlins and cladding prior to removal of the roof structure.

7.2 Prior to dismantling trusses, remove all fixtures and services on the roof structure. Disconnect power and services; terminate or cap services at the boundary of the section to be retained.

7.3 If items are fixed to truss assemblies, carefully loosen bolts, treat with penetrating oil e.g. WD-40, undo and repeat until fixings are removed. It unable to undo bolt, only then cut off bolt head to remove elements fixed to trusses.

7.4 The dismantling of cast iron structures is to be conducted in a careful and considered manner. Dismantle trusses in sections as determined by the rivet joints between sections, allowing for salvage of complete elements without cutting of the fabric. Dismantle columns as complete sections extending from capital to base.

7.5 Remove truss sections by mobile crane or similar method, braced as required by structural engineer's recommendations to prevent distortion. Once removed, further stabilise or brace truss elements as required.

7.6 Treat rust on the ironwork, including areas newly exposed as a result of dismantling works, using a rust inhibitive primer with a high zinc content e.g. Galmet or similar. This requirement applies equally to ironwork to be retained e.g. curved lattice fringe where raked trusses are removed.

7.7 Carefully transport and stack trusses and columns to engineers' instructions and do not subject salvaged elements to undue stresses. Elements that cannot be removed via the formwork hoist must be stored within a secure environment out of the elements to ensure the long-term integrity of the items.

7.8 Label elements according to the location removed from.

7.9 For the TCAC awning, undertake careful destructive investigation under timber valence to ascertain nature of enclosed fabric prior to removal of this fabric. **(Witness Point – Substructure to be inspected by Heritage Architect prior to removal. Give 5 working days' notice for Witness Point).**

8 DECONSTRUCTION AND SALVAGE OF TIMBER STRUCTURE

8.1 Ensure the maximum amount of timber fabric is retained and conserved.

8.2 All effort should be made to disassemble bolted assemblies by removing nuts washers etc. prior to removal of the bolt itself so as the timber elements are not damaged.

8.3 Where selective deconstruction is necessary owing to limitations of site operation and space, cutting of timber truss structures may occur provided that fabric is cut in maximum lengths as determined by site facilities for removal of the timber fabric.

8.4 In removing nominated timber columns prior to removal of canopy, implement a maximum of 3/No. cuts comprising 1/No. cut at the base (level with the platform surface), 1/No. cut at the top below the truss bottom chord and 1/No. additional cut close to the top at a

minimum distance sufficient to allow for manoeuvring columns (refer image for Item 13 in Table 1 for indicative locations for cutting). Retain sections of timber columns in maximum lengths possible.

8.5 Drilling into the columns and other timber fabric to facilitate removal should be avoided.

86. Where rot or termite damage is detected, affected sections should be removed. Salvage timbers intact as far as practicable and where damaged elements unsuitable for salvage are located, these should be photographically recorded as evidence of the salvage process.

Appendix E – HWG 03 – 06.08.2018

HWG 03

06.08.2018

WOODS BAGOT JOHN McASLAN + PARTNERS OCP ARCHITECTS LAING O'ROURKE

MEETING MINUTES DRP_03

17.07.2018

1	Central	Action	Timing
1.1	The Panel notes the considered work that has been undertaken and appreciates the advances that have been made in the design. The Panel commends the team for preparing a physical model and looks forward to seeing it at a future presentation.	Note	
1.2 Northern concourse and heritage interface with the Grand Concourse	The design team presented the tendered and revised designs explaining the rationale for the revised approach. The Panel supports the revised proposal, including the new column set-out. The scheme is an improvement and demonstrates good clarity while respecting the original design intent. The Panel recognises that this is a work in progress and that further design refinement will be undertaken. The following aspects should be considered as the design is developed: - Views through to the Grand Concourse. - The nature of the interstitial flat roof between the northern concourse and adjacent heritage building. - Clearer understanding of the structural implications of the roof and how it might transition to the west and to any future potential elements proposed as part of the wider Central Station precinct works. - Consideration of solar control and opportunities for natural ventilation, particularly to the north and west of the new enclosure. - Maintainability. The design team are encouraged to review the likely enhanced visibility of the Grand Concourse as a result of the proposal and implications to the condition of the existing Grand Concourse roof.	Further design development to consider: - Views through to the Grand Concourse. - The interstitial flat roof section and its relationship to the heritage building. - Structural resolution of the roof, transitions to the west and to any future potential elements of the wider Central Station precinct works. - Solar control and natural ventilation, particularly to the north and west of the new enclosure. - Maintainability.	Before end of current design stage
1.3	Opportunities for unpaid east-west movements by customers should be maximised. The Panel advises the team to explore ways to meet these desire lines under the new roof in order to reduce pressures on the Grand Concourse. Analysis should be evidence based and illustrate numbers and desire lines in the short and long terms.	Investigate opportunities to maximise unpaid east-west customer movements under the new roof.	Before end of current design stage
1.4 Materiality	The Panel is concerned about the ability to source satisfactory quantities of good quality sandstone to meet the likely requirements of the project and encourages the team to actively investigate potential suppliers. Previous comments of the Panel about the judicious use of quality materials are reiterated.	Note	
	Any use GRC panels used should have an off form finish and unpainted to reinforce the design intent.	Note	
1.5 Metro box	The Panel supports the addition of the column in the metro box platform primarily because it raises the volume of the platform space and will enhance the customer experience.	Note	
	Preliminary thinking on the use of skylights in Sydney Trains was presented. The Panel confirms it is interested in the skylights and requests further information. The presentation should include information about the proposed detailing, effectiveness as a source of daylight / amount of light that will penetrate into the box below, customer safety / slip characteristics and customer experience.	Presentation to the Panel on skylights.	Before end of current design stage
1.6 Broader precinct planning	The Panel re-affirms its concern about the broader precinct planning and connectivity for patrons and between modes and reiterates its request for a briefing on the broader precinct works demonstrating a coordinated long term vision.	Sydney Metro to arrange briefing by Precinct Team.	August 2018

AGENDA

_TIMELINE

_KEY CONCEPTS

NORTHERN CONCOURSE

_PROJECT STATUS NEXT STEPS

_HERITAGE SALVAGE

_TIMELINE

_KEY CONCEPTS

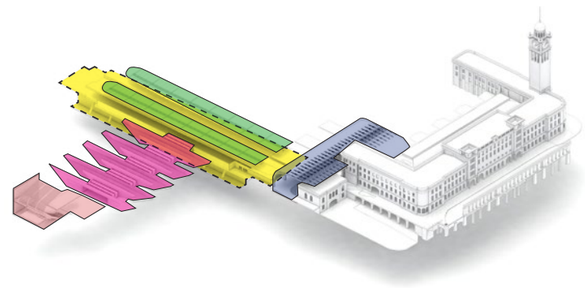
NORTHERN CONCOURSE

_PROJECT STATUS NEXT STEPS

_HERITAGE SALVAGE

HWG TIMELINE

DRAFT



2018: MARCH · APRIL · MAY · JUNE · JULY · AUGUST · SEPT. · OCT. · NOV. · DEC.

2019: JAN. · FEB. · MARCH · APRIL · MAY · JUNE · JULY · AUG. · SEPT. · OCT.

NORTHERN CONCOURSE
- Stage 1 **30%** — DUE 28TH AUGUST
- Stage 2 **70%** — DUE 22ST NOVEMBER
- Stage 3 **100%** — DUE 9TH MAY

N-S CONCOURSE
- Stage 1 **30%** — DUE 3RD AUGUST
- Stage 2 **70%** — DUE 22ST NOVEMBER
- Stage 3 **100%** — DUE 26TH JUNE

METRO BOX
- Stage 1 **30%** — DUE 3RD AUGUST
- Stage 2 **70%** — DUE 19TH OCTOBER
- Stage 3 **100%** — DUE 31ST MAY

CENTRAL WALK
- Stage 1 **30%** — DUE 21ST SEPTEMBER
- Stage 2 **70%** — DUE 23RD NOVEMBER
- Stage 3 **100%** — DUE 14TH JUNE

EASTERN ENTRANCE
- Stage 1 **30%** — DUE 21ST SEPTEMBER
- Stage 2 **70%** — DUE 23RD NOVEMBER
- Stage 3 **100%** — DUE 14TH JUNE

PLATFORM CANOPIES
- Stage 1 **30%** — DUE 15TH OCTOBER
- Stage 2 **70%** — DUE 4TH FEBRUARY
- Stage 3 **100%** — DUE 11TH OCTOBER

DESIGN REVIEW PANEL

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17
HERITAGE WORKING GROUP			06.08	03.09	01.10	05.11	03.12	07.01	04.02	04.03	01.04	06.05	03.06	01.07	05.08	02.09	07.10
			NORTHERN CONCOURSE	N VENT/ INTERFACES													
			04.09	02.10	30.10	27.11	21.12	22.01	19.02	19.03	16.04	14.05	11.06	09.07	06.08	03.09	01.10

● **PROTOTYPES**

*Program for guidance. Milestone dates subject to change

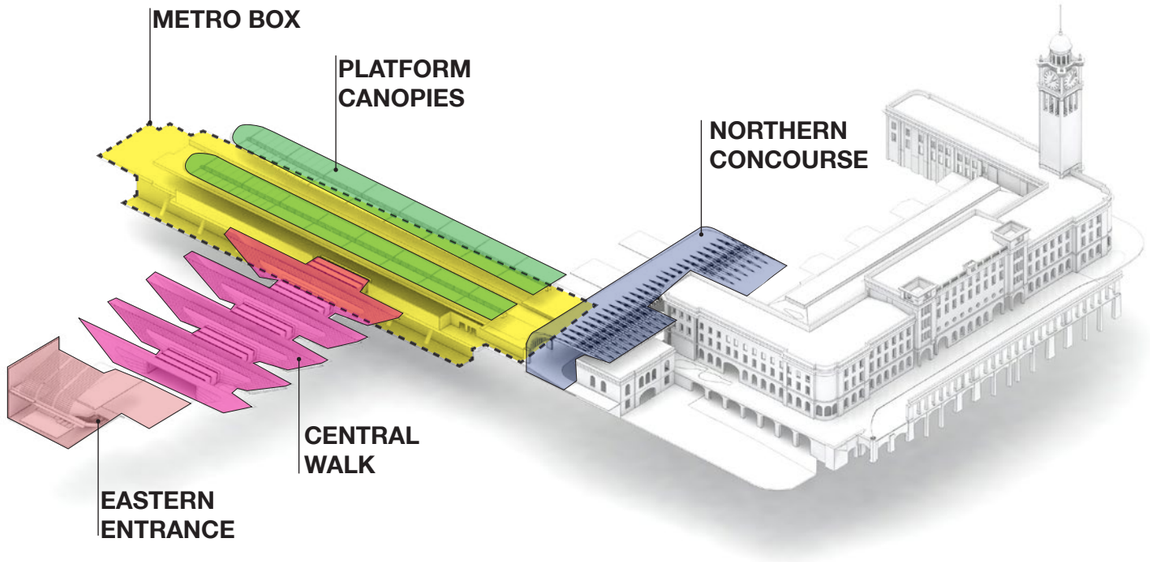
_TIMELINE

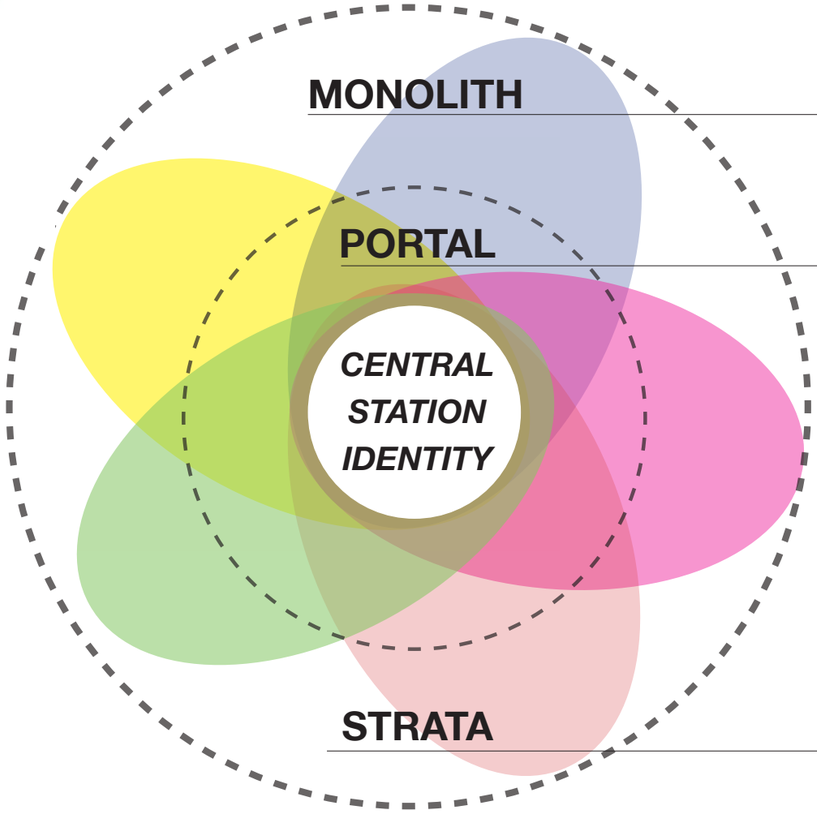
_KEY CONCEPTS

NORTHERN CONCOURSE

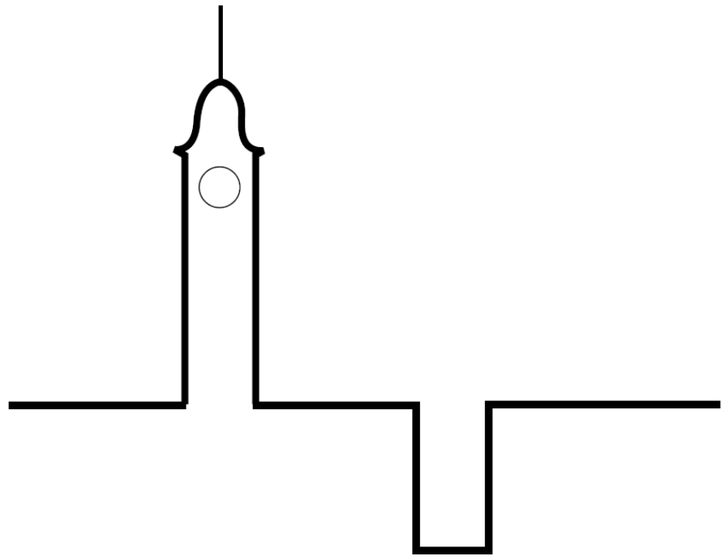
_PROJECT STATUS NEXT STEPS

_HERITAGE SALVAGE

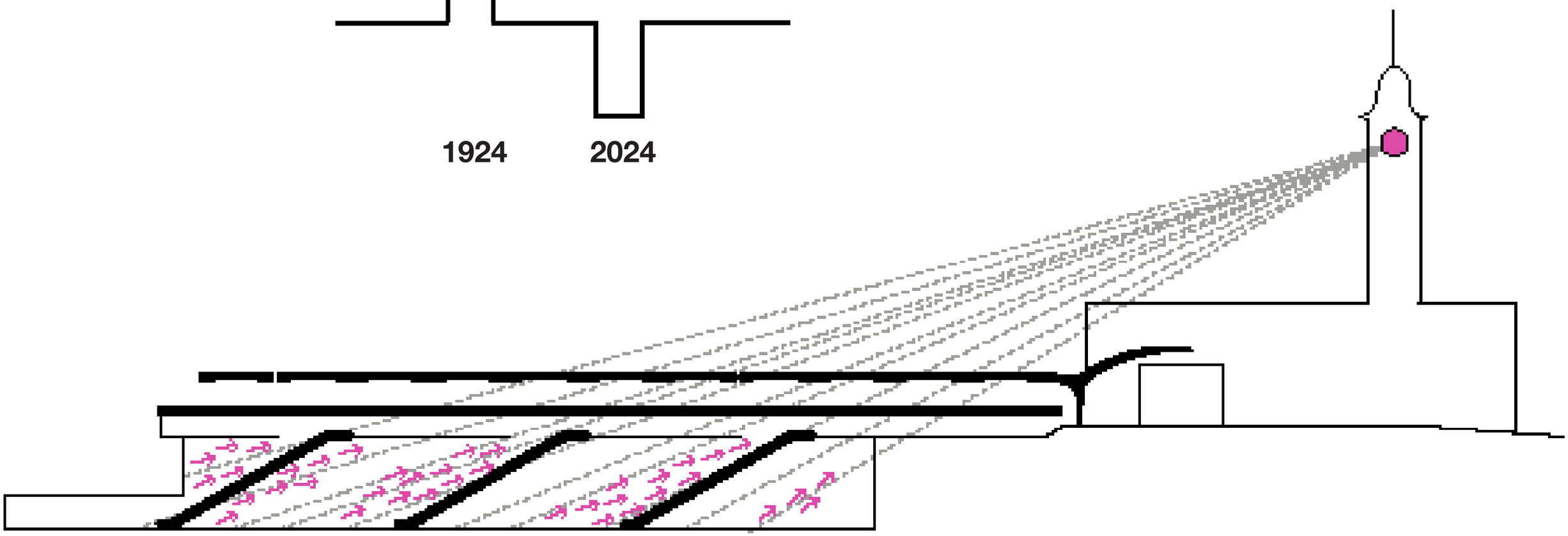

METRO BOX
PLATFORM CANOPIES
NORTHERN CONCOURSE
CENTRAL WALK
EASTERN ENTRANCE


MONOLITH
identity through unifying disparate elements
PORTAL
transitional elements linking different areas of the project
CENTRAL STATION IDENTITY
STRATA
vertical movement and layering of engineered solutions

TIME

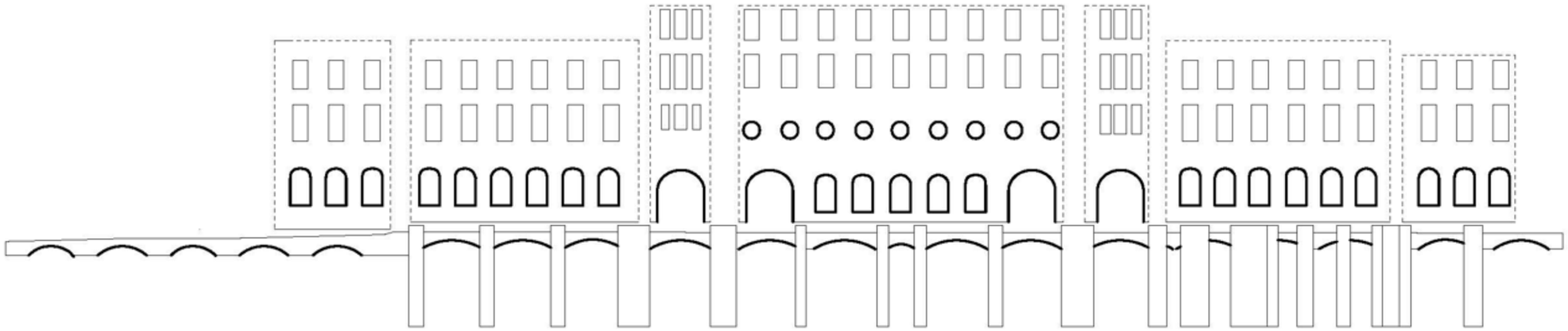


1924 2024

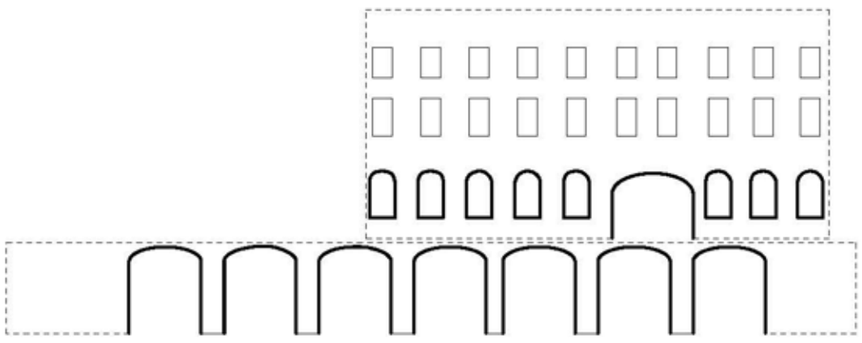


Sandstone wall functioning as a "compass"/ pathfinding element, containing nodules that point towards the tower.

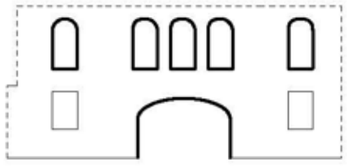
EXISTING ARCHED FORM STUDY



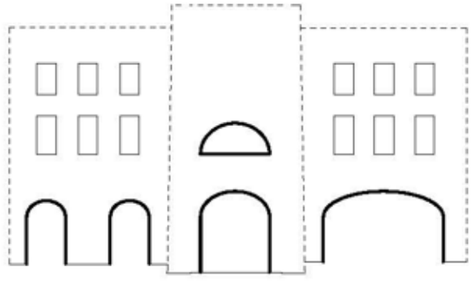
NORTHERN GRAND CONCOURSE
FACADE



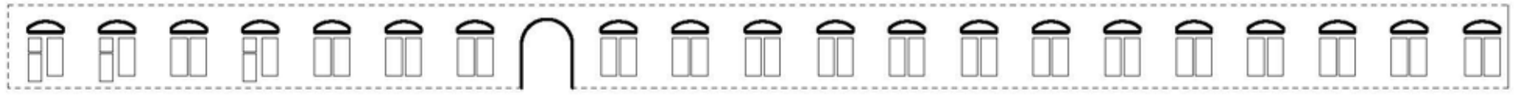
EASTERN GRAND CONOURSE FACADE



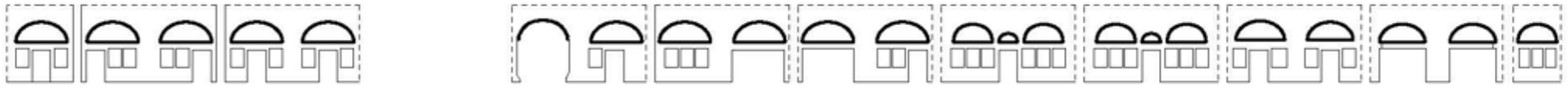
ELECTRICAL BUILDING FACADE



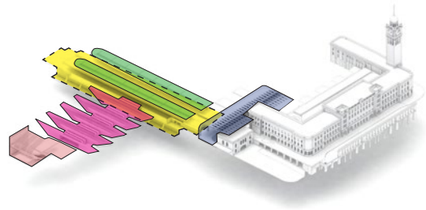
CLOCK TOWER BASE



WESTERN OUTER FACADE

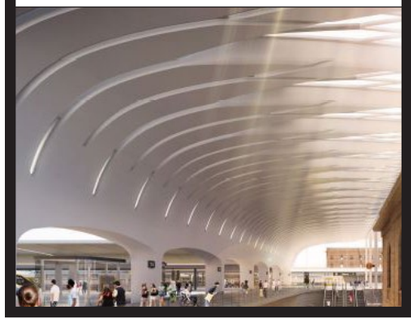
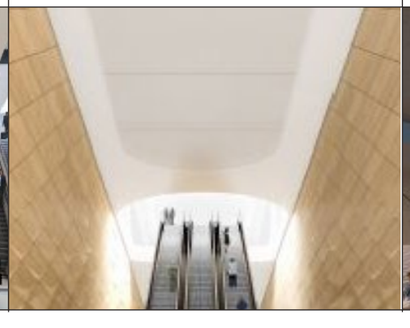


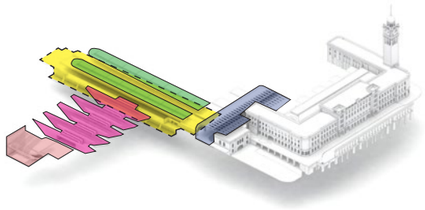
WESTERN INNER FACADE



MONOLITH

identity through unifying disparate elements

NORTHERN CANOPY	PLATFORM CANOPIES	METRO BOX SOFFIT CONCOURSE	METRO BOX SOFFIT PLATFORM	NORTHERN SOFFIT	CENTRAL WALK SOFFITT
					
					

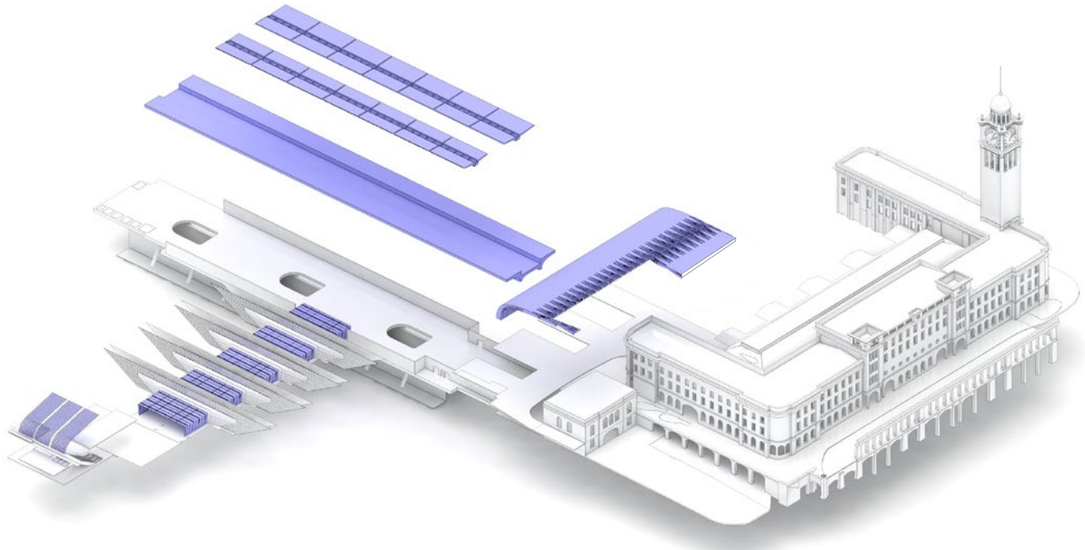


STRATA

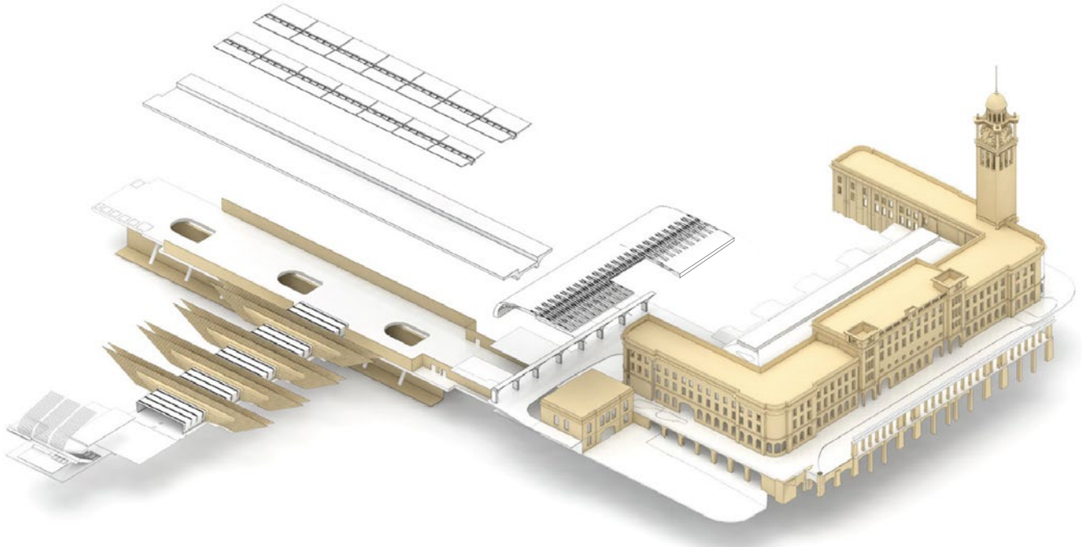
vertical movement and layering of engineered solutions

NORTHERN CONCOURSE	METRO BOX CONCOURSE	METRO BOX PLATFORM	CENTRAL WALK	EASTERN ENTRANCE
				

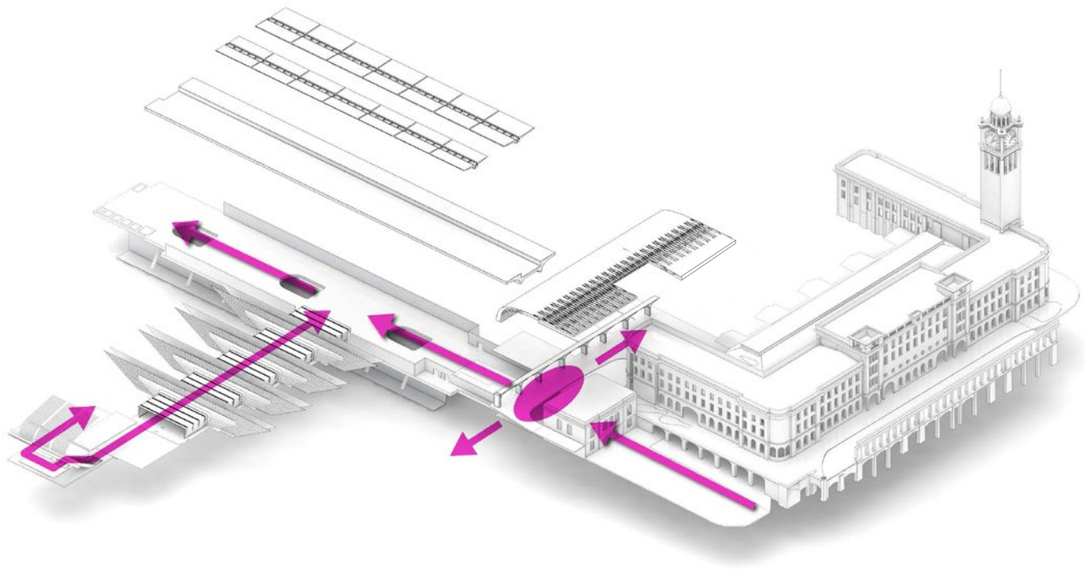
MONOLITH : UNITY



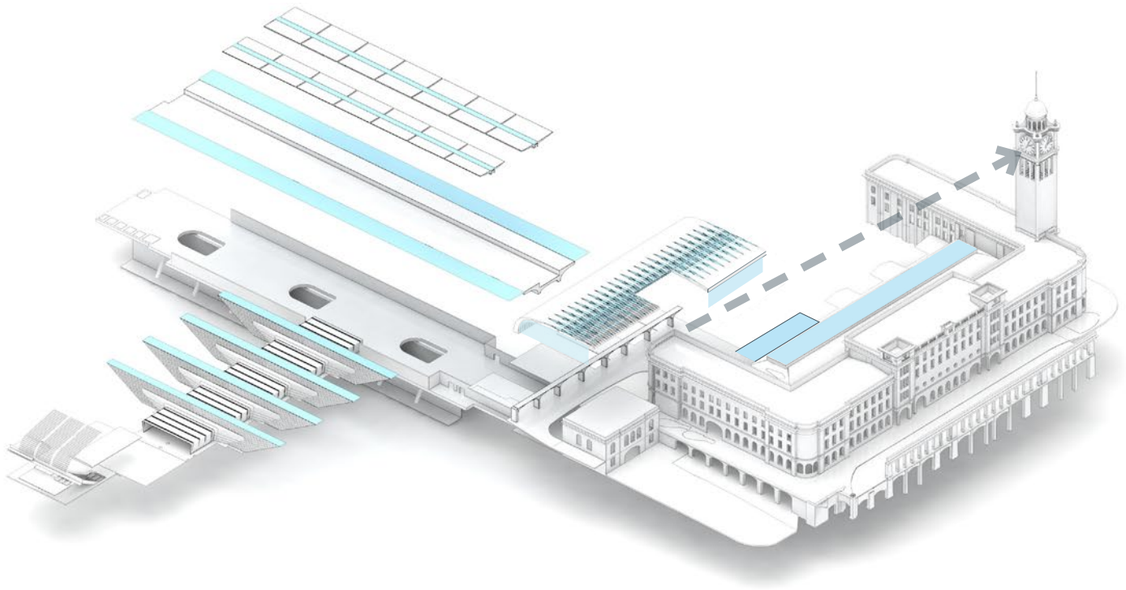
STRATA



CIRCULATION



DAYLIGHT and VIEW



_TIMELINE

_KEY CONCEPTS

NORTHERN CONCOURSE

_PROJECT STATUS NEXT STEPS

_HERITAGE SALVAGE

Key Issues:

- **Gateline positions and rationalisation**
- **Planning optimisation and structural layout**
- **Escalator / stair run offs**
- **Improved heritage interfaces and heritage visibility**
- **Views and visibility**

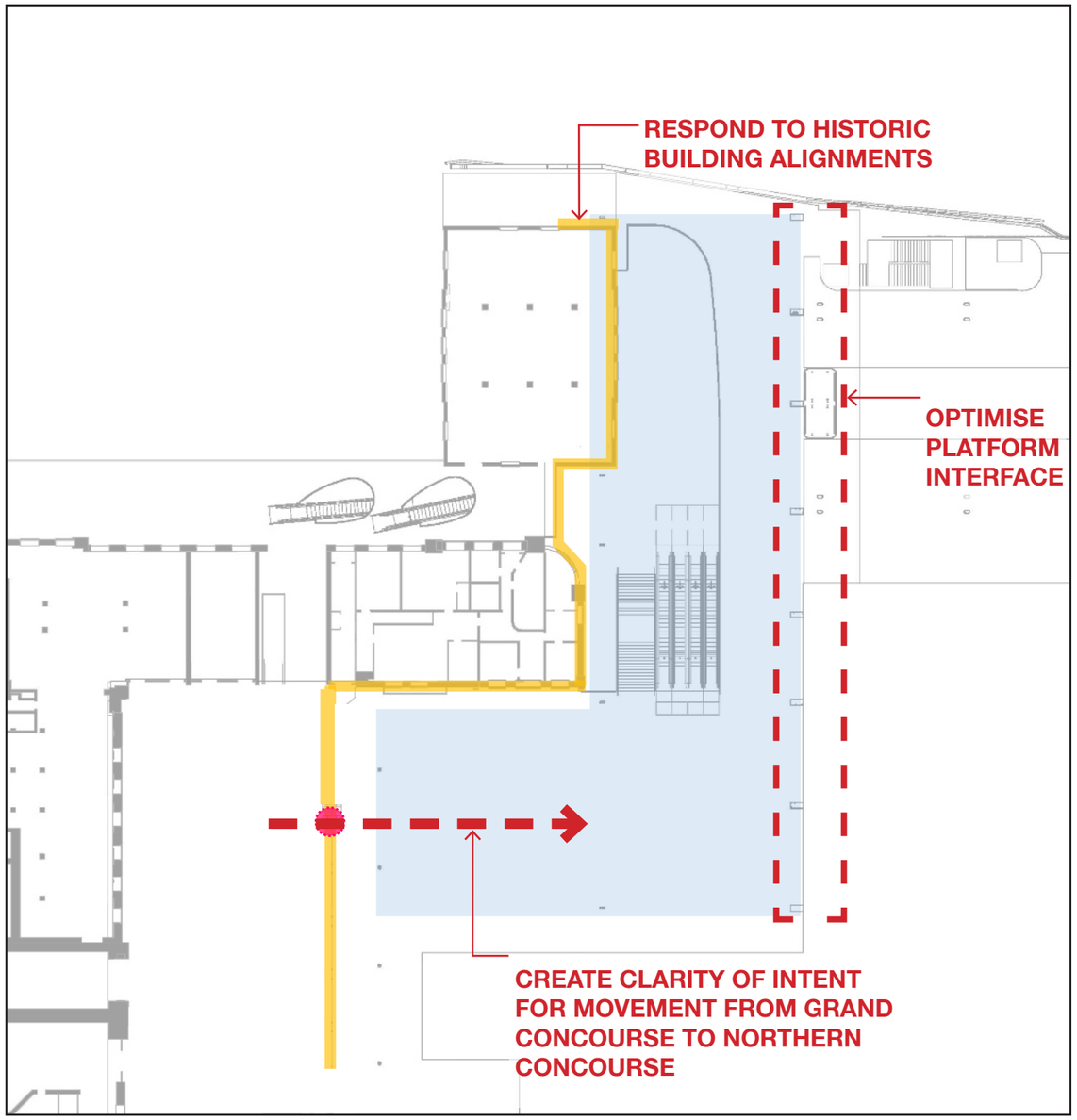
Design Context

SUBMITTED BID RENDERS

NORTHERN CONCOURSE

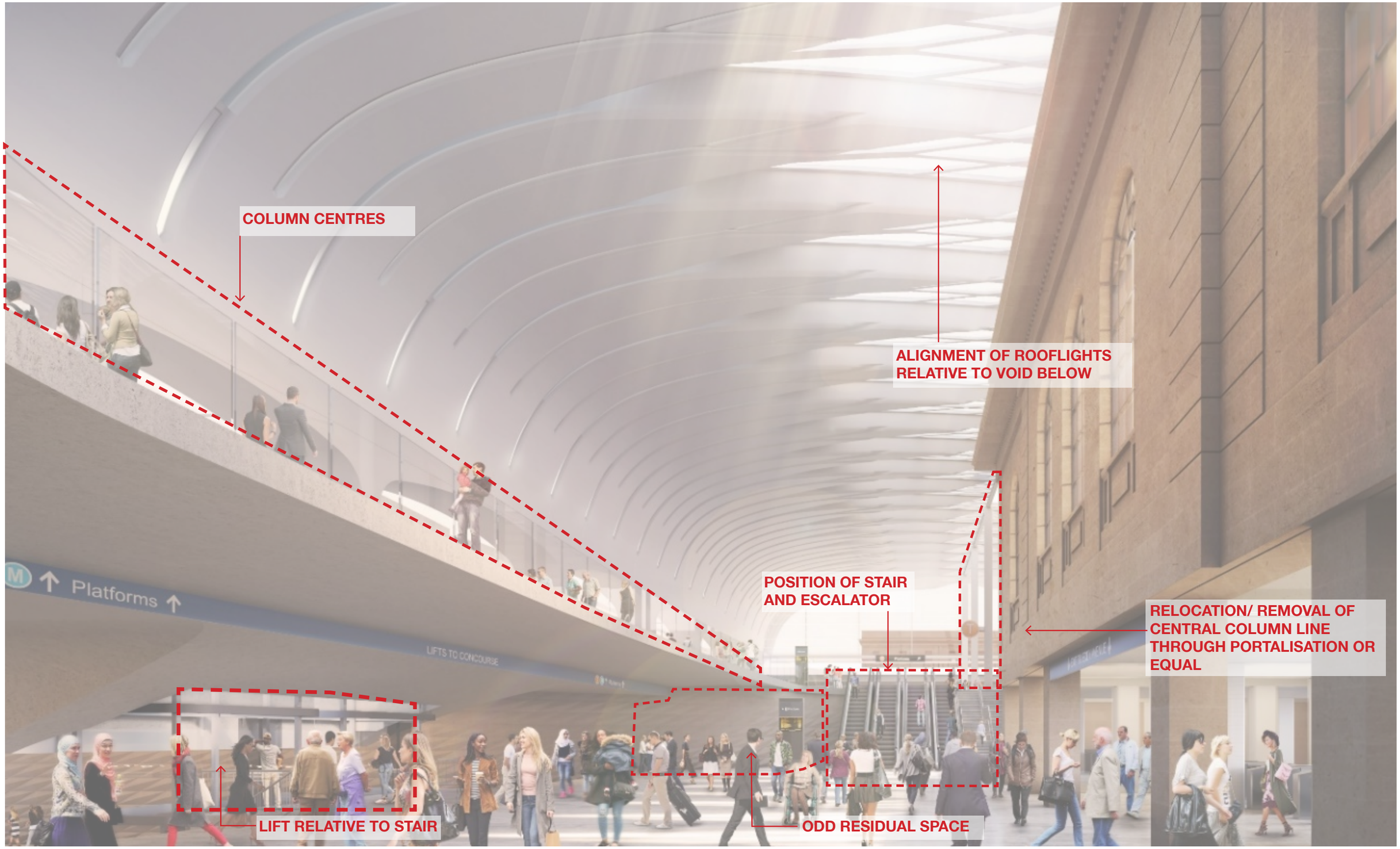
Design Context

KEY INTERFACES



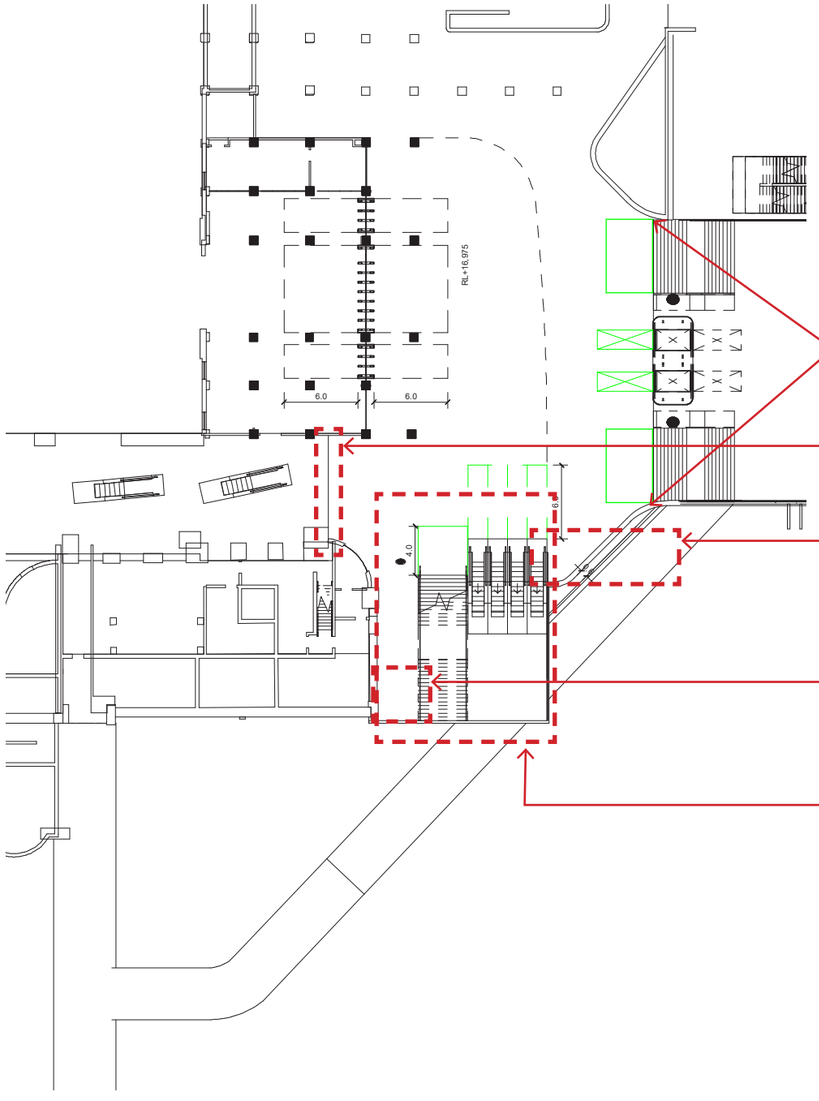
NORTHERN CONCOURSE

Planning Optimisation and Layout



Planning Optimisation and Layout

NORTHERN CONCOURSE LEVEL



SYMETRICAL GEOMETRY

REMOVAL OF TICKET GATES
RESOLVED RUN OFF CLASH

RESOLVED ODD RESIDUAL SPACE

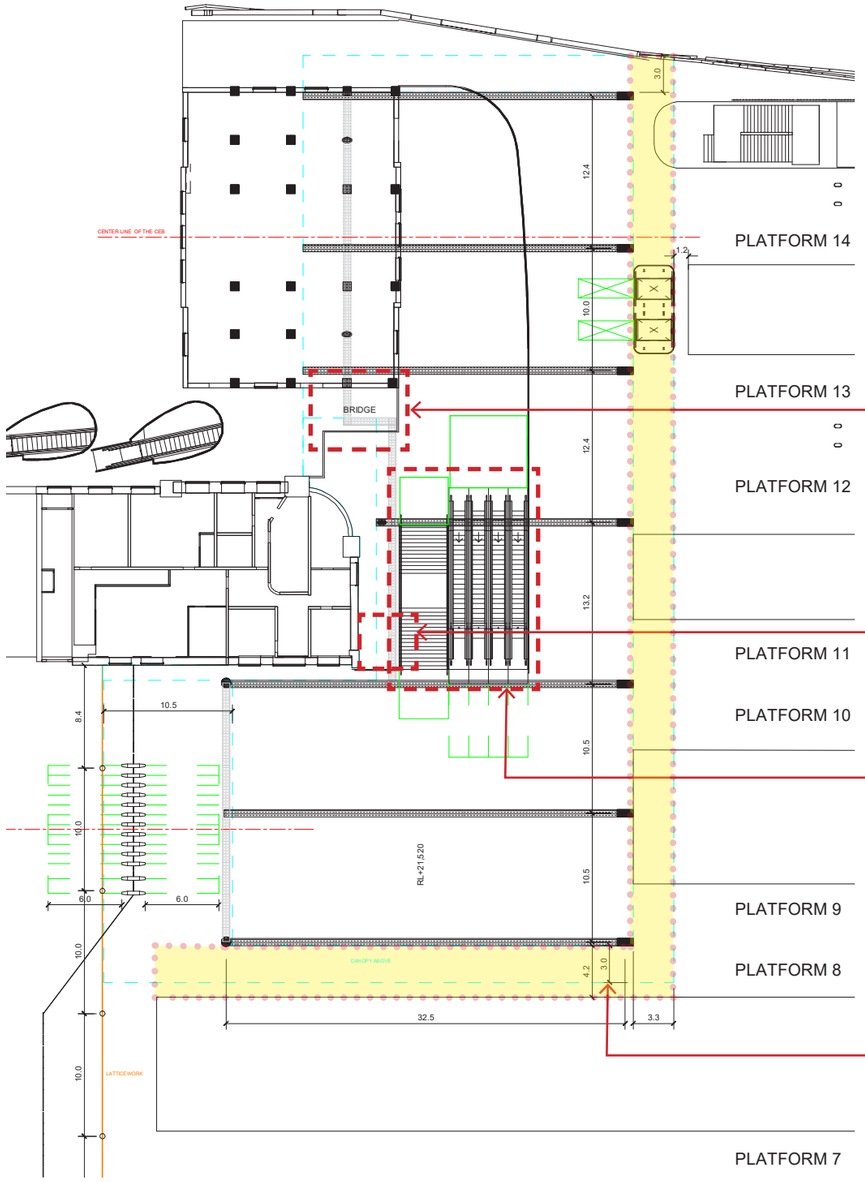
CONFIRM EXTENT OF
DEMOLITION OF SENA 68

_STAIR AND ESCALATORS
MOVED TO BE CENTRED
ON CONCOURSE AND
IN-LINE WITH CENTRAL
_COLUMN OBSTRUCTION
RESOLVED.

NORTHERN CONCOURSE

Planning Optimisation and Layout

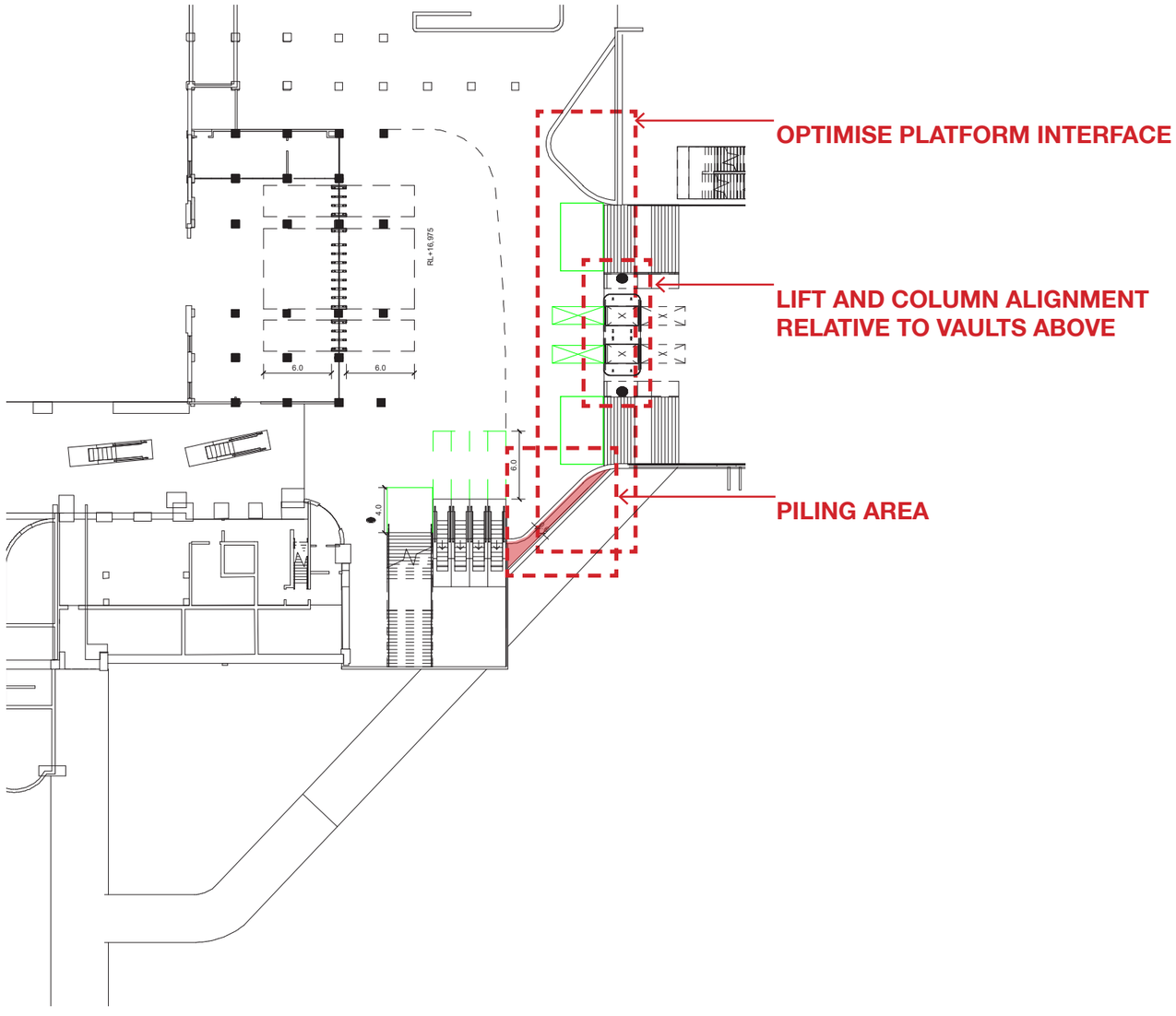
INTERCITY PLATFORM LEVEL



NORTHERN CONCOURSE

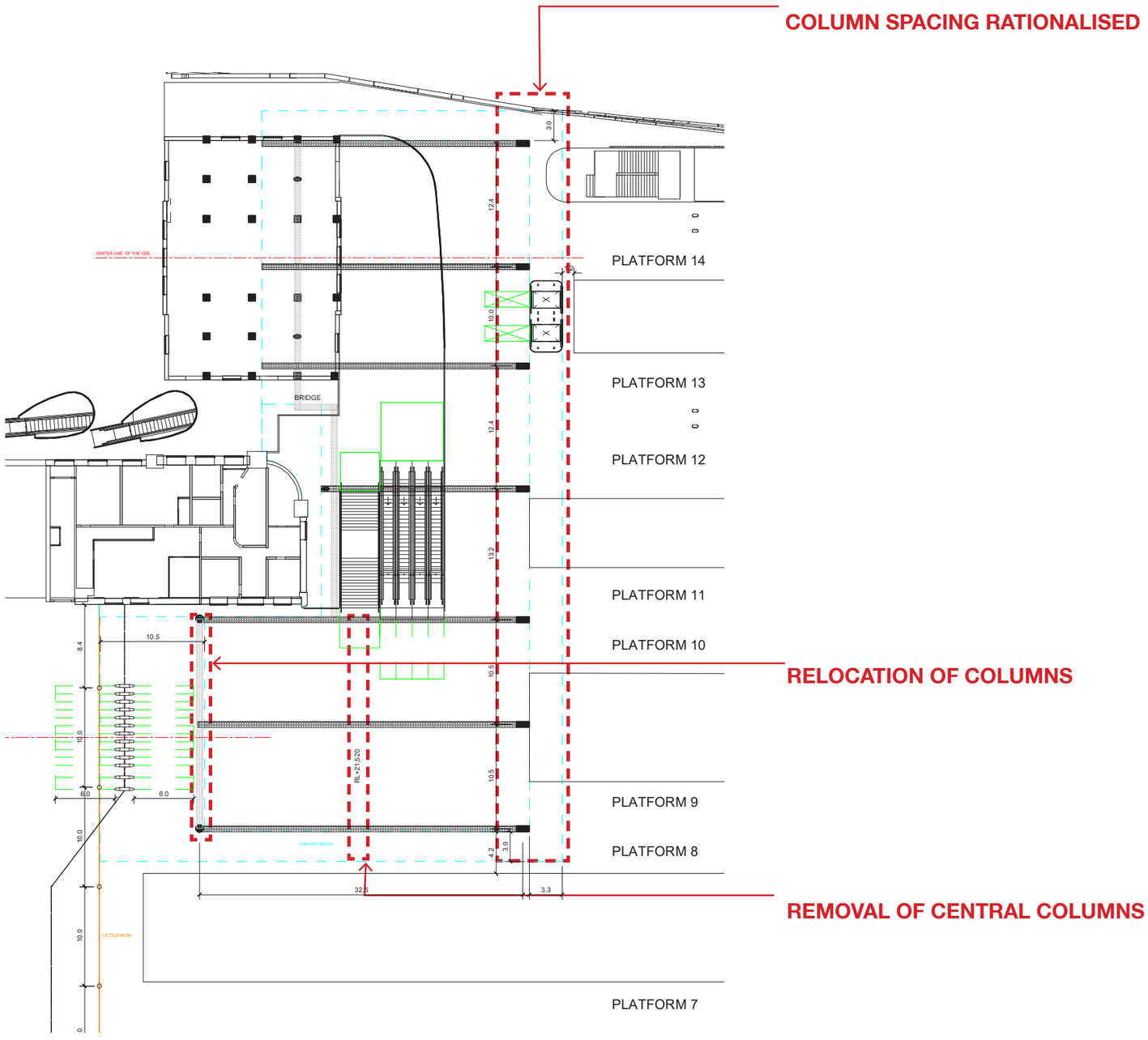
Optimise Setting Out and Structure

NORTHERN CONCOURSE LEVEL



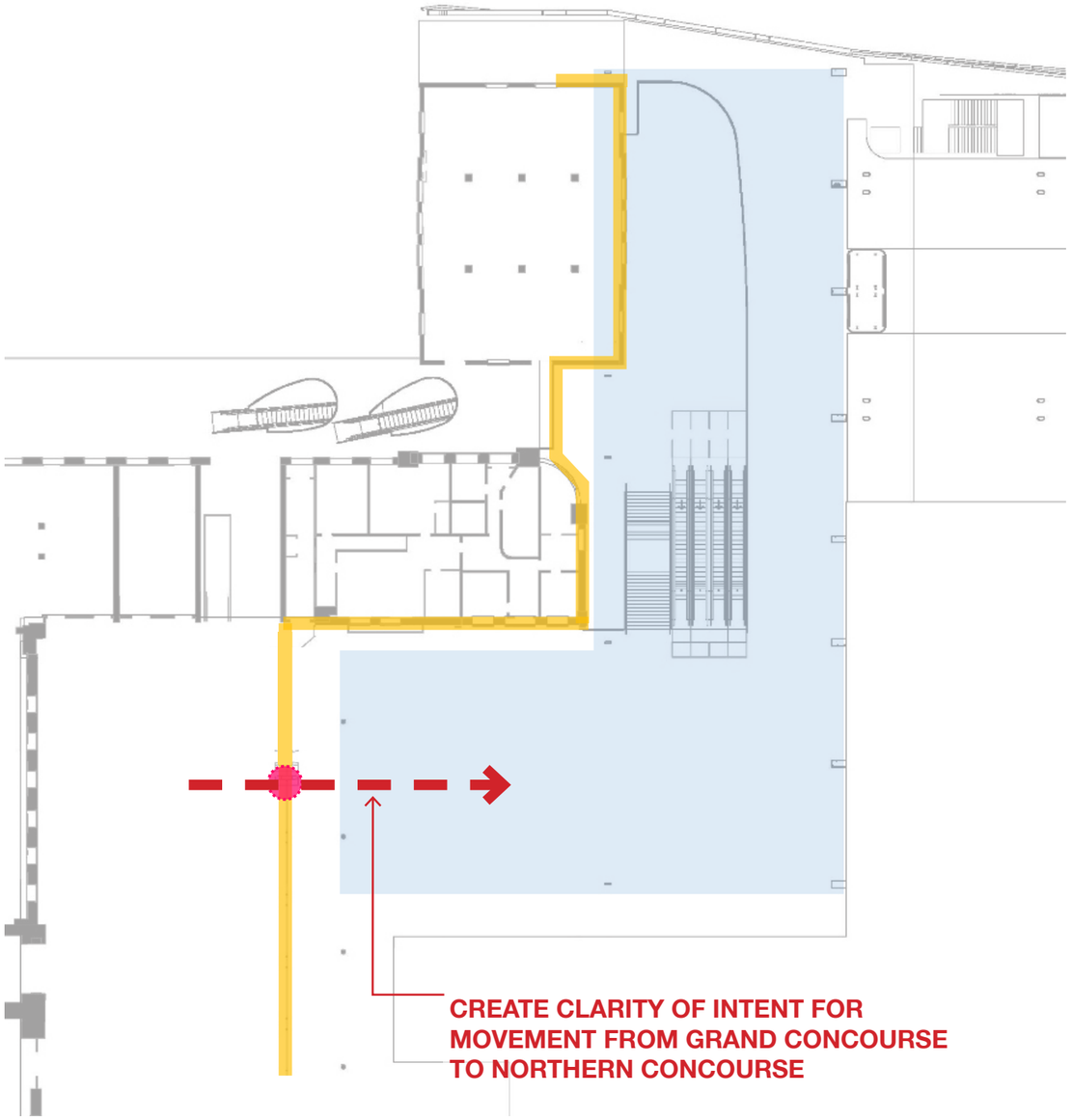
Optimise Setting Out and Structure

INTERCITY PLATFORM LEVEL

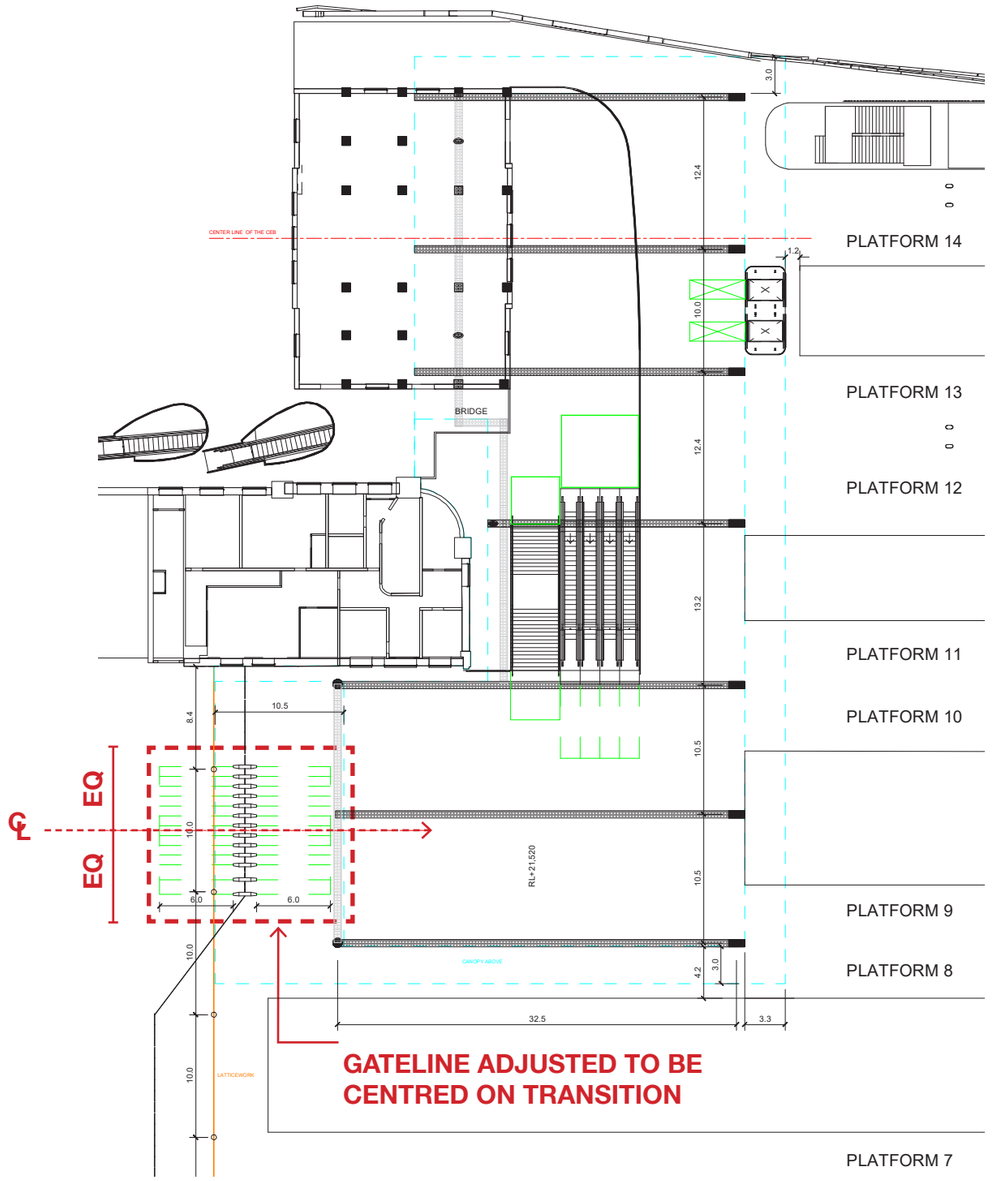


Gateline Positions and Rationalisation

DESIGN INTENT



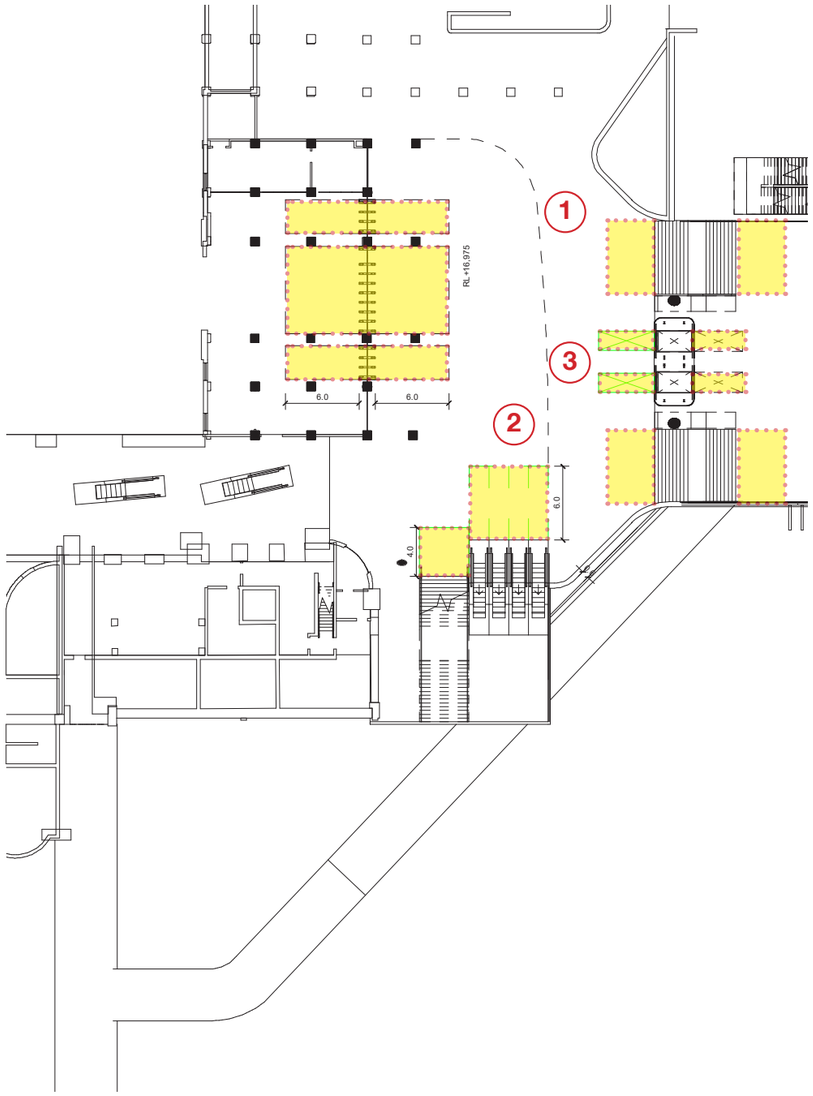
INTERCITY PLATFORM LEVEL

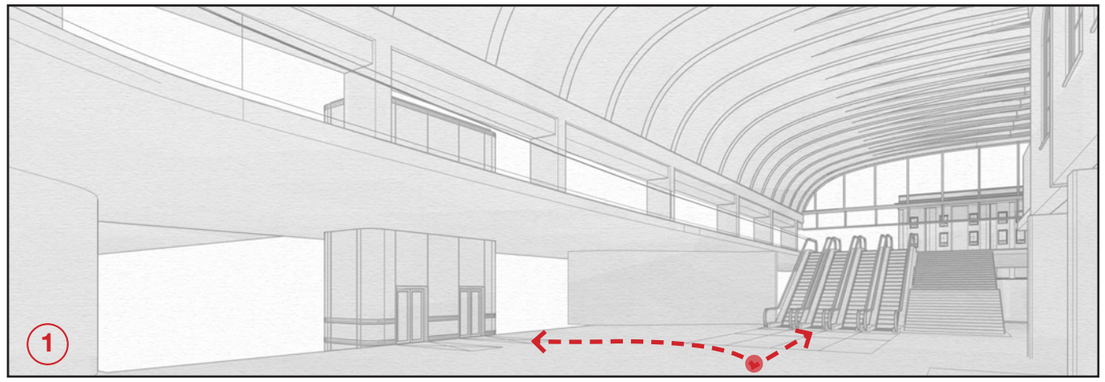


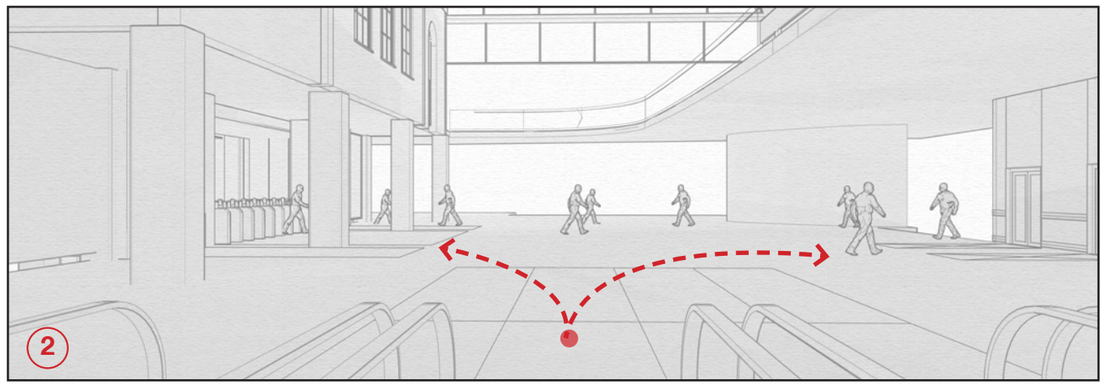
Escalator / Stair Run Off

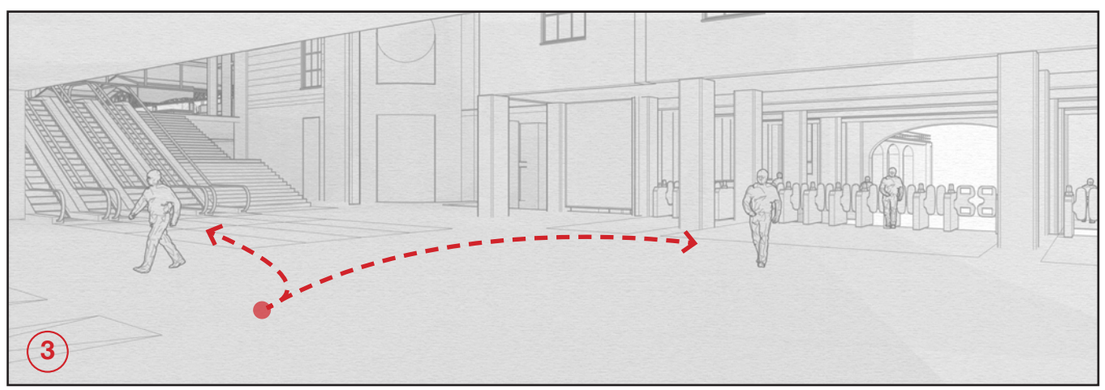
NORTHERN CONCOURSE LEVEL

RUN OFF AREA





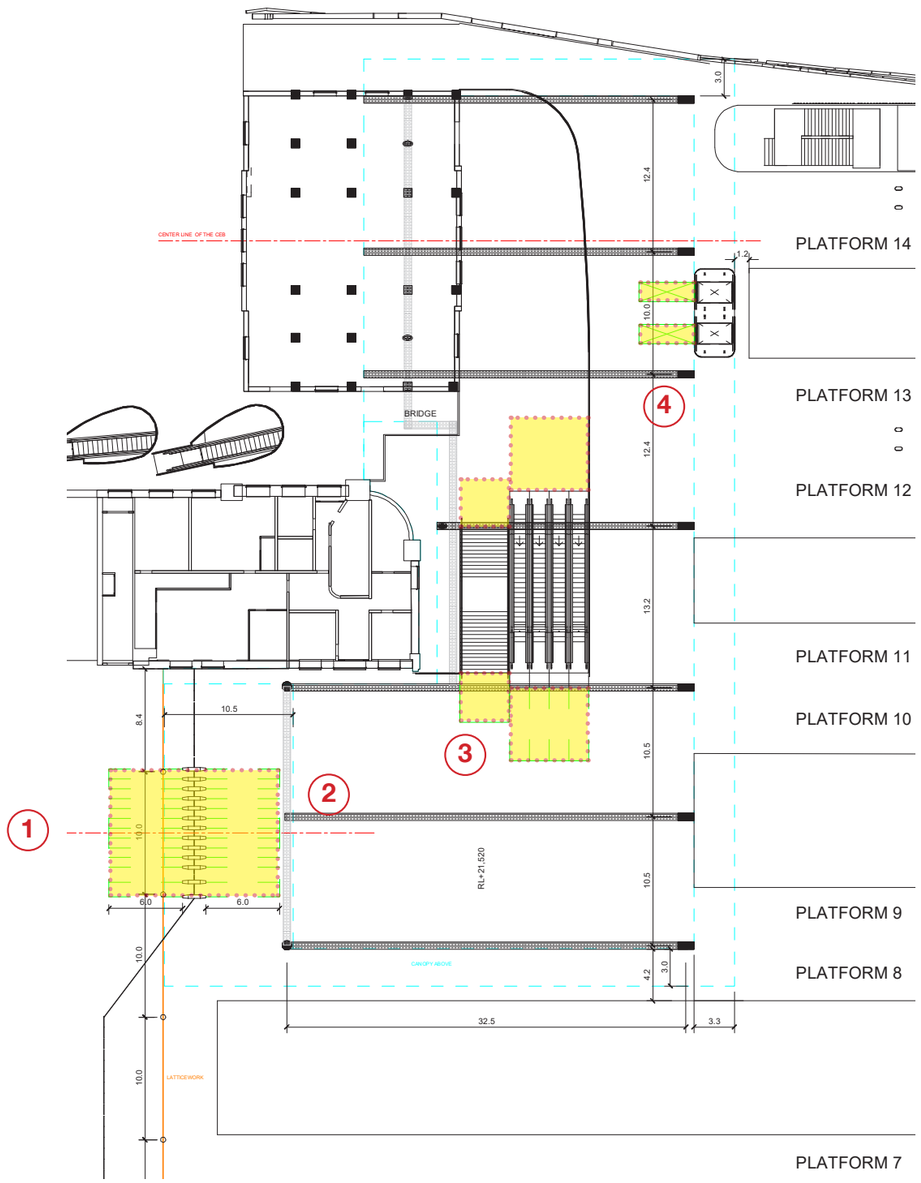


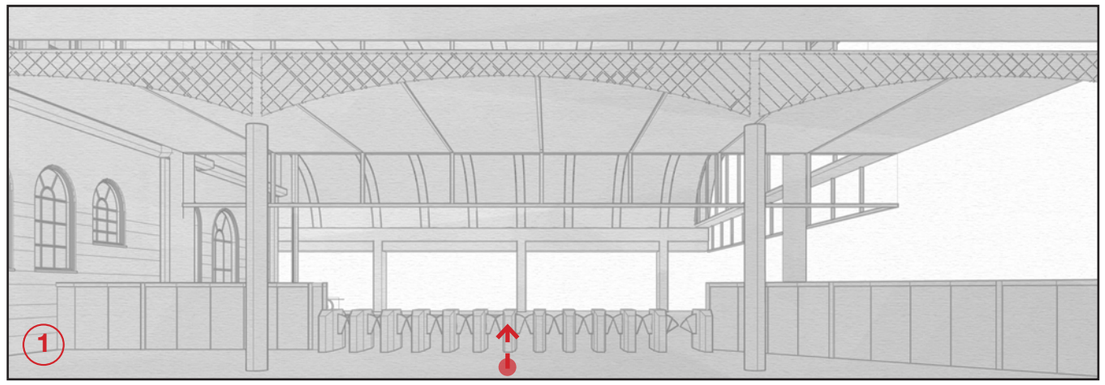


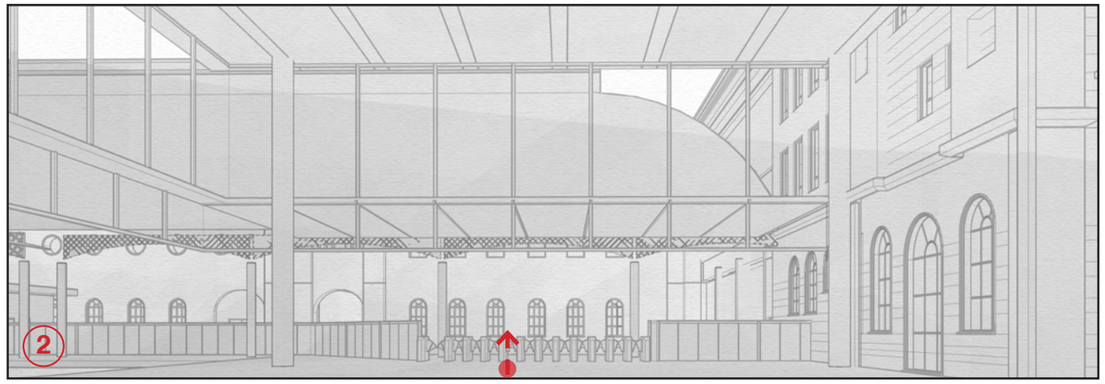
Escalator / Stair Run Off

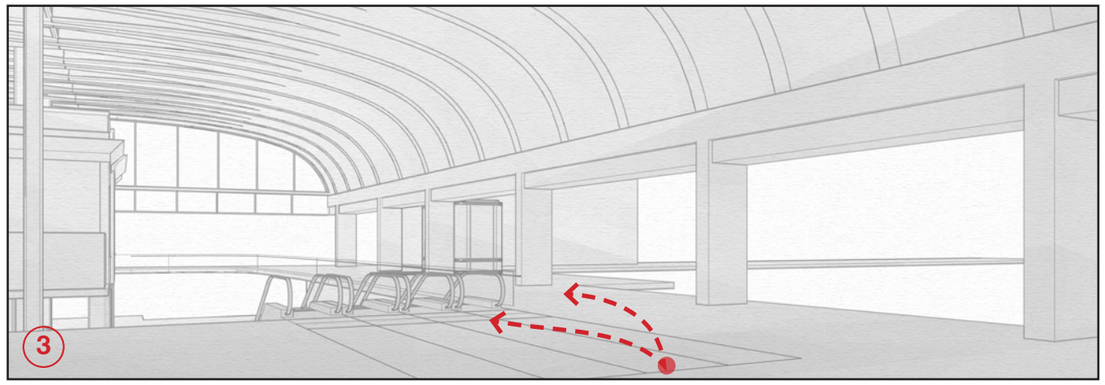
INTERCITY PLATFORM LEVEL

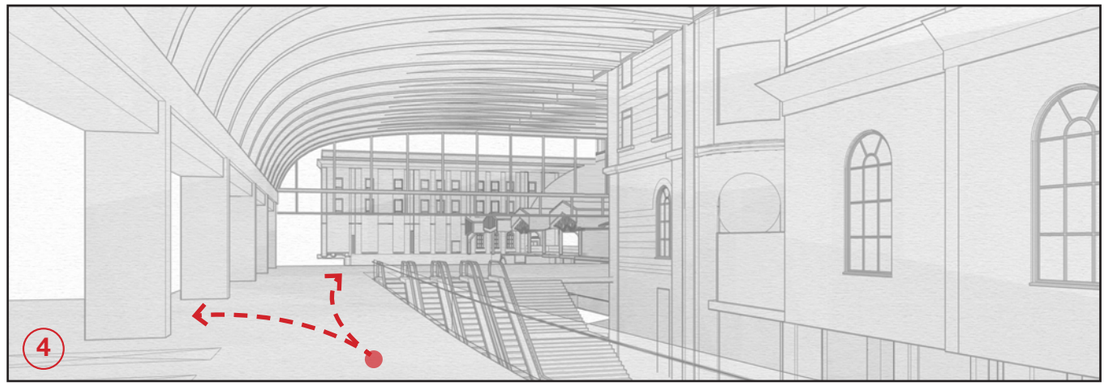
RUN OFF AREA





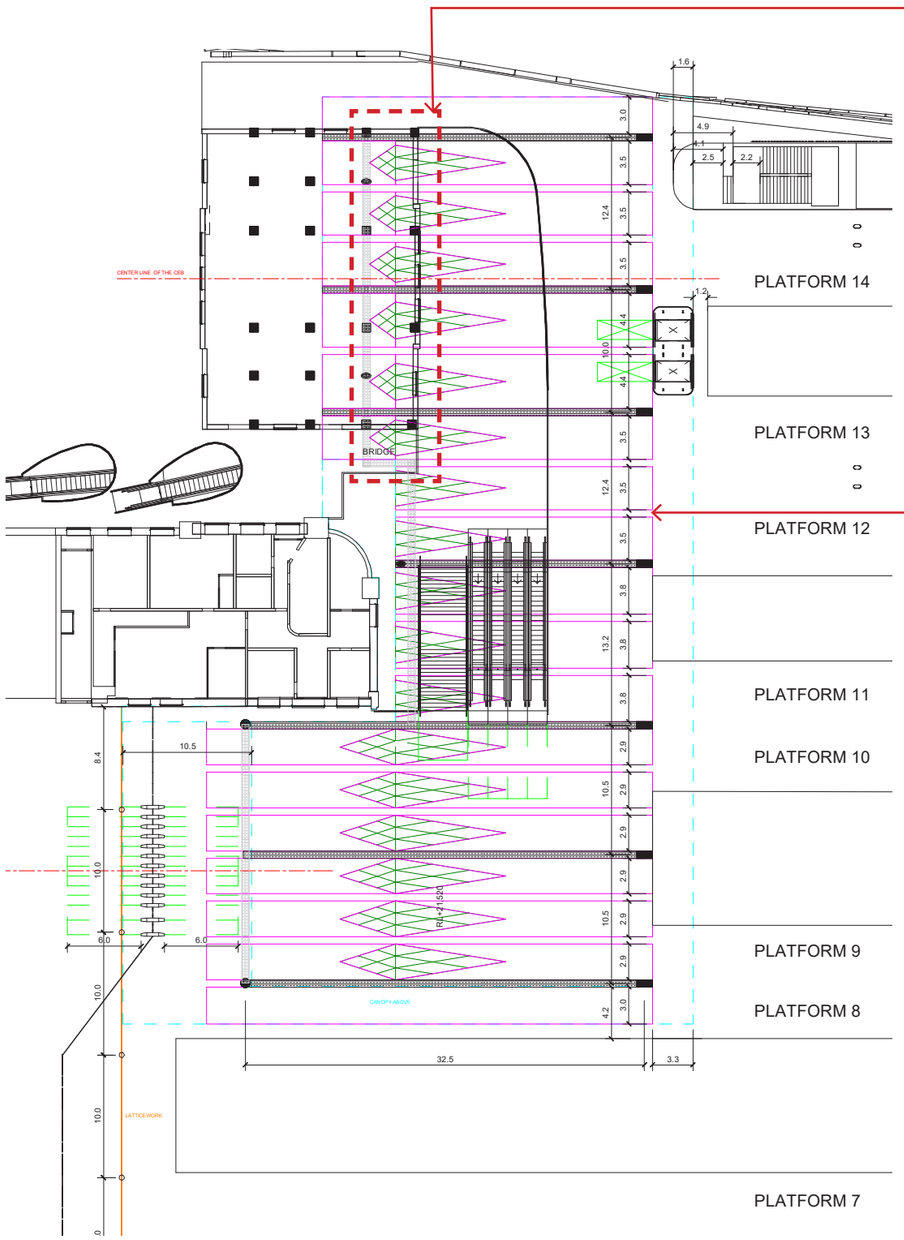






Design Proposal - Improved Heritage Interfaces and Heritage Visibility

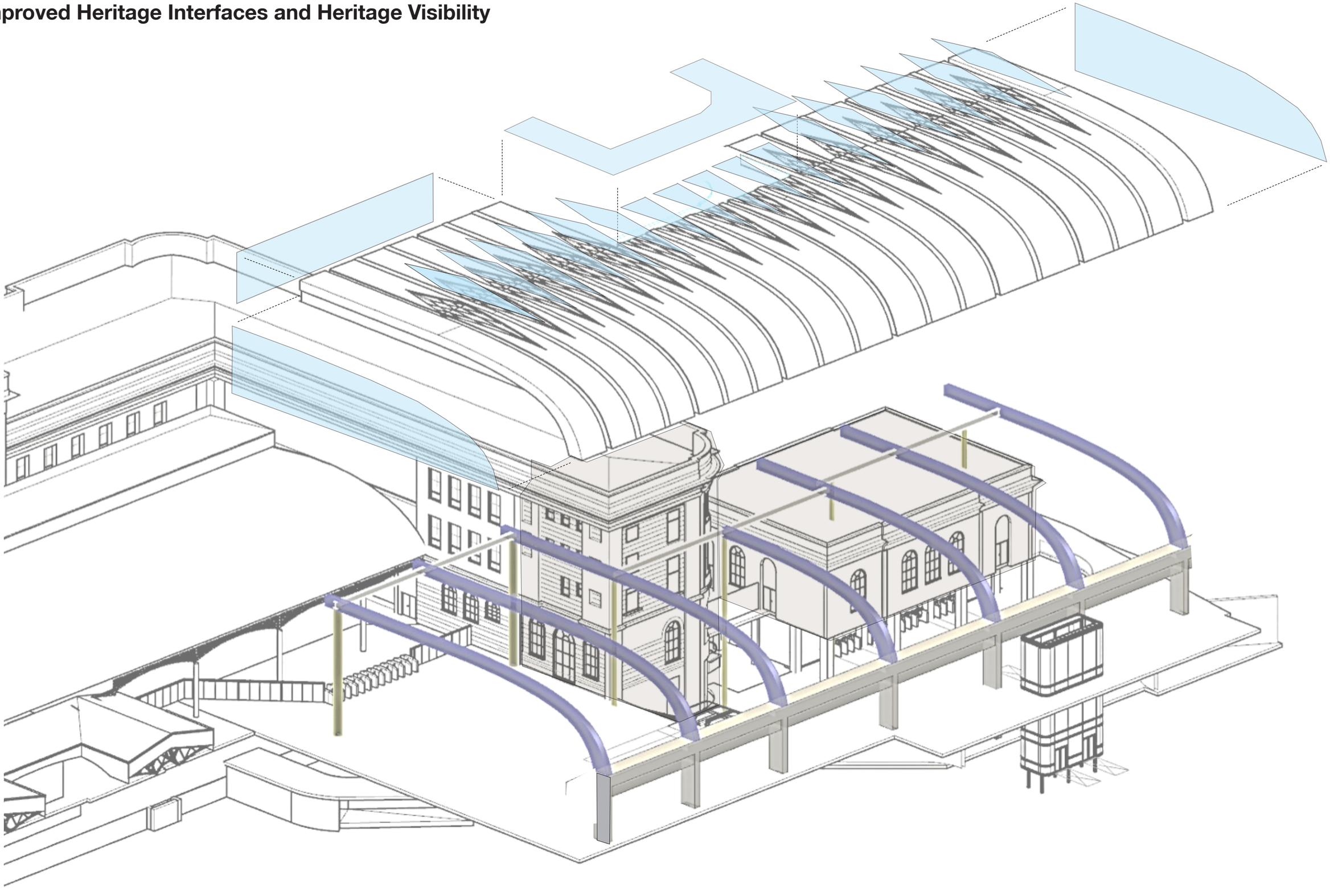
ROOF LEVEL



COORDINATION OF COLUMN TO ROOF SECONDARY STRUCTURE

ROOF STRUCTURE MODULE RATIONALISED

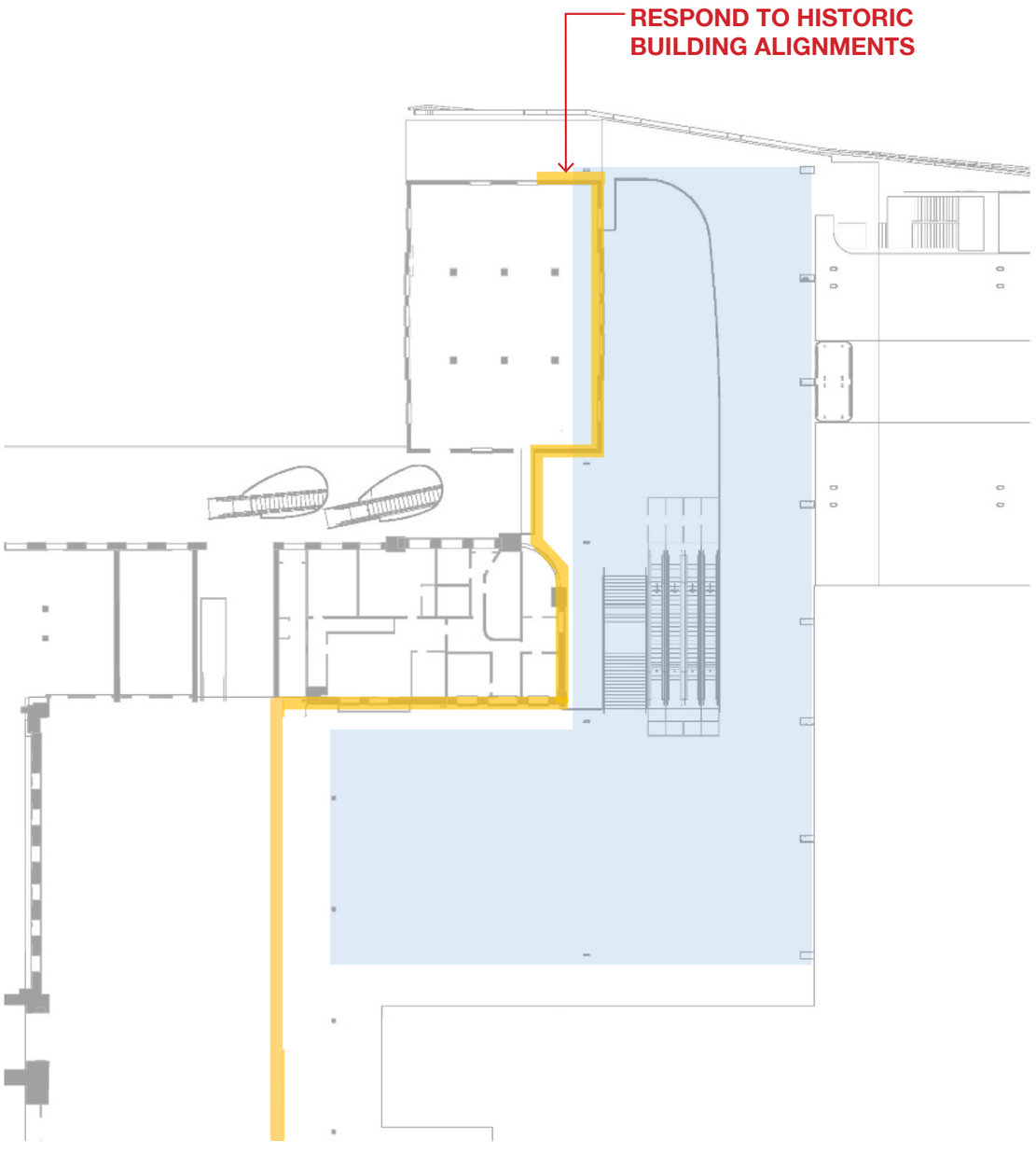
Improved Heritage Interfaces and Heritage Visibility

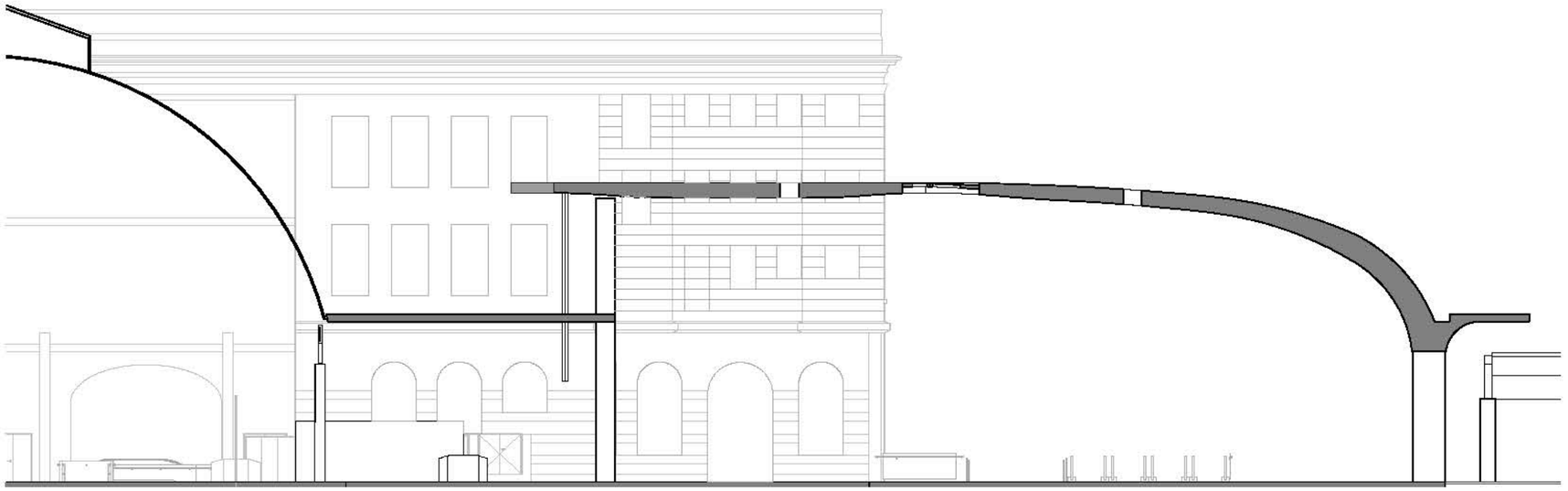


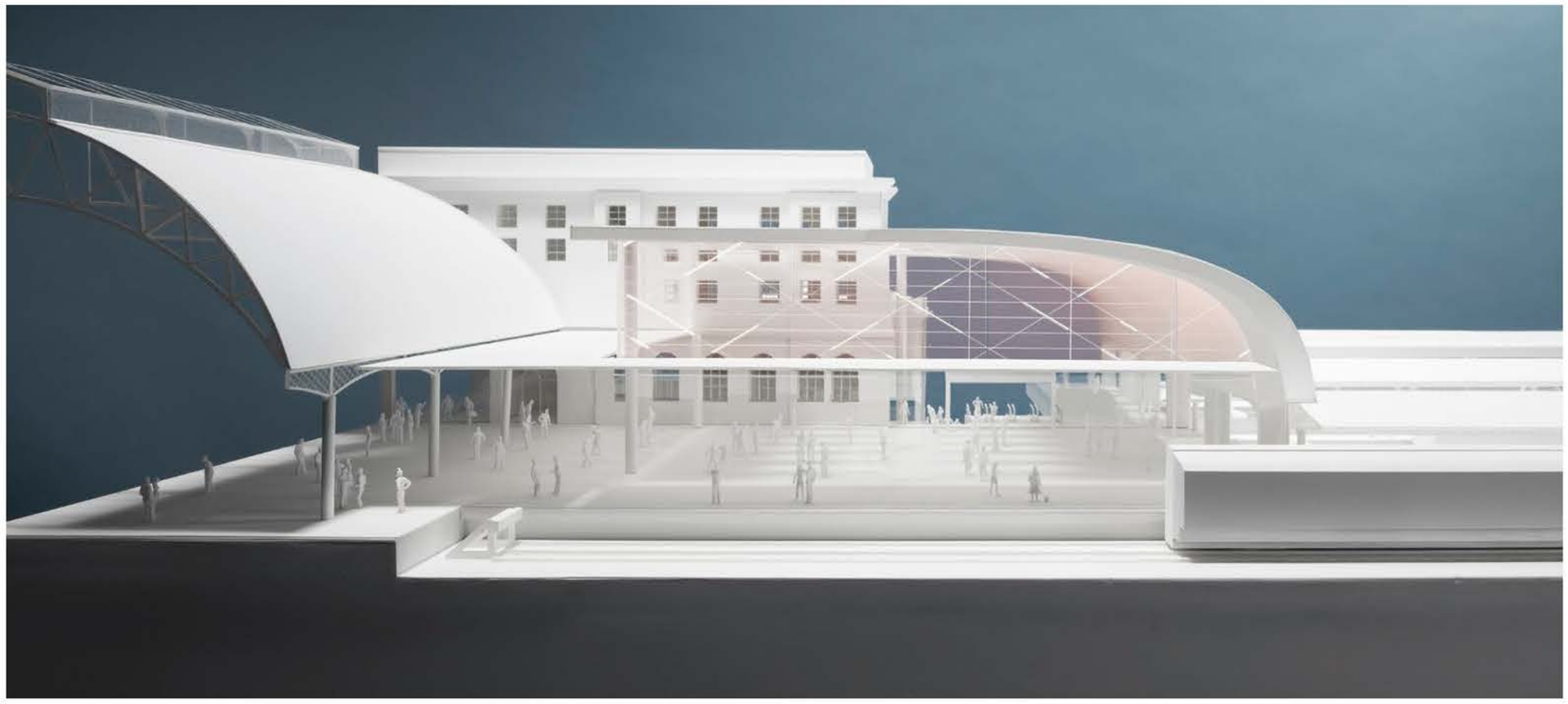
Improved Heritage Interfaces and Heritage Visibility

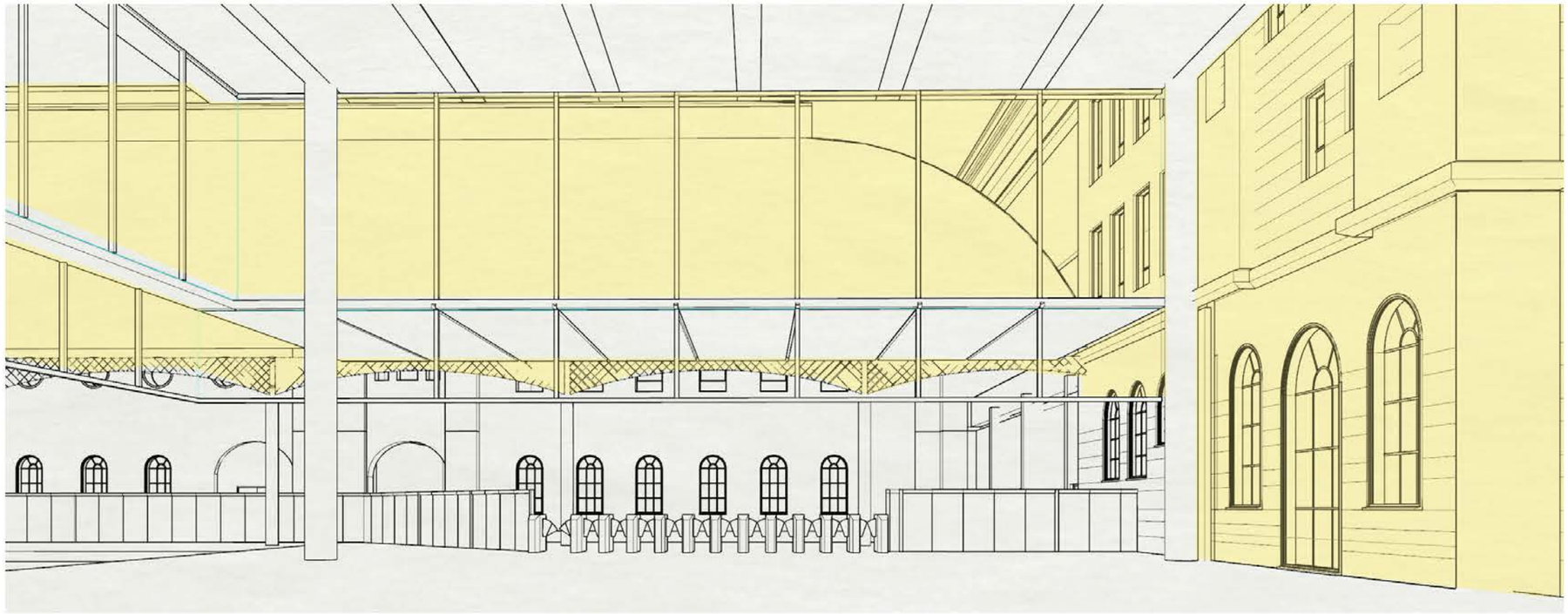
KEY INTERFACES

HERITAGE INTERFACES



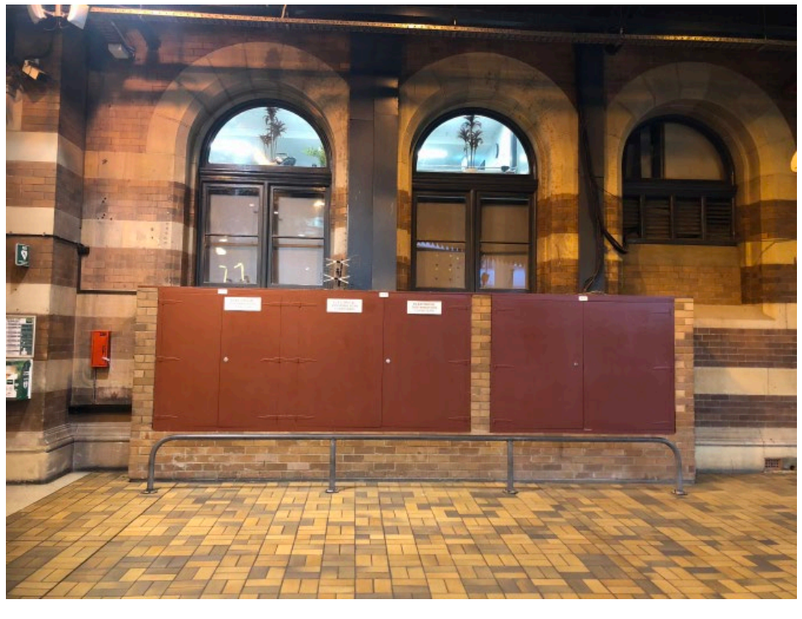


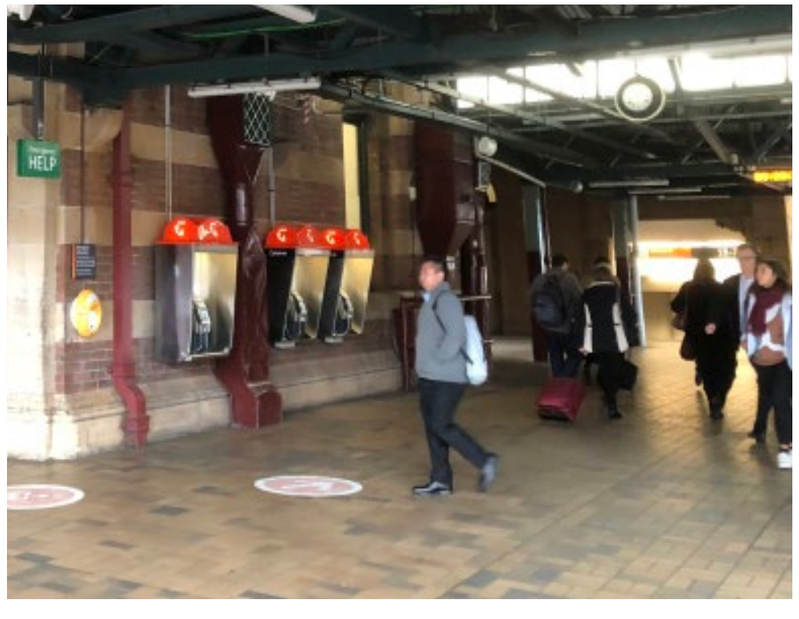


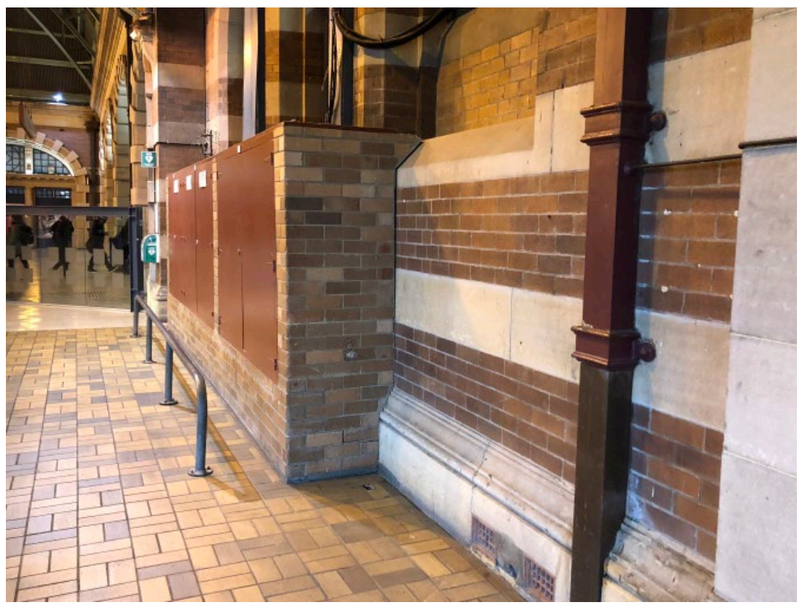


Improved Heritage Interfaces and Heritage Visibility

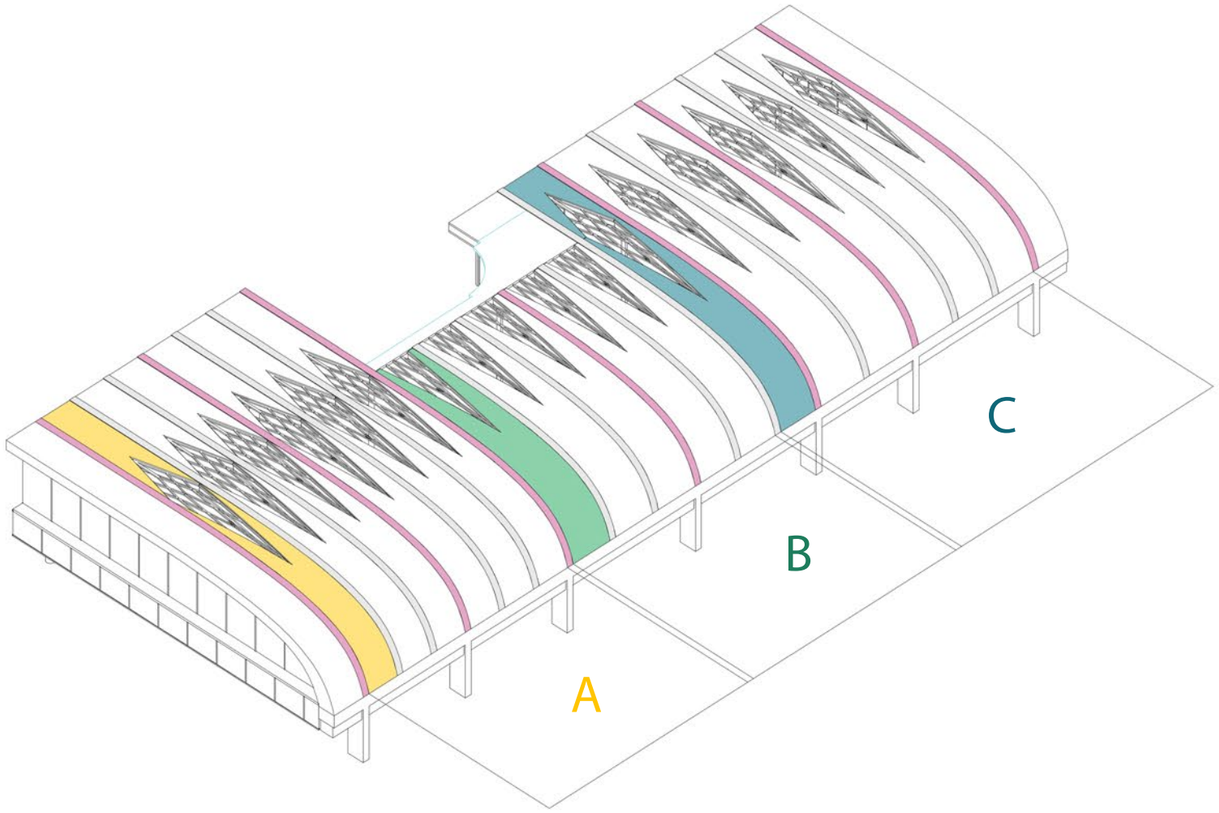
Heritage Interface Elements

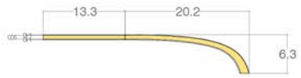


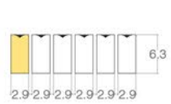


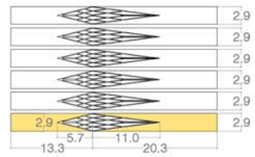


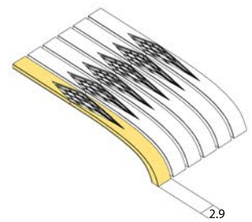
Design Proposal - Rationalisation of Material and Form

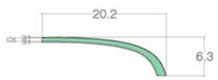


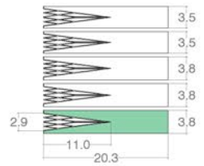


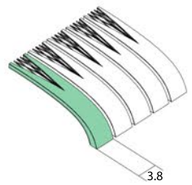


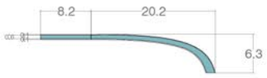


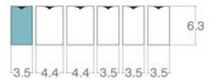


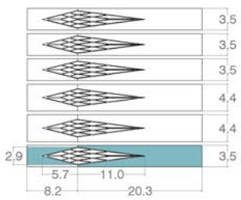


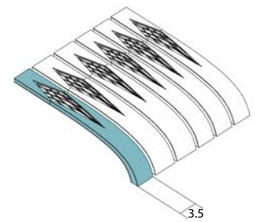












_TIMELINE

_KEY CONCEPTS

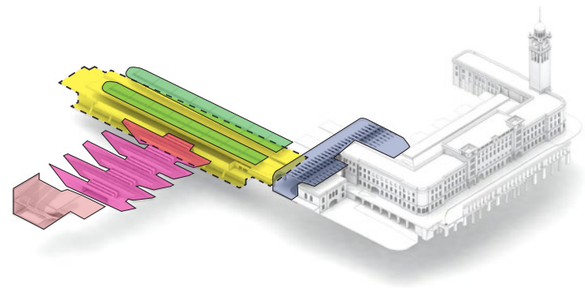
NORTHERN CONCOURSE

_PROJECT STATUS NEXT STEPS

_HERITAGE SALVAGE

HWG TIMELINE

DRAFT



2018: MARCH · APRIL · MAY · JUNE · JULY · AUGUST · SEPT. · OCT. · NOV. · DEC.

2019: JAN. · FEB. · MARCH · APRIL · MAY · JUNE · JULY · AUG. · SEPT. · OCT.

NORTHERN CONCOURSE
- Stage 1 **30%** — DUE 28TH AUGUST
- Stage 2 **70%** — DUE 22ST NOVEMBER
- Stage 3 **100%** — DUE 9TH MAY

N-S CONCOURSE
- Stage 1 **30%** — DUE 3RD AUGUST
- Stage 2 **70%** — DUE 22ST NOVEMBER
- Stage 3 **100%** — DUE 26TH JUNE

METRO BOX
- Stage 1 **30%** — DUE 3RD AUGUST
- Stage 2 **70%** — DUE 19TH OCTOBER
- Stage 3 **100%** — DUE 31ST MAY

CENTRAL WALK
- Stage 1 **30%** — DUE 21ST SEPTEMBER
- Stage 2 **70%** — DUE 23RD NOVEMBER
- Stage 3 **100%** — DUE 14TH JUNE

EASTERN ENTRANCE
- Stage 1 **30%** — DUE 21ST SEPTEMBER
- Stage 2 **70%** — DUE 23RD NOVEMBER
- Stage 3 **100%** — DUE 14TH JUNE

PLATFORM CANOPIES
- Stage 1 **30%** — DUE 15TH OCTOBER
- Stage 2 **70%** — DUE 4TH FEBRUARY
- Stage 3 **100%** — DUE 11TH OCTOBER

DESIGN REVIEW PANEL

	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17
HERITAGE WORKING GROUP			06.08	03.09	01.10	05.11	03.12	07.01	04.02	04.03	01.04	06.05	03.06	01.07	05.08	02.09	07.10
			NORTHERN CONCOURSE	N VENT/ INTERFACES													
			04.09	02.10	30.10	27.11	21.12	22.01	19.02	19.03	16.04	14.05	11.06	09.07	06.08	03.09	01.10

● **PROTOTYPES**

*Program for guidance. Milestone dates subject to change

_TIMELINE

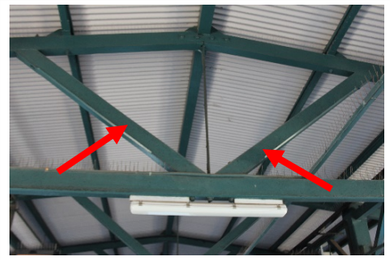
_KEY CONCEPTS

NORTHERN CONCOURSE

_PROJECT STATUS NEXT STEPS

_HERITAGE SALVAGE

Location	Whole of Element / Salvage ID	Part of Element / Salvage ID	Option 1 Sydney Trains @ Central	Option 2 Public Auction	Option 3 Repairs – Store for future use at other stations	Option 4 – Salvage for Interpretation	Comment	Image
General • Items to be removed should be assessed for hazardous materials, including lead paint, prior to intervention. Removal of lead paint should be undertaken in accordance with AS/NZS 4361.2 *Guide to hazardous paint management* (2017) prior to relocation to a storage repository, future reuse, resale or disposal. • Storage repository/ies for salvaged materials to be confirmed with consideration for the size and volume of material suitable for salvage.								
P12/13 P14/15	Hardwood canopy posts Cen/Ext/A1 Cen/Ext/A5	N/A	Retain for reuse for other Intercity Platforms at Central (first priority if required by Sydney Trains)	N/A	Surplus posts, including damaged posts that need to be cut down.	Yes, best-condition representative samples.	Potentially suitable for reuse in repairs and refurbishment of canopy posts on Intercity platforms to be retained. Salvage intact above platform level only (posts are embedded in platform). Refer Aecom *Central Station Platforms 4-15 Design for Refurbishment of Timber Columns and Trusses* (October 2016).	
P12/13 P14/15	N/A	Hardwood 'gable truss' bottom chords (central section) Cen/Ext/A1 Cen/Ext/A5	N/A	Yes	N/A	N/A	Structure is not a true truss with triangulation. Structure is comprised of a series of elements joined, bolt fixed and notched together and cannot be salvaged intact as a whole unit. Reuse value as recycled hardwood timbers for use by general public. Salvage bottom chord full lengths intact between: - hardwood posts; and - ladder trusses	
P12/13 P14/15	N/A	Hardwood 'gable truss' bottom chords (outer edges) Cen/Ext/A1 Cen/Ext/A5	N/A	Yes	N/A	N/A	Reuse value as recycled hardwood timbers for use by general public. Salvage components intact.	
P12/13 P14/15	N/A	Hardwood 'gable truss' top chords Cen/Ext/A1 Cen/Ext/A5	N/A	Yes	N/A	N/A	Top chords are single lengths from ridge to outer edges. Reuse value as recycled hardwood timbers for use by general public. Salvage top chord full lengths intact.	

Location	Whole of Element / Salvage ID	Part of Element / Salvage ID	Option 1 Sydney Trains @ Central	Option 2 Public Auction	Option 3 Repairs – Store for future use at other stations	Option 4 – Salvage for Interpretation	Comment	Image
P12/13 P14/15	N/A	Hardwood 'gable truss' struts Cen/Ext/A1 Cen/Ext/A5	N/A	Yes	N/A	N/A	Struts are of sufficient size and length to have reuse value for use by general public.	
P12/13 P14/15	Hardwood ridge beams Cen/Ext/A1 Cen/Ext/A5	N/A	N/A	Yes	N/A	N/A	Reuse value as recycled hardwood timbers for use by general public. Salvage full lengths between joints intact.	
P12/13 P14/15	Hardwood purlins Cen/Ext/A1 Cen/Ext/A5	N/A	N/A	Yes	N/A	N/A	Reuse value as recycled hardwood timbers for use by general public. Salvage full lengths between joints intact.	
P12/13 P14/15	N/A	Ladder (or Howe) 'trusses' Cen/Ext/A1 Cen/Ext/A5	N/A	Yes	N/A	N/A	Structure is comprised of a series of elements bolt fixed and notched together and cannot be salvaged intact as a whole unit. Reuse value as recycled hardwood timbers for use by general public. Salvage top and bottom chords in full lengths intact. Struts have limited reuse value.	
P12/13 P14/15	Timber fascias Cen/Ext/A1 Cen/Ext/A5	N/A	N/A	N/A	N/A	N/A	Fascias are relatively thin (approx. 35mm) sections with limited reuse value.	

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P12/13 P14/15	N/A	Timber valence to gable ends (original awning) Cen/Ext/A1 Cen/Ext/A5	N/A	N/A	N/A	Consider retaining samples for interpretation.	Limited reuse value owing to limited quantities and graded sizes.	
P12/13 P14/15	N/A	Hardware generally (including bolts, plates, brackets and ties) Cen/Ext/A1 Cen/Ext/A5	N/A	N/A	N/A	Consider retaining samples for interpretation.	Limited reuse value.	
P12/13 P14/15	N/A	Corrugated metal roof sheet generally Cen/Ext/A1 Cen/Ext/A5	N/A – generally. Potential reuse value for repairs of Platform 11 roof on completion of project.	N/A	N/A	N/A	Contemporary fabric with limited reuse value.	
P12/13 P14/15	Steel posts (extension to awning) Cen/Ext/A1 Cen/Ext/A5	N/A	N/A	N/A	N/A	N/A	Limited reuse value.	

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P12/13 P14/15	N/A	Primary roof framing members (extension to awnings) Cen/Ext/A1 Cen/Ext/A5	N/A	Yes	N/A	N/A	Potential reuse value as recycled hardwood timbers for use by general public. Salvage full lengths intact.	
P12/13 P14/15	N/A	Horizontal framing members (extension to awnings) Cen/Ext/A1 Cen/Ext/A5	N/A	Yes	N/A	N/A	Potential reuse value as recycled hardwood timbers for use by general public. Salvage full lengths intact.	
P12/13 P14/15	Hardwood purlins (extension to awning) Cen/Ext/A1 Cen/Ext/A5	N/A	N/A	Yes	N/A	N/A	Potential reuse value as recycled hardwood timbers for use by general public. Salvage full lengths intact.	
P12/13 P14/15	N/A	Timber valence to gable ends (extension to awning) Cen/Ext/A1 Cen/Ext/A5	N/A	N/A	N/A	N/A	Limited reuse value owing to limited quantities and size.	

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P12/13 P14/15	N/A	Skylights (extension to awning) Cen/Ext/A1 Cen/Ext/A5	N/A	N/A	N/A	N/A	Contemporary fabric with limited reuse value.	
P12/13 P14/15	N/A	Gutters generally Cen/Ext/A1 Cen/Ext/A5	N/A	N/A	N/A	N/A	Contemporary fabric with limited reuse value.	
P12/13 P14/15	N/A	Cast iron downpipes Cen/Ext/A1 Cen/Ext/A5	N/A	N/A	N/A	N/A	Fabric typically exhibiting significant corrosion. Limited reuse value.	
P12/13 P14/15 Sydney Yard	Stanchions and OHWS (no salvage ID)	N/A	TBC	N/A	TBC	Potentially - best-condition representative sample.	Salvage of best-condition representative sample encouraged for future research and interpretation (OEH recommendation). Further research recommended by OEH on the various stanchions serving the Intercity Platforms and within the Sydney Yard to facilitate assessment.	  

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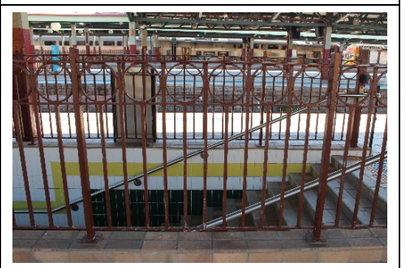
P12/13 P14/15	Platform signage and bracket Cen/Ext/A2 Cen/Ext/A6	N/A	Representative sample.	N/A	N/A	Yes, best-condition representative samples	2/No. 'Central' signs on each of Platform 12/13 and 14/15. Reuse on subject platforms under new awnings TBC. NOTE: Signage appears to be reconstruction of original with a timber base.	
P12/13	Clock, including original bracket Cen/Ext/A4	N/A	N/A	Yes	N/A	Consider retaining for interpretation.		
P14/15	Clock (No salvage ID)	N/A	N/A	Yes	N/A	Consider retaining for interpretation.		
Concourse area between platforms 12/13 & 14/15	Clock Cen/Ext/A8	N/A	N/A	Yes	N/A	Consider retaining for interpretation.		
P12/13 P14/15	N/A	Wrought balustrades Cen/Ext/A3 (Check P14/15)	N/A	N/A	N/A	N/A	Units are welded together and are difficult to salvage intact, which limits their reuse value.	

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P14/15	Cen/Ext/A7	Remnant goods lift (brickwork) Cen/Ext/A7	N/A	N/A	N/A	N/A	Bricks are set in Portland cement and cannot be salvaged intact or 'clean'.	 
P14/15	Early lift plate Cen/Ext/011	N/A	N/A	N/A	N/A	Yes	Consider retaining for interpretation or as rail memorabilia (e.g. Sydney Trains store)	

_HERITAGE SALVAGE

FIXTURES

REPRODUCTION SIGNAGE

_HERITAGE SALVAGE

COLUMN/ POST

OHE GANTRY

_HERITAGE SALVAGE

PLATFORM 12, 13

PLATFORM 14, 15

_HERITAGE SALVAGE

PLATFORM BALUSTRADES

DETAILS

_HERITAGE SALVAGE

RAIL ARTEFACT

SUMMARY